



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

**SCOPING REPORT FOR PUBLIC REVIEW
FOR LISTED ACTIVITIES ASSOCIATED WITH THE DER BROCHEN
AMENDMENT PROJECT**

**DMR Reference Number:
LP 30/5/1/3/2/1 (182) EM**

Section 102 Application

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

NAME OF APPLICANT: Anglo American Platinum: Rustenburg Platinum Mines (RPM) Der Brochen
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DMR REFERENCE NUMBER: LP 30/5/1/3/2/1 (182) EM



PLATINUM



IMPORTANT NOTICE

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

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

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

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

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

OBJECTIVE OF THE SCOPING PROCESS

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

Executive summary

Introduction

The Der Brochen Mine is a platinum project owned by Rustenburg Platinum Mines Limited (RPM), a wholly owned subsidiary of Anglo American Platinum (AAP), and is located approximately 25 km south-west of the town of Steelpoort and 40 km west of Mashishing (Lydenburg), in the Limpopo Province. The mine falls within the Fetakgomo – Greater Tubatse Local Municipality, under jurisdiction of the Greater Sekhukhune District Municipality.

Der Brochen Mine's mining right (LP 30/5/1/3/2/1 (182) MR) falls on the following farms and farm portions:

- Richmond 370 KT (Remaining extent, portions 1 and 2);
- St George 2 JT (Remaining extent, portions 1 and 2);
- Hermansdal 3 JT (Remaining extent);
- Hebron 5 JT (Remaining extent and portion 1);
- Helena 6 JT (Remaining extent and portion 3); and
- Der Brochen 7 JT (Remaining extent).

Project Description

In addition to the above listed farms, RPM also holds the surface right to Portion 7 of the farm Mareesburg 8 JT on which the Mareesburg tailings storage facility (TSF), associated return water dams (RWDs) and tailings-return water pipeline system are located. The Mareesburg TSF operation forms part of the Der Brochen Mine operations.

It is the intention of RPM to apply for the necessary environmental and waste authorisations and water use licence whilst amending the Der Brochen Mine's approved Consolidated EMPr and associated Environmental Authorisation (EA) to include the following:

- The construction of a buttress wall at the existing Helena TSF and the additional filter press plant at the existing Mototolo Concentrator Plant, due to emergency situation, as agreed by the Department of Mineral Resources (DMR) in October 2017. The construction of the buttress wall and filter press plant commenced in October 2017 after permission was obtained from the DMR to implement these infrastructure as mitigation measures to prevent and contain the emergency situation or to mitigate the effects of the emergency situation; and
- The development and operation of the following additional mining related infrastructure as part of the mine's development strategy:
 - Two new decline shafts (North and South decline shafts) to access new underground mining operation areas to be mined through the bord-and-pillar mining method.
 - RPM intends to locate the North and South decline shafts within the previously approved North and South Open Pit areas, respectively. The decline shafts will replace the need for the previously approved opencast pits, as the Der Brochen Mine's mining method will change from an opencast mining operation to an underground mining operation.
 - The underground workings will also serve as replacement projects for the current Borwa and Lebowa shafts in the near future.
 - Six up-cast ventilation shafts (three ventilation shafts per new decline shafts);
 - A central ventilation complex consisting of up-cast ventilation shafts and control room will service both proposed decline shafts;

- A Dense Medium Separation (DMS) Plant within the existing Mototolo Concentrator area;
- A DMS Stockpile area (covering an area of approximately 100 ha) and associated pollution control dams (PCDs) (covering a combined area of 5 ha). The DMS Stockpile and PCDs will be developed in phases;
- An additional Chrome Plant within the existing Mototolo Concentrator area;
- Additional Run of Mine stockpiles and silos;
- Change houses and office complex to be located at each of the decline shafts;
- An explosive destruction bay area to be located near the proposed South decline shaft;
- Additional linear infrastructure, i.e. conveyor systems, access and haul roads that will be used to transport ore from the proposed decline shafts to the Mototolo Concentrator Plant area where the new DMS Plant and Chrome Plant will be located. A conveyor system will also be used to transport the DMS material from the DMS Plant to the DMS Stockpile area; and
- Staff accommodation facilities to be located near the Der Brochen Dam.

Authorisation Requirements

Before RPM may commence with the development of the additional mining related activities, as detailed above, the following environmental authorisations processes and licence amendment need to be undertaken in accordance with the relevant national legislation:

- A Scoping and Environmental Impact Assessment (EIA) for any project related Listed Activities stipulated in the National Environmental Management Act (Act No. 107 of 1998) (NEMA) and the National Environmental Management: Waste Act (Act No. 59 of 2008) (NEM:WA). The Der Brochen Mine's existing approved Consolidated EMPr will be amended in terms of the Mineral and Petroleum Resources Development Act (Act No. 28 of 2002) (MPRDA). The Scoping, EIA and amended EMPr will be submitted to Limpopo Province's DMR for approval; and
- An Integrated Water Use Licence (IWUL) for any project related water uses and accompanying Integrated Water and Waste Management Plan (IWWMP) under the National Water Act (Act No. 36 of 1998) (NWA), for submission and approval from the Department of Water and Sanitation (DWS).

RPM appointed SRK Consulting (South Africa) (SRK) as the independent Environmental Assessment Practitioner (EAP) to manage and facilitate the integrated environmental authorisation and associated public participation process in accordance with NEMA, NEM:WA, NWA and MPRDA.

Project need and desirability

It is anticipated that the as the current Borwa and Lebowa shafts nears the end of their economic life the proposed replacement North and South shafts will operate at a production rate of 320 ktpm respectively. From the 320 ktpm the DMS Plant will produce 80 ktpm of DMS material and the remaining 240 ktpm will be sent to the existing Mototolo Concentrator Plant for further processing. Through the implementation of the proposed project the Der Brochen Mine Project can be increased from the current 240 ktpm to a 320 ktpm mechanised low profile mine.

Alternatives Considered

Alternatives with regards to location, infrastructure and transportation were considered for the Der Brochen Amendment Project. The key activities and infrastructure associated with the project include the construction of two new decline shafts, the conveyor belt systems from the two decline shafts to the existing Mototolo Concentrator Plant and the DMS stockpile respectively, the construction of the

DMS stockpile and associated PCDs and the DMS Plant. As more engineering detail become available in parallel to the scoping/EIA process, more alternatives may be uncovered which will be included in the Draft EIA/EMPr report.

Stakeholder Engagement

During the Scoping Phase of this proposed project, the following activities were undertaken:

- Updating of existing Interested and Affected Parties (I&APs) Database;
 - Stakeholders identified during previous environmental authorisation processes undertaken by SRK within the project area, together with the stakeholders that the mine has regular contact with, formed the basis for the development of the stakeholder database in terms of this project.
- Identification of landowners affected by or in close proximity to the proposed project;
- Identification of Tribal Authorities and communities affected by or in close proximity to the proposed project area;
- Identification of competent authorities for the respective authorisation processes associated with the proposed project.

The project was announced to the public during January 2019, by means of the placement of newspaper advertisements and site notices, and distribution of Background Information Documents to Interested and Affected Parties (I&AP) to create awareness of the proposed project. Stakeholders were also notified of the opportunity to register as an I&AP and to comment on the Scoping Report.

The Scoping Report will be made available for public comment for a period of more than 30 calendar days from Friday, 25 January to Monday, 04 March 2019 at the following public accessible venues:

Public Place	Locality	Tel No
Mapodile/Eerstegeluk Public Library	735 Kgahlanong Street, Mapodile	013 237 0039
Burgersfort Public Library	Cnr Kort & Eddie Sedibe Str, Burgersfort	013 231 7815
Kalkfontein CPA offices	Kalkfontein (Nokaneng)	No Landline
Pakaneng Community Trust Office	Schaapkraal Farm	No Landline
Gamawela Community Centre	St George Farm	No Landline

Stakeholders were invited to comment on the Scoping Report and proposed project by submitting their written comments on the comment form provided during the project announcement phase. Stakeholders will be allowed to fill in comment forms at the above mentioned public places, contact the SRK stakeholder engagement team via telephone, email, fax or request a telephonic consultation to discuss their comment on the Scoping Report.

Comments and issues raised during the scoping phase on the proposed project or the Scoping Report will be captured in the Comments and Responds Report (CRR) to be submitted to the competent authorities along with the Scoping Report.

Anticipated Specialist Studies

Various specialist studies will be undertaken in terms of the proposed project. These will include:

- Air Quality;
- Biodiversity
- Cultural Heritage
- Noise
- Surface water & Groundwater
- Soils, land capability and land use
- Visual
- Social
- Traffic
- Closure and Rehabilitation

Conclusion

In terms of the Scoping Phase, potential anticipated impacts have been identified which will require confirmation through further detailed specialist investigations. These investigations and reporting of the findings will be undertaken during the EIA phase of the proposed project.

During the EIA phase, any additional potential issues/impacts that may be identified during the specialist investigation will be reported on and incorporated into the EIA/EMPr Report.

A comprehensive public involvement process will be implemented during scoping phase and maintained during the EIA Phase in order to ensure that all critical issues are identified through this environmental authorisation process in terms of the proposed project.

It is envisaged that the process followed during the detailed EIA phase will meet the requirements of the legislation to ensure that the regulatory authorities receive sufficient information to enable informed decision-making.

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List of Abbreviations

AAP	Anglo American Platinum
BID	Background Information Document
C&I	Control and Instrumentation
DMS	Dense Medium Separation
DMR	Department of Mineral Resources
DWS	Department of Water and Sanitation
EAP	Environmental Assessment Practitioner
EA	Environmental Authorisation
EMPr	Environmental Management Programme Report
FGTLM	Fetakgomo - Greater Tubatse Local Municipality
GSDM	Greater Sekhukhune District Municipality
IWWMP	Integrated Water and Waste Management Plan
IWUL	Integrated Water Use Licence
I&APs	Interested and Affected Parties
JV	Joint Venture
ktpm	Kilo tons per month
LoM	Life of Mine
LEDET	Limpopo Department of Economic Development, Environment and Tourism
MIG	Mainstream Inert Grinding
mamsl	Meters above mean sea level
MPRDA	Mineral and Petroleum Resources Development Act, Act No. 28 of 2002
MR	Mining Right
NEMA	National Environmental Management Act, Act 107 of 1998
NEM:WA	National Environmental Management: Waste Act, Act No. 59 of 2008
PGMs	Platinum Group Metals
PCDs	Pollution control dams
RWDs	Return water dams
RoM	Run of Mine
RPM	Rustenburg Platinum Mines Limited
SHE	Safety, Health and Environmental
SRK	SRK Consulting (South Africa)
TSF	Tailings storage facility
ToR	Terms of reference
TCLM	Thaba Chweu Local Municipality
UG2	Upper Group 2
Water Use Licences	WULs

SCOPING REPORT

1 Introduction and Scope of Report

The Der Brochen Mine is a platinum project owned by Rustenburg Platinum Mines Limited (RPM), a wholly owned subsidiary of Anglo American Platinum (AAP), and is located approximately 25 km south-west of the town of Steelpoort and 40 km west of Mashishing (Lydenburg), in the Limpopo Province. The project area falls within the Fetakgomo - Greater Tubatse Local Municipality (FGTLM), under jurisdiction of the Greater Sekhukhune District Municipality (GSDM).

Der Brochen Mine's mining right (LP 30/5/1/3/2/1 (182) MR) falls on the following farms and farm portions:

- Richmond 370 KT (Remaining extent, portions 1 and 2);
- St George 2 JT (Remaining extent, portions 1 and 2);
- Hermansdal 3 JT (Remaining extent);
- Hebron 5 JT (Remaining extent and portion 1);
- Helena 6 JT (Remaining extent and portion 3); and
- Der Brochen 7 JT (Remaining extent).

In addition to the above listed farms, RPM also holds the surface right to Portion 7 of the farm Mareesburg 8 JT on which the Mareesburg tailings storage facility (TSF), associated return water dams (RWDs) and tailings-return water pipeline system are located. The Mareesburg TSF operation forms part of the Der Brochen Mine operations.

Current operations at the Der Brochen Mine include the processing of platinum and chrome bearing ore at the existing Mototolo Concentrator Plant that is received from the underground workings at the Borwa and Lebowa shafts (previously part of the Mototolo Joint Venture¹ (JV) between RPM and Glencore Operations South Africa (Pty) Ltd) via an existing conveyor belt system.

The final concentrate from the Mototolo Concentrator Plant is transported via trucks to the Polokwane Smelter for further processing. Tailings material from the Mototolo Concentrator Plant is disposed of on the exiting Helena TSF and recently constructed Mareesburg TSF via pipeline systems. The water contained in the tailings slurry settles on top of the TSFs and collects in the existing RWDs associated with the Helena TSF and Mareesburg TSF respectively. From the RWDs the water is pumped back to the Mototolo Concentrator Plant for reuse via a return water pipeline system.

The operations at the Der Brochen Mine are undertaken in accordance with the mine's Consolidated Environmental Management Programme Report (EMPr) that was approved by the DMR in 2016 (LP 30/5/1/3/2/1 (182) EM). The mine also operates under approved Water Use Licences (WULs) issued by DWS in 2007 and 2017 (WUL Ref. No. 06/B41G/ABCFGIJ/5329), respectively.

Other activities and infrastructure associated with the Der Brochen Mine, as authorised through the Der Brochen Mine's approved Consolidated EMPr and current WULs, includes:

Existing facilities and activities:

- The Mototolo Concentrator;

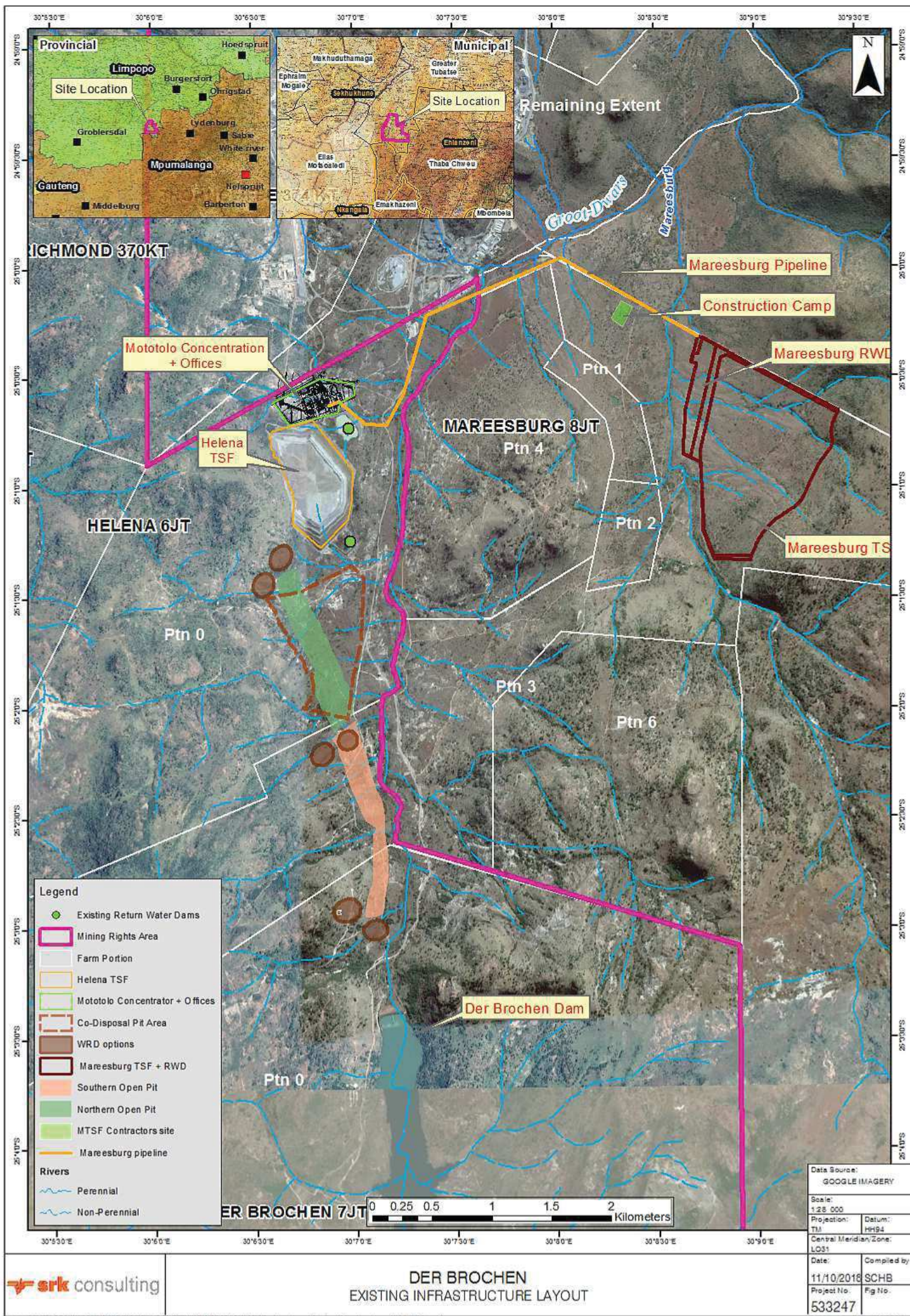
¹ RPM acquired Glencore's shares in the Mototolo JV during November 2018, and will combine the Mototolo JV area with the downdip and adjacent Der Brochen resource to create a major platinum hub for the company. This transaction will significantly extend the current life of mine (LoM) of 5 years to a 30 year LoM.

- The Helena TSF with two associated RWDs;
- Mareesburg TSF and associated RWDs;
- Tailings-return water pipeline systems from the Helena TSF and Mareesburg TSF to Mototolo Concentrator;
- Mine offices (old farm house) and access roads;
- Prospecting activities comprising of site preparation, drilling of prospecting boreholes, site rehabilitation and monitoring;
- Trial mining area on the Richmond farm (activity is completed, and the soil stockpile and waste rock dump are well vegetated);
- Abstraction of groundwater in support of mining from the Helena and Richmond licenced wellfields; and
- Abstraction from Der Brochen Dam based on an existing lawful industrial allocation.

Activities previously authorised, but which have not yet commenced:

- The Helena and Richmond wellfields (only two of the authorised boreholes per wellfield currently in use);
- Helena and Richmond shafts and associated waste rock dumps;
- Two Open Pits (Northern and Southern Pits) and associated waste rock/overburden dumps and pollution control dam;
- Re-routing of a 132 kV powerline; and
- A Co-Disposal Facility (tailings disposal with a rock embankment in the north pit).

Please refer to Figure 1-1 for the regional locality of the Der Brochen Mine including the existing and approved infrastructure associated with the mine.



1.1 Proposed Der Brochen Amendment Project Overview

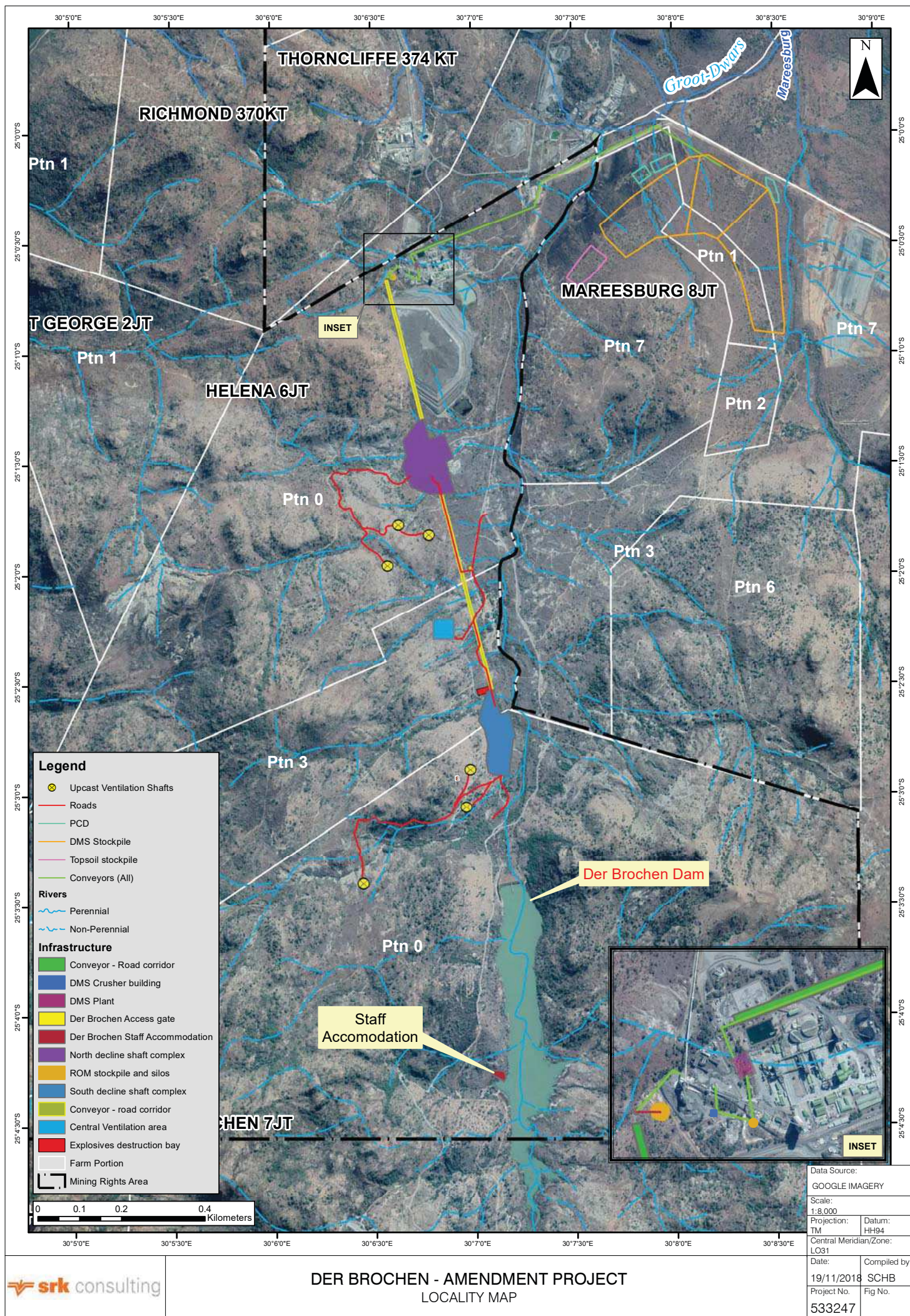
It is the intention of RPM to apply for the necessary environmental and waste authorisations and water use licence whilst amending the Der Brochen Mine's approved Consolidated EMPr and associated Environmental Authorisation (EA) to include the following:

- The construction of a buttress wall at the existing Helena TSF and the additional filter press plant at the existing Mototolo Concentrator Plant, due to emergency situation², as agreed by the Department of Mineral Resources (DMR) in October 2017. The construction of the buttress wall and filter press plant commenced in October 2017 after permission was obtained from the DMR to implement these infrastructure as mitigation measures to prevent and contain the emergency situation or to mitigate the effects of the emergency situation in accordance with Section 30(A)(2)(b) of the National Environmental Management Act, Act 107 of 1998 (NEMA); and
- The development and operation of the following additional mining related infrastructure as part of the mine's development strategy:
 - Two new decline shafts (North and South decline shafts) to access new underground mining operation areas to be mined through the bord-and-pillar mining method.
 - RPM intends to locate the North and South decline shafts within the previously approved North and South Open Pit areas, respectively. RPM is currently considering changing the previous opencast mining strategy to an underground mining strategy for the Der Brochen Project.
 - The underground workings will also serve as replacement projects for the current Borwa and Lebowa shafts in the near future.
 - Six up-cast ventilation shafts (three ventilation shafts per new decline shafts);
 - A central ventilation complex consisting of up-cast ventilation shafts and control room will service both proposed decline shafts;
 - A Dense Medium Separation (DMS) Plant within the existing Mototolo Concentrator area;
 - A DMS Stockpile area (covering an area of approximately 100 ha) and associated pollution control dams (PCDs) (covering a combined area of 5 ha). The DMS Stockpile and PCDs will be developed in phases;
 - An additional Chrome Plant within the existing Mototolo Concentrator area;
 - Additional Run of Mine stockpiles and silos;
 - Change houses and office complex to be located at each of the decline shafts;
 - An explosive destruction bay area to be located near the proposed South decline shaft;
 - Additional linear infrastructure, i.e. conveyor systems, access and haul roads that will be used to transport ore from the proposed decline shafts to the Mototolo Concentrator Plant area where the new DMS Plant and Chrome Plant will be located. A conveyor system will also be used to transport the DMS material from the DMS Plant to the DMS Stockpile area; and

² 'Emergency situation' means a situation that has arisen suddenly that poses an imminent and serious threat to the environment, human life or property, including a 'disaster' as defined in section 1 of the Disaster Management Act, 2002 (Act No. 57 of 2002).

- Staff accommodation facilities to be located near the Der Brochen Dam.

Please refer to Figure 1-2 for the location of the proposed infrastructure in relation to the nearest towns and roads in the region.



Before RPM may commence with the development of the additional mining related activities, as detailed above, the following environmental authorisations processes and licence amendment need to be undertaken in accordance with the relevant national legislation:

- A Scoping and Environmental Impact Assessment (EIA) for any project related Listed Activities stipulated in the National Environmental Management Act (Act No. 107 of 1998) (NEMA) and the National Environmental Management: Waste Act (Act No. 59 of 2008) (NEM:WA). The Der Brochen Mine's existing approved Consolidated EMPr will be amended in terms of the Mineral and Petroleum Resources Development Act (Act No. 28 of 2002) (MPRDA). The Scoping, EIA and amended EMPr will be submitted to Limpopo Province's DMR for approval; and
- An Integrated Water Use Licence (IWUL) for any project related water uses and accompanying Integrated Water and Waste Management Plan (IWWMP) under the National Water Act (Act No. 36 of 1998) (NWA), for submission and approval from the Department of Water and Sanitation (DWS).

RPM appointed SRK Consulting (South Africa) (SRK) as the independent Environmental Assessment Practitioner (EAP) to manage and facilitate the integrated environmental authorisation and associated public participation process in accordance with NEMA, NEM:WA, NWA and MPRDA. The integrated environmental authorisation process, timeframes and associated public participation process are illustrated in Figure 1-3.

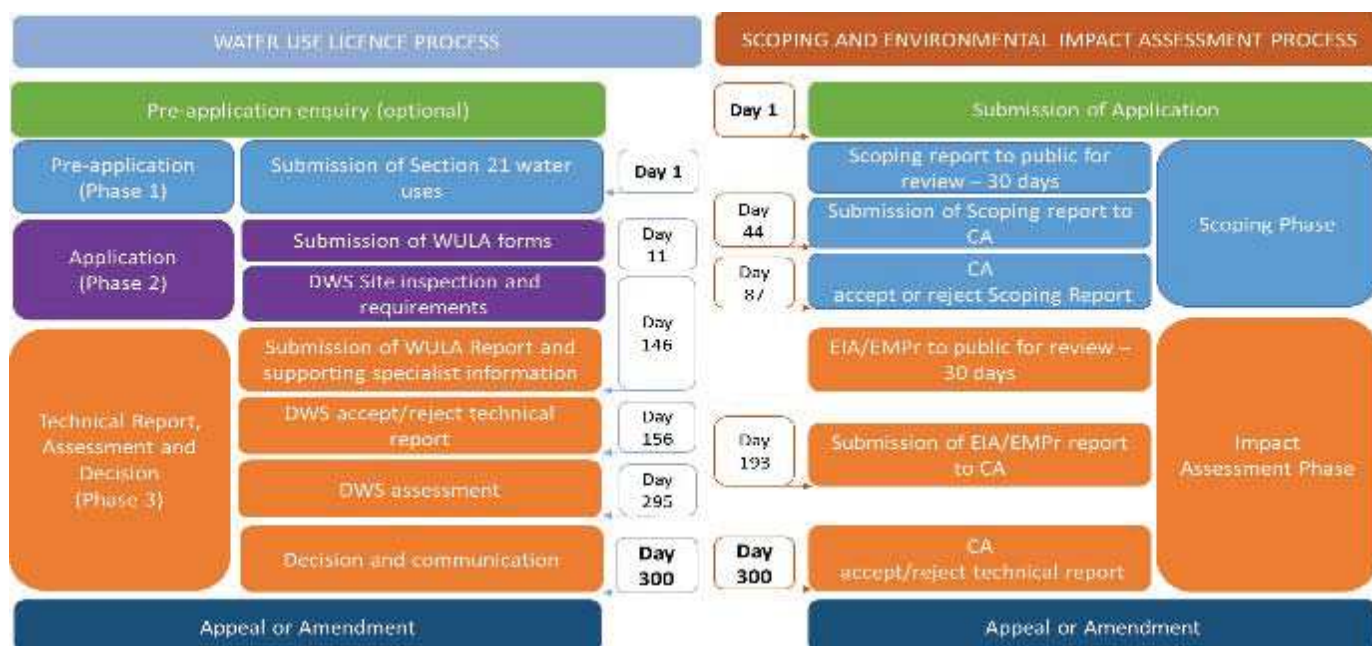


Figure 1-3: Integrated Environmental Authorisation Process

This Scoping Report has been compiled in terms of the provisions of Appendix 2 of the NEMA EIA Regulations of 2014, as amended in 2017 (GNR 982). Table 1-1 provides a summary of the requirements of a Scoping Report including cross-references to sections in this report where these requirements have been addressed.

Table 1-1: Structure of the Scoping Report

Regulation requirement	Section reference
(a) Details of EAP	2
(i) The EAP who prepared the report and;	
(ii) The expertise of the EAP, including a CV;	
(b) The location of the activity, including –	3
(i) The 21 digit Surveyor General code of each cadastral land parcel	
(ii) Where available, the physical address and farm name;	

Regulation requirement	Section reference
(iii) Where the required information in terms of (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	
(c) A plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is –	Appendix 4
(i) A linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or	
(ii) On land where the property has not been define, the coordinates within which the activity is to be undertaken;	
(d) A description of the scope of the proposed activity, including –	4
(i) All listed and specified activities triggered;	
(ii) A description of the activities to be undertaken, including associated structures and infrastructure;	
(e) A description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process;	5
(f) A motivation for the need and desirability for the proposed development including the need an desirability of the activity in the context of the preferred location;	6
(g) A full description of the process followed to reach the proposed preferred activity, site and location of the development footprint within the site, including -	8 & 9
(i) details of the alternatives considered	9
(ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;	10
(iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;	10.3
(iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	11
(v) the impacts and risks which have informed the identification of each alternative, including the nature, significance, consequence, extent, duration and probability of such identified impacts, including the degree to which these impacts – (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated;	8, 9 & 16
(vi) the methodology used in identifying and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;	16
(vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage an cultural aspects;	16.1
(viii) the possible mitigation measures that could be applied and level of residual risk;	16.2
(ix) the outcome of the selection matrix	16.3
(x) if no alternatives, including alternative locations for the activity were investigated, the motivation for no considering such; and	16.4
(xi) a concluding statement indicating the preferred alternatives, including preferred locations of the activity;	16.5
(h) a plan of study for undertaking the environmental impact assessment process to be undertaken, including -	17
(i) A description of the alternatives to be considered and assessed within the preferred site;	17.1
(ii) A description of the aspects to be assessed as part of the environmental impact assessment process;	17.2
(iii) Aspects to be assessed by specialists;	17.3
(iv) A description of the proposed method of assessing the environmental aspects, including aspects to be assessed by specialists;	17.4
(v) A description of the proposed method assessing duration significance;	17.5
(vi) An indication of the stages at which the competent authority will be consulted;	18
(vii) Particulars of the public participation process that will be conducted during the environmental impact assessment process;	19
(viii) A description of the tasks that will be undertaken as part of the environmental impact assessment process;	19.4
(ix) Identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.	20
(i) An undertaking under oath or affirmation by the EAP in relation to –	23
(i) The correctness of the information provided in the report;	
(ii) The inclusion of comments and inputs from stakeholders and interested and affected parties;	

Regulation requirement	Section reference
(iii) Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties	
(j) An undertaking under oath or affirmation by the EAP in relation to the level of agreement between the EAP and interested and affected parties on the plan of study for undertaking the environmental impact assessment;	24
(k) Where applicable, any specific information required by the competent authority; and	21
(l) Any other matter required in terms of section 24(4)(a) and (b) of the Act.	22

This report is titled “Scoping Report for Public Review” and fulfils the requirements for a Scoping Report as contemplated in the NEMA EIA Regulations. All comments received during the public review period of the Scoping Report will be incorporated into the updated Scoping Report that will be submitted to the DMR, as the competent authority, for consideration.

2 Contact Person and correspondence address

The details and qualifications of the EAP who prepared this Scoping Report are provided in the sections below.

2.1 Details of the EAP who prepared the report

SRK assigned Selma Nel, a principal environmental scientist, Estie Retief, a senior environmental scientist and Thumo Neluvhalani, an environmental scientist as the EAPs to undertake the required integrated environmental authorisation process for the Der Brochen Amendment Project. Details of the EAPs are provided in Table 2-1.

Table 2-1: EAP Details

EAP Name	Contact Number	Fax Number	Email Address
Franciska Lake	011 441 1024	086 555 0886	flake@srk.co.za
Selma Nel	011 441 1127	086 751 4709	snel@srk.co.za
Estie Retief	011 441 6161	086 503 2498	eretief@srk.co.za
Thumo Neluvhalani	011 441 6192	011 880 8086	tneluvhalani@srk.co.za

2.2 Expertise of the EAP

The qualifications held by the EAP are summarised in Table 2-2 below. Please refer to **Appendix 1** for copies of the qualifications.

Table 2-2: EAP Qualifications

EAP Name	Qualifications	University
Selma Nel	MA (Environmental Management)	University of Johannesburg
Estie Retief	MA (Environmental Management)	University of Johannesburg
Thumo Neluvhalani	MA (Environment and Society)	University of Pretoria

Table 2-3 provides a summary of the EAP expertise. Detailed CVs of the EAP team are provided **Appendix 2**.

Table 2-3: EAP Expertise

EAP Name	Expertise
Franciska Lake	Franciska Lake has been involved in water management environmental impact assessments and environmental management programmes for the last 18 years. Her expertise includes: <ul style="list-style-type: none"> • Water management • Water use licensing for mines and industry

EAP Name	Expertise
	<ul style="list-style-type: none"> General environmental management Environmental impact assessments Environmental management programmes Environmental audits
Selma Nel	Selma is a Principal Environmental Scientist with 12 years' experience in the environmental consultancy industry. She has experience in Environmental Impact Assessments throughout South Africa, compilation, implementation, amendment and assessing of Environmental Management Plans and Programmes in terms of the MPRDA, the NEMA and the NEM:WA. Selma also manages bio-monitoring projects, which involve the assessment of river health through applying the South African Scoring System Version 5 & Invertebrate Habitat Assessment System methodologies. Selma is an accredited SASS Practitioner through the Department of Water and Sanitation since July 2009.
Estie Retief	Estie Retief has 13 years of experience in the environmental consulting field. Estie has extensive experience in environmental authorisation processes relating to mining developments. Estie has strong project management skills and have assisted clients with projects from pre-feasibility phase, throughout the permitting and stakeholder consultation process towards authorisation. Estie has also been involved with auditing compliance in terms of existing authorisations and environmental management plans. Estie has a keen interest in sustainability and climate change and have been involved with the development of several greenhouse gas emissions studies (carbon footprint assessments) in line with international standards.
Thumo Neluvhalani	Thumo Neluvhalani has been involved in the field of environmental science for the past 4 years. Her expertise includes; environmental monitoring and auditing, water use license applications and environmental authorisations applications.

3 Description of the property

As indicated in Section 1 of this report, the Der Brochen Mine's mining right falls on the following farms:

- Richmond 370 KT (Remaining extent, portions 1 and 2);
- St George 2 JT (Remaining extent, portions 1 and 2);
- Hermansdal 3 JT (Remaining extent);
- Hebron 5 JT (Remaining extent and portion 1);
- Helena 6 JT (Remaining extent and portion 3); and
- Der Brochen 7 JT (Remaining extent).

The Der Brochen Amendment Project will however, only affect the following farms and associated farm portions located within the Greater Tubatse Local Municipality, under jurisdiction of the Greater Sekhukhune District Municipality:

- Helena 6 JT, Remaining Extent;
- Helena 6 JT, Portion 3;
- Mareesburg 8 JT, Portion 1;
- Mareesburg 8 JT, Portion 7; and
- Der Brochen 7 JT, Remaining Extent.

The ownership and information pertaining to the project related properties (i.e. portion numbers, areas and title deed numbers) are presented in Table 3-1.

Table 3-1: List of properties affected by the proposed Der Brochen Amendment Project

Farm Name & portion	Total area	SG Code	Title Deed	Surface Owner	Distance & Direction from nearest town
Helena 6 JT Remaining Extent	1000.5436 Ha	T0JT00000000000600000	T13656/2007	RPM Limited	Approximately 35 km south-west of Steelpoort
Helena 6 JT Portion 3	553.9192 Ha	T0JT00000000000600003	T13656/2007	RPM Limited	Approximately 37 km south-west of Steelpoort
Der Brochen 7 JT Remaining Extent	1721.1029 Ha	T0JT00000000000700000	T112011/2002	RPM Limited	Approximately 38 km south-west of Steelpoort
Mareesburg 8 JT Portion 1	42.8266 Ha	T0JT00000000000800001	T84360/2007	Samancor Chrome Ltd	Approximately 31 km south-west of Steelpoort
Mareesburg 8 JT Portion 7	728.5102 Ha	T0JT00000000000800007	T1475/2018	RPM Limited	Approximately 32 km south-west of Steelpoort

As indicated in Table 3-1, the only farm portion not owned by RPM and which will be affected by the proposed project is Portion 1 of the farm Mareesburg 8 JT, which belongs to Samancor Chrome Ltd (Samancor). RPM is in consultation with Samancor regarding Portion 1 of the farm Mareesburg 8 JT and RPM's intention to construct a DMS stockpile over a section of Portion 1 of the farm Mareesburg 8 JT.

3.1 Locality map

The locality map of the Der Brochen Amendment Project, as well as the positions of the proposed infrastructure in relation to the affected farms and farm portions is provided in **Appendix 3**.

4 Description of the scope of the proposed overall activity

4.1 Listed and specified activities

The listed activities associated with the proposed Der Brochen Amendment Project is provided in Table 4-1. The location of the infrastructure that will trigger these listed activities is provided in **Appendix 4**.

Table 4-1: Listed activities triggered by the Der Brochen Amendment Project

Name of activity	Aerial extent of the activity	Listed activity	Applicable listing notice	Waste management authorisation
Pipelines for the transportation of process water and return water between decline shafts, DMS plant, PCDs associated with the DMS stockpile.	Approximately 32.5 ha	X	GNR 983, Activity 10	
Transmission and distribution of electricity (33 kilovolts) from existing sources at the Mototolo Concentrator to the new decline shaft complexes.	Approximately 12 ha	X	GNR 983, Activity 11	
Development of project related infrastructure (such the decline shafts and DMS stockpile), access and haul roads, powerline as well as ore and DMS conveyor systems in close proximity to watercourses.	Approximately 24 ha	X	GNR 983, Activities 12 & 19 GNR 985, Activity 14	
Due to the natural topography of the project area, certain sections of the ore conveyor		X	GNR 985, Activity 8	

Name of activity	Aerial extent of the activity	Listed activity	Applicable listing notice	Waste management authorisation
system will consist of aerial ropeways (above ground cableways).				
The storage and handling of oil (approximately 7 m ³) and fuel (approximately 23 m ³) on site.	Approximately 110 m ²	X	GNR 983, Activity 14 GNR 985, Activity 10	
The development of haul roads and the corridor for conveyors, pipeline and powerline.	Approximately 24 ha	X	GNR 983, Activity 24 GNR 985, Activity 4	
Widening of existing access roads to accommodate haulage activities, conveyors, pipelines and powerline.	Approximately 15 ha	X	GNR 983, Activity 56 GNR 985, Activity 18	
Amendment of Der Brochen Mine's existing Water Use Licence to include additional infrastructure that may generate effluent (i.e. DMS stockpile area and project related stormwater management infrastructure)	Approximately 120 ha	X	GNR 984, Activity 6	X GNR 921, Activities 10 & 11
Transfer of water from the proposed PCDs to existing impoundments located at the Mototolo Concentrator Plant area for reuse as process water.	Approximately 5 ha	X	GNR 984, Activity 11	
Removal of indigenous vegetation located within the footprint areas associated with the project related infrastructure.	Approximately 180 ha	X	GNR 983, Activity 27 GNR 984, Activity 15 GNR 985, Activity 12	
Crushing and screening of platinum bearing rock.	Approximately 187 m ²	X	GNR 984, Activity 17	
Construction and operation of the mine's service water reservoir with a combined capacity of more than 250 m ³ .	Approximately 700 m ²	X	GNR 985, Activity 2	
The establishment of staff accommodation in close proximity to the Der Brochen Dam. The accommodation area will consist of 7 single units and a communal kitchen and boma area.	Approximately 6 000 m ²	X	GNR 985, Activities 5 & 12	
The establishment of RoM stockpiles and Silos near the existing Mototolo Concentrator Plant.	Approximately 1 600 m ²	X	GNR 983, Activity 27 GNR 985, Activity 12	
The establishment of six up-cast ventilation shafts (three ventilation shafts per decline shaft) and a central up-cast ventilation complex that will service both decline shafts.	Approximately 3.2 ha	X	GNR 983, Activity 27 GNR 985, Activity 12	
The development and operation of a DMS Plant within the existing footprint area of the Mototolo Concentrator Plant.	Approximately 2 400 m ²			
The development and operation of an additional chrome plant within the existing footprint area of the Mototolo Concentrator Plant.	Approximately 500 m ²			
The development of an access control area for the Der Brochen Project.	Approximately 2 000 m ²	X	GNR 985, Activity 12	

Name of activity	Aerial extent of the activity	Listed activity	Applicable listing notice	Waste management authorisation
The development of an explosive destruction bay area in close proximity to the proposed South decline shaft. The bay area will service both decline shafts.	Approximately 144 m ²			
The establishment of a topsoil stockpile area where soil will be stockpiled during the construction phase of the Der Brochen Amendment Project, for reuse, levelling and potential rehabilitation purposes.	Approximately 5 ha	X	GNR 983, Activity 27 GNR 985, Activity 12	
The establishment of a DMS stockpile area, where DMS material from the proposed DMS Plant will be transported to via a conveyor belt system. The DMS stockpile will also require diversion trenches to separate clean and dirty water areas.	Approximately 100 ha	X	GNR 983, Activities 12, 19 GNR 984, Activities 6, 15 GNR 985, Activities 12 & 14	X GNR 921, Activities 10 & 11
Establishment of the buttress wall along the south-eastern embankment wall of the existing Helena TSF, due to emergency situation. The extent of the buttress wall required marginally exceeds the current authorised footprint area associated with the Helena TSF.	Approximately 2 ha	X	GNR 983, Activity 27 GNR 985, Activity 12	
The development and operation of an additional filter press plant within the existing footprint area of the Mototolo Concentrator Plant, under emergency situation.	Approximately 4 100 m ²			

4.2 Description of the activities to be undertaken

It is the intention of RPM to amend the Der Brochen Mine's approved Consolidated EMPr and associated EA as well as updating their existing WULs to include the following:

- The construction of a buttress wall at the existing Helena TSF and the additional filter press plant at the existing Mototolo Concentrator Plant, due to emergency circumstances, as agreed by the DMR in October 2017. The construction of the buttress wall and filter press plant commenced in October 2017 after permission was obtained from the DMR to implement these infrastructure as mitigation measures to prevent and contain the emergency situation or to mitigate the effects of the emergency situation in accordance with Section 30(A)(2)(b) of NEMA; and
- The development and operation of the additional mining related infrastructure as part of the mine's development strategy.

The following sections provide a description of each of the above-mentioned aspects associated with the Der Brochen Amendment Project.

4.2.1 Helena TSF buttress wall and Filter Press Plant required due to emergency situation

In April 2017, seepage on the first bench on the south-eastern embankment of the existing Helena TSF was observed and investigations in terms of managing the situation from a safety point of view commenced immediately. Preliminary mitigation measures, such as the installation of a trench drain system, the undertaking of piezocone tests and a stability analysis, were implemented after notifying

the relevant authorities of the situation. In addition to the preliminary mitigation measures implemented, RPM also reduced the volume of tailings deposited onto the Helena TSF.

During the initial investigation period, increased phreatic levels were measured indicating a possible drop in the Factor of Safety to below design requirements, which could have resulted in a possible failure of the Helena TSF. Due to the potential stability risk of the Helena TSF, it was concluded that a buttress wall would need to be constructed along the seepage area along south-eastern embankment along to address the drainage issue and to increase the stability of the Helena TSF.

A site meeting with the DMR was held on 8 August 2017 to discuss the potential emergency situation of the Helena TSF due to the seepage detected. During this meeting the following aspects of the Helena TSF emergency situation was discussed:

- the risk aspect to the Helena TSF in respect of the seepage detected;
- the outcomes of the investigations that were undertaken to date;
- the extent and location of the proposed buttress wall;
- the need for an additional filter press plant (similar to the existing Larox Filters operation at the Mototolo Concentrator Plant) to reduce the volume tailings to be deposited on the Helena TSF whilst producing the necessary construction material required for the approved Mareesburg TSF; and
- the authorisation process to be followed in terms of an emergency situation, with specific reference to Section 30A of NEMA.

Subsequent to the site meeting the DMR submitted a letter dated 3rd October 2017 (**Appendix 7**) to RPM confirming that the risk and potential for the Helena TSF wall to collapse is indeed seen as an emergency situation, and that permission is given for the construction of the buttress wall and filter press plant.

The buttress wall was constructed during October 2017 utilising waste rock sourced from neighbouring mining operations. Based on the preliminary designs of the buttress wall, it became evident that the extent of the buttress wall will marginally exceed the current authorised footprint area associated with the Helena TSF, specifically along the south-eastern embankment. With the development of the buttress wall the final footprint area of the Helena TSF have increased in total by approximately 2 hectares mainly along the edge of the south-eastern embankment. Refer to Figure 4-1 for the extent of the buttress wall in relation to the approved EMPr footprint area of the Helena TSF.

The filter press plant was constructed in November 2017 and commissioned in January 2018 to produce dewatered filter cakes from the current Mototolo Concentrator' fines tailing stream. Through the operation of the filter press plant the following were achieved:

- Firstly the filter press plant assisted in reducing the volume of tailings that would have been deposited on the Helena TSF, thereby reducing the rate of rise of the Helena TSF and hence contributing to managing the emergency situation; and
- Secondly the plant produced the required bedding material required for the construction of the Mareesburg TSF as approved in the detailed designs reports by DWS in 2017.

The water strained from the fines tailing stream through the filter press process is pumped back to the Mototolo Concentrator Plant for reuse as process water. The DMR also indicated in the letter (**Appendix 7**) that RPM must comply with the requirements of Section 30(A)(2)(b) of NEMA, as amended, in respect of the listed or specified activities that will be commenced with in response to the emergency situation.

RPM is therefore amending the Der Brochen Mine's approved EMPr as part of the Der Brochen Amendment Project to include the construction of the buttress, the construction and operation of the filter press plant as well as the undertaking of the following listed activity in accordance with Section 30(A)(2)(b) of NEMA:

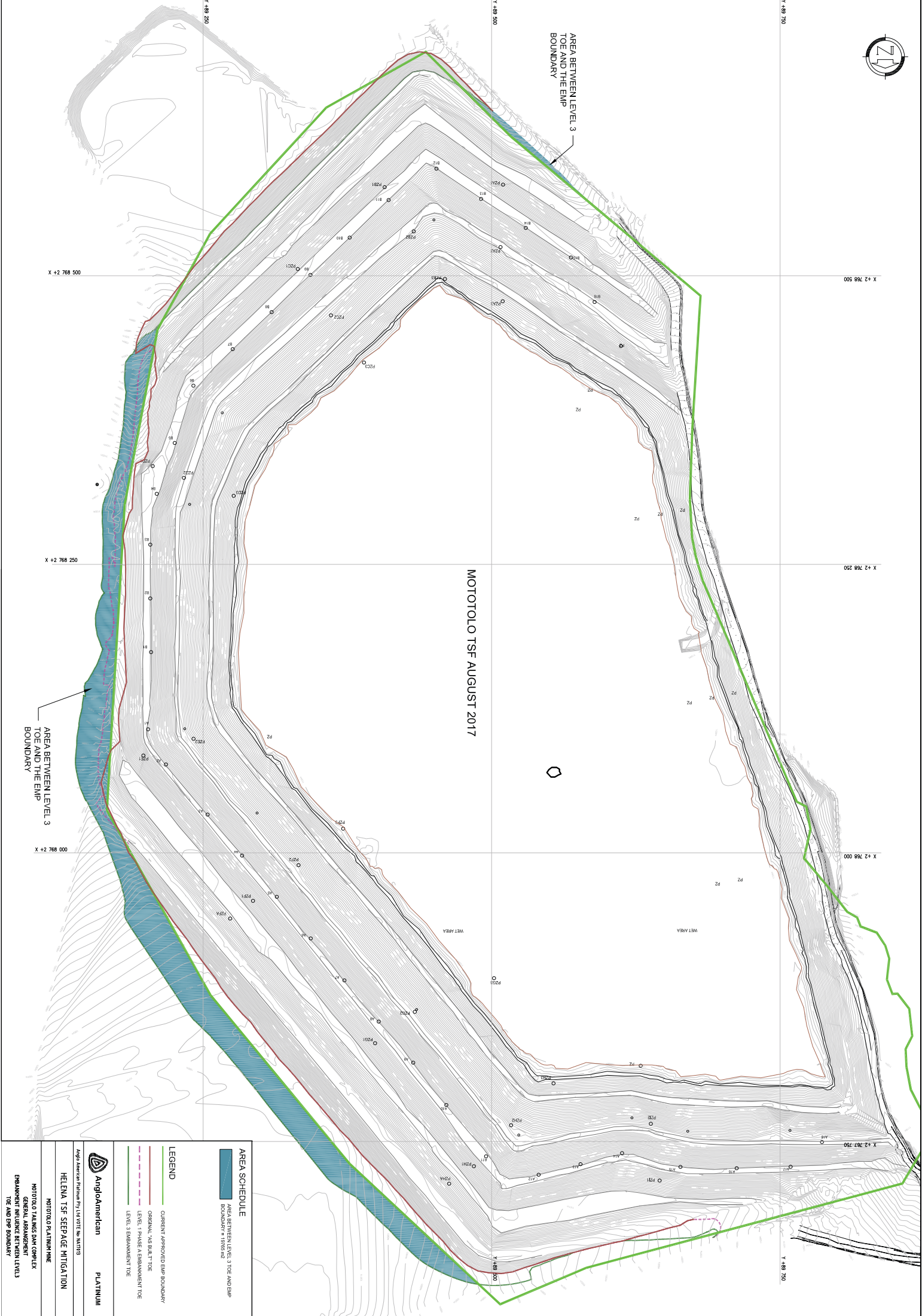
Listing Notice 1 (GN R 983, as amended), Activity 27:

The clearing of an area of 1 hectares of more, but less than 20 hectares of indigenous vegetation, excluding where such clearing of indigenous vegetation is required for –

The undertaking of linear activity; or

Maintenance purposes undertaken in accordance with a maintenance management plan.

Considering that the filter press plant operates similar to the existing Larox Filters operation undertaken at the Mototolo Concentrator, as approved in the 2002 EMPr of the Der Brochen Mine Project, and is located in an area that was previously disturbed during the construction of the Mototolo Concentrator Plant no significant additional or new impacts or listed activities are associated with the additional filter press operation.



AREA BETWEEN LEVEL 3 TOE AND THE EMP BOUNDARY

MOTOTO TSF AUGUST 2017

AREA BETWEEN LEVEL 3 TOE AND THE EMP BOUNDARY

LEGEND

- CURRENT APPROVED EMP BOUNDARY
- ORIGINAL, AS BUILT TOE
- LEVEL 1 PHASE A EMBANKMENT TOE
- LEVEL 3 EMBANKMENT TOE

AREA SCHEDULE

AREA BETWEEN LEVEL 3 TOE AND EMP BOUNDARY - 10000 SQ. M.

AngloAmerican Platinum Pty Ltd 100% the MATTS

HELENA TSF SEEPAGE MITIGATION

MOTOTO PLATINUM NAME

MOTOTO Tsalings DAM COMPLEX

GENERAL ARRANGEMENT

EMBANKMENT INCLINE BETWEEN LEVELS 3 TOE AND EMP BOUNDARY

PLATINUM

AREA BETWEEN LEVEL 3 TOE AND THE EMP BOUNDARY

MOTOTO TSF AUGUST 2017

AREA BETWEEN LEVEL 3 TOE AND THE EMP BOUNDARY

LEGEND

- CURRENT APPROVED EMP BOUNDARY
- ORIGINAL, AS BUILT TOE
- LEVEL 1 PHASE A EMBANKMENT TOE
- LEVEL 3 EMBANKMENT TOE

AREA SCHEDULE

AREA BETWEEN LEVEL 3 TOE AND EMP BOUNDARY - 10000 SQ. M.

AngloAmerican Platinum Pty Ltd 100% the MATTS

HELENA TSF SEEPAGE MITIGATION

MOTOTO PLATINUM NAME

MOTOTO Tsalings DAM COMPLEX

GENERAL ARRANGEMENT

EMBANKMENT INCLINE BETWEEN LEVELS 1 TOE AND EMP BOUNDARY

PLATINUM

AREA BETWEEN LEVEL 3 TOE AND THE EMP BOUNDARY

MOTOTO TSF AUGUST 2017

AREA BETWEEN LEVEL 3 TOE AND THE EMP BOUNDARY

LEGEND

- CURRENT APPROVED EMP BOUNDARY
- ORIGINAL, AS BUILT TOE
- LEVEL 3 PHASE A EMBANKMENT TOE
- LEVEL 3 EMBANKMENT TOE

AREA SCHEDULE

AREA BETWEEN LEVEL 3 TOE AND EMP BOUNDARY - 10000 SQ. M.

Anglo American Platinum Pty Ltd 100% the MATHS

HELENA TSF SEEPAGE MITIGATION

MOTOTO PLATINUM

MOTOTO Tsalings DAM COMPLEX

GENERAL ARRANGEMENT

EMBANKMENT INCLINE BETWEEN LEVELS 3 TOE AND EMP BOUNDARY

AREA BETWEEN LEVEL 3 TOE AND THE EMP BOUNDARY

MOTOTO TSF AUGUST 2017

AREA BETWEEN LEVEL 3 TOE AND THE EMP BOUNDARY

LEGEND

- CURRENT APPROVED EMP BOUNDARY
- ORIGINAL, AS BUILT TOE
- LEVEL 3 PHASE A EMBANKMENT TOE
- LEVEL 3 EMBANKMENT TOE

AREA SCHEDULE

AREA BETWEEN LEVEL 3 TOE AND EMP BOUNDARY - 10000 M2

Anglo American Platinum Pty Ltd (Pty) Ltd	PLATINUM
HELENA TSF SEEPAGE MITIGATION	
MOTOTO PLANTING	
MOTOTO Tsalings Dam Complex	
General Arrangement	
Embankment Between Level 3 Toe and EMP Boundary	

4.2.2 Der brochen Mine's development project

Der Brochen Project has been the focus of an exploration program targeting the Merensky and UG2 Reef horizons since 2001.

During 2014/5 it was RPM's intention to mine the Merensky and UG2 Reef horizons via the opencast mining method at the North Pit and the South Pit operations. Subsequent to obtaining environmental authorisations from the DMR in 2016 for the opencast mining operations (amongst other project related aspects), RPM is now considering changing the Der Brochen Mine's opencast mining strategy to underground mining strategy. The main reason for the potential change is that the Der Brochen Mine Project lends itself to a fully mechanised underground bord and pillar mining operation of the UG2 reef, with a downstream potential to exploit the Merensky reef.

The Merensky and UG2 Reef horizons are vertically separated by approximately 170m. The UG2 ore body is well suited for mechanised extraction and is currently being successfully mined by Booyssendal mine (Northam Platinum).

It is anticipated that as the current Borwa and Lebowa shafts nears the end of their economic life the proposed replacement North and South shafts will operate at a production rate of 320 ktpm respectively. From the 320 ktpm the DMS Plant will produce 80 ktpm of DMS material and the remaining 240 ktpm will be sent to the existing Mototolo Concentrator Plant for further processing. Through the implementation of the proposed project the Der Brochen Mine Project can be increased from the current 240 ktpm to a 320 ktpm mechanised low profile mine.

RPM intends to locate the North and South decline shafts within the previously approved North and South Open Pit areas, respectively. The following infrastructure and activities will be associated with both South and North decline shafts:

- Box cut and portal excavation and construction;
- Storm water drainage, terrace, contractor laydown area, diesel storage tanks;
- Workshops;
- Gatehouse and perimeter fencing, change houses, control room, lamp room and crush, emulsion handling, admin offices and first aid station;
- Electricity reticulation;
- Sinking settling dams and service water storage;
- Up-cast ventilation infrastructure;
- Control and Instrumentation (C&I) infrastructure;
- Internal roads;
- Decline conveyors, chairlifts, electrical and water reticulation and infrastructure;
- Underground bord and pillar sections consisting of satellite workshops, water reticulation infrastructure, ventilation infrastructure, electrical infrastructure, C&I infrastructure, refuge bay and 2 of strike conveyors (two per section).

Current plans for the Der Brochen Amendment Project indicates that the South decline shaft will be constructed and commissioned first. The North decline shaft will be constructed and operated as replacement shaft for the South decline shaft, once the South decline shaft has reached its end of life. It is anticipated that each decline shaft will produce 320 ktpm.

In addition to the decline shafts, RPM will also require the following production infrastructure to achieve the 320 ktpm production rate:

- Construction and operation of a DMS plant;
- Establishment of a DMS stockpile and associated PCDs that will capture and retain any dirty water runoff from the DMS stockpile for potential reuse as process water in the concentrator process;
- Conversion of the existing Mototolo chrome plant from final tails to an inter-stage arrangement that will contribute significantly to the optimal mining and recovery of minerals. Through the conversion process the rougher tailing stream from the Mototolo Concentrator Plant will go through the chrome plant scavenging the chrome and return the residual tailings stream back to the operation;
- Installation of a Mainstream Inert Grinding (MIG) mill at Mototolo Concentrator Plant to enhance recovery of Platinum Group Metals (PGMs) at an acceptable PGM final flotation product grade for downstream smelting.

The reef mined out at the North and South decline shafts will be transported via an overland conveyor system to the proposed DMS Plant. It is anticipated that during the construction and start-up of the shaft operations, ore will be transported to the existing Mototolo Concentrator Plant by truck. Once the construction of the conveyor system is completed, there will be a transportation transition period where ore will be trucked and conveyed to the plant for processing, there after only the conveyor belt will be used for the transportation of the ore to the Mototolo Concentrator Plant.

The main benefit of DMS is the selective discard of waste from the feed stream, thus improving project economics while reducing the power and water requirements for processing. Waste rock material from the DMS Plant will be transported to the DMS stockpile area via another conveyor system, whilst the ore feed stream from the DMS Plant is sent to the existing Mototolo Concentrator Plant for processing.

Other mining related infrastructure and activities that will be associated with the Der Brochen Amendment project include:

- Six up-cast ventilation shafts (three ventilation shafts per new decline shafts);
- A central ventilation complex that will service both proposed decline shafts;
- Additional Run of Mine (RoM) stockpiles and silos;
- An explosive destruction bay area to be located near the proposed South decline shaft; and
- Staff accommodation facilities to be located near the Der Brochen Dam.

Please refer to **Appendix 3** for the location of the proposed infrastructure associated with the Der Brochen Amendment Project.

5 Policy and Legislative Context

Table 5-1 provides an overview of the policy and legislative context applicable to the Der Brochen Amendment Project and will be considered during the assessment process.

Table 5-1: Policy and Legislative Context

Applicable legislation and guidelines used to compile the report	Reference where applied
APPLICABLE LEGISLATION	
<p>Constitution of the Republic of South Africa, (Act No. 108 of 1996)</p> <p>The constitution of any country is the supreme law of that country. The Bill of Rights in chapter 2 section 24 of the Constitution of South Africa Act (Act 108 of 1996) makes provisions for environmental issues and declares that: “Everyone has the right –</p> <ul style="list-style-type: none"> (a) to an environment that is not harmful to their health or well-being; and (b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that: <ul style="list-style-type: none"> prevent pollution and ecological degradation; promote conservation; and (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development” <p>Therefore, the EIA process being conducted fulfils the requirements of the Bill of Rights.</p>	<p>Throughout the Scoping and EIA (S&EIA) process.</p> <p>The Constitution of South Africa is the overarching framework legalisation driving the NEMA principles and therefore EIA process.</p> <p>The right to a safe environment and the right to information are addressed in the EIA process through stakeholder engagement, where available information pertaining to the environment and proposed activities are disclosed</p>
<p>The National Environmental Management Act, (Act No. 107 of 1998) (NEMA) as amended</p> <p>The National Environmental Management Act (Act 107 of 1998 (NEMA) with the Regulations of 4 December 2014 (R982, R983, R984 and R985) and amended in April 2017 (R324, R325, R326 and R327) being applicable. NEMA is the key national legislation underpinning environmental authorisations in South Africa.</p> <p>Listed Activities are activities identified in terms of Section 24(5) and 44 of the NEMA which are likely to have a detrimental impact on the environment, and which may not commence without Environmental Authorisation (EA) from the Competent Authority (CA). EA required for Listed Activities is subject to the completion of either a Basic Assessment (BA) process or full Scoping and Environmental Impact Assessment (S&EIA) with applicable timeframes associated with each process. The Regulations contains three listings, each requiring a different type of environmental authorisation process.</p> <p>Listing 1: Activities requiring a Basic Assessment process (approximately 197 days);</p> <p>Listing 2: Activities requiring a Scoping and Impact Assessment (S&IA) process (approximately 300 days); and</p> <p>Listing 3: Activities within certain geographic areas requiring a Basic Assessment process (approximately 197 days).</p> <p>The Department of Mineral Resources (DMR) is the competent authority for mining-related applications in terms of NEMA.</p>	<p>Section 4 of this report details the proposed project developments and associated listed activities triggered.</p> <p>Table 4-1 details the listed activities to be authorised according to NEMA.</p> <p>The S&EIA process is based on the principles of the NEMA and the EIA Regulations.</p> <p>Chapter 4 of the EIA Regulations as detailed in GNR. 982 guides the process for application for environmental authorisation.</p> <p>This Scoping Report is compiled according to the requirements as set out in GNR. 982 Appendix 2.</p> <p>Numerous listed activities as per Listing Notices 1, 2 and 3 were identified to be relevant to this proposed project.</p>
SPECIFIC ENVIRONMENTAL MANAGEMENT ACTS (SEMA)	
<p>Environment Conservation Act, (Act No. 73 of 1989) (ECA)</p> <p>The Environment Conservation Act (Act 73 of 1989 – ECA) was, prior to the promulgation of the NEMA, the backbone of environmental legislation in South Africa. To date the majority of the ECA has been repealed by various other Acts, however Section 25 of the Act and the Noise Regulations (GNR 154 of 1992) promulgated under this section are still in effect. These Regulations serve to control noise and general prohibitions relating to noise impact and nuisance.</p>	<p>Throughout the S&EIA process and specialists investigations.</p>

Applicable legislation and guidelines used to compile the report	Reference where applied
<p>The National Water Act, (Act No. 36 of 1998) (NWA)</p> <p>The National Water Act (Act No 36 of 1998) (NWA) recognises that water is a scarce and unevenly distributed national resource, which must managed encompassing all aspects of water resources.</p> <p>The NWA, MPRDA and NEMA primarily regulate water management at mines in terms of listed activities. Section 21 of the NWA lists 11 water uses that requires authorisation, either as a Water Use Licence Application (WULA) (approximately 300 days) or a General Authorisation (approximately 30 day review period).</p> <p>In terms of Chapter 4 of the NWA, activities and processes associated with any water use are required to be licensed by the Department of Water and Sanitation (DWS).</p> <p>Other applicable Government Notice Regulations:</p> <p>Government Notice Regulation 704 of 4 June 1999</p> <p>Regulations on use of water for mining and related activities aimed at the protection of water resources.</p>	<p>Throughout the S&EIA process, including the WULA – pertaining to all water related aspects.</p> <p>Application for a water use licence (WUL) will be submitted to DWS for the Section 21 activities that are triggered.</p> <p>GN 704 will be assessed as part of the water use licence application process and if needed applications for exemptions will be submitted.</p>
<p>The World Heritage Convention Act, (Act No. 49 of 1999) (WHCA)</p> <p>South Africa became a signatory to and ratified the <i>World Heritage Convention</i>, 1972 (WHC) in 1997. It thereby voluntarily agreed to identify and conserve world heritage areas of universal value for the benefit of mankind. South Africa currently has eight world heritage sites (WHS) in its territory. Governance of these sites is regulated in terms of an extensive legal framework, mainly consisting of environmental and incidental laws. The primary act is the World Heritage Convention Act (WHCA) which incorporated the WHC into South African law. It provides for the recognition, establishment and management of WHS in South Africa.</p>	<p>Heritage Assessment & baseline description (Section 11.10)</p> <p>Baseline Permits will be required for the destruction or removal of any heritage resources affected by the development; this will include all buildings and graves that will be impacted by this project.</p>
<p>National Environmental Management: Protected Areas Act, (Act No. 57 of 2003) (NEM:PAA)</p> <p>The National Environmental Management: Protected Areas Act, No 57 of 2003 (NEM:PAA) is a complimentary act to NEMA. NEMPAA aims to provide for the protection and conservation of ecologically viable areas that are representative of South Africa's biological diversity. This objective is accomplished through the declaration and management and protected these identified areas (section 2).</p>	<p>Throughout the S&EIA process.</p> <p>Biodiversity Assessment & baseline description (Section 11.7)</p>
<p>The National Environmental Management: Biodiversity Act, (Act No.10 of 2004) (NEM:BA)</p> <p>The National Environmental Management: Biodiversity Act (Act No. 10 of 2004) (NEM:BA) provides for the management and conservation of South Africa's biodiversity within the framework of NEMA, as well as the protection of species and ecosystems that warrant national protection and the sustainable use of indigenous biological resources.</p> <p>NEM:BA GN 1002 of 9 Dec 2011 contains a National List of Ecosystems that are threatened and in need of protection and requires environmental authorisation.</p> <p>Regulation 151 published on 23 February 2007</p> <p>Publication of critically endangered, vulnerable and protected species: No person may carry out a restricted activity involving a specimen of a listed threatened or protected species without a permit.</p>	<p>The specialist biodiversity study takes into consideration NEMPAA, NEM:BA and NFA. The specialist screened the proposed project footprint area, and the information taken into consideration in the preliminary layout of the infrastructure areas in order to avoid sensitive areas.</p> <p>Detailed specialist assessments are currently underway for the proposed development, which will determine the presence of protected species. Should protected plant species be present on the proposed development footprint area, permits will be obtained for their removal, relocation or destruction.</p>

Applicable legislation and guidelines used to compile the report	Reference where applied
<p>The National Environmental Management: Air Quality Act, (Act No. 39 of 2004) (NEM:AQA)</p> <p>The National Environmental Management Air Quality Act (NEM:AQA) came into effect in April 2010 and is applied in accordance with the principals stipulated in NEMA. The Act outlines norms and standards with regards to air quality management planning, monitoring, compliance and management measures in order to protect and enhance the quality of air and reduce risks to human health. NEM:AQA also promotes sustainable development.</p>	<p>Specialist studies & baseline description (Section 11)</p>
<p>The National Environmental Management: Waste Act, (Act No. 59 of 2008) (NEM:WA)</p> <p>The National Environmental Management: Waste Act (Act No. 59 of 2008) (NEM:WA) Regulations lists waste related activities that require environmental authorisation.</p> <p>The National Environmental Management: Waste Act, 2008 (Act 59 of 2008) (NEM:WA) commenced on 1 July 2009. In terms of this Act, all listed waste management activities must be licensed and in terms of Section 44 of the Act, the licensing procedure must be integrated with the environmental impact assessment process. Government Notice 921, which commenced on 29 November 2013, lists the waste management activities that require licensing in terms of the NEM:WA. NEM:WA has as three categories of activities that require environmental authorisation.</p> <p>Category A: activity requiring a Basic Assessment process;</p> <p>Category B: Activities requiring a S&IA process; and</p> <p>Category C: Activities that do not require an environmental authorisation process, but need adhere to the required Norms and Standards.</p> <p>The Department of Mineral Resources (DMR) is the competent authority for mining-related applications in terms of NEM:WA.</p>	<p>Throughout the S&EIA process.</p> <p>Section 4 of this report details the proposed project developments and associated listed activities triggered.</p> <p>Table 4-1 details the listed activities to be authorised</p> <p>Listed Activities as per GNR 921, Activities 10 & 11 will require authorisation for the proposed establishment of the DMS stockpile area and associated infrastructure.</p>
<p>National Norms and Standards for the Storage of Waste, 2013</p> <p>The development of the norms and standards is the foundation of the regulatory system established in terms of section 7 (1)(c) of the NEM:WA. The Waste Act allows for an integrated system of norms and standards across the three spheres of government. Certain norms and standards at a national level are mandatory, while others are discretionary. In addition provinces may set norms and standards that are not in conflict with national norms and standards. Municipalities may also set local waste service standards.</p>	<p>Section 4 of this report details the proposed project developments and associated listed activities triggered.</p> <p>The national norms and standards for storage of waste will be considered by the project applicant.</p>
OTHER APPLICABLE NATIONAL LEGISLATION	
<p>Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA)</p> <p>The MPRDA makes provision for equitable access to and sustainable development of South Africa's mineral resources. The MPRDA requires that the environmental management principles set out in NEMA shall apply to all mining operations and serves as a guideline for the interpretation, administration and implementation of the environmental requirements of NEMA.</p> <p>The MPRDA requires that a reconnaissance permission, prospecting right, Mining Right, mining permit, retention permit, technical corporation permit, reconnaissance permit, exploration right, production right, prospecting work programme; exploration work programme, production work programme, mining work programme, environmental management programme, or an environmental authorization issued in terms of the National Environmental Management Act, 1998, as the case may be,</p>	<p>Throughout the S&EIA process.</p> <p>Mining activities for the Der Brochen Project will require authorisation in terms of a Section 102 amendment process.</p> <p>RPM will undertake the Section 102 process, which will include an update of the Mining Works Programme, Social and Labour Plan.</p>

Applicable legislation and guidelines used to compile the report	Reference where applied
<p>may not be amended or varied (including by extension of the area covered by it or by the addition of minerals or a share or shares or seams, mineralized bodies, or strata, which are not at the time the subject thereof) without the written consent of the Minister.</p> <p>Previously, environmental authorisations for mining related projects were regulated under the MPRDA. In 2014, the Department of Environmental Affairs (DEA) identified the need for the alignment of environmental authorisations and proposed a single environmental system where all projects requiring environmental authorisations are regulated under the same law: The National Environmental Management Act (NEMA). For mining related projects, the competent authority is still the Department of Mineral Resources (DMR).</p> <p>In addition, Section 102 of the MPRDA -Amendment of rights, permits, programmes and plans requires that a mining right, mining work programme, environmental management programme, and environmental management plan may not be amended or varied without the written consent of the Minister.</p>	
<p>The National Heritage Resources Act, (Act No. 25 of 1999) (NHRA)</p> <p>The National Heritage Resources Act aims to promote good management of cultural heritage resources and encourages the nurturing and conservation of cultural legacy so that it may be bestowed to future generations.</p> <p>The Act requires all developers (including mines) to undertake cultural heritage studies for any development exceeding 0.5 ha. It also provides guidelines for impact assessment studies to be undertaken where cultural resources may be disturbed by development activities.</p> <p>The South African Heritage Resources Agency (SAHRA) will need to approve heritage assessments undertaken as part of any impact assessment process.</p>	<p>Heritage Assessment & baseline description (Section 11.10)</p> <p>The specialist screened the proposed project footprint area, and the information taken into consideration in the preliminary layout of the infrastructure areas in order to avoid sensitive areas. Detailed specialist assessments are currently underway for the proposed development, which will determine the presence of sites that will require the need for permits to be applied for to the South African Heritage Resources Agency (SAHRA).</p>
<p>The Sub-Division of Agricultural Land Act, (Act No. 70 of 1970)</p> <p>In terms of the Subdivision of Agricultural Land Act (Act 70 of 1970), any application for change of land use must be approved by the Minister of Agriculture, while under the Conservation of Agricultural Resources Act (Act 43 of 1983) no degradation of natural land is permitted.</p>	<p>Specialist studies</p>
<p>Hazardous Substances Act, (Act No. 15 of 1973)</p> <p>Hazardous Substances Act is probably the most important chemical regulation in South Africa. It controls the production, import, use, handling and disposal of hazardous substances. Under the Act, hazardous substances are defined as substances that are toxic, corrosive, irritant, strongly sensitising, flammable and pressure generating under certain circumstances and may injure, cause ill-health or even death in humans.</p> <p>Hazardous substances are classified into 4 groups (see below). Anyone who intends to sell or distribute group I hazardous substances must apply for a license from health authority first (Department of Health).</p>	<p>Throughout the S&EIA process.</p> <p>Section 4 of this report details the proposed project developments and associated listed activities triggered.</p> <p>Table 4-1 details the listed activities to be authorised</p> <p>Authorisation for dangerous good storage will be required.</p>

Applicable legislation and guidelines used to compile the report	Reference where applied
<p>Group I: industrial chemicals (IA) and pesticides (IB);</p> <p>Group II: 9 classes of wastes excluding Class 1: explosives and class 7: radioactive substances;</p> <p>Group III: electronic products and group; and</p> <p>Group IV: radioactive substances.</p>	
<p>National Forestry Act, (Act No. 84 of 1998) (NFA)</p> <p>The NFA protects against the cutting, disturbance, damage, destruction or removal of protected trees. During the specialist investigation phase it will be determined if a permit from the Department of Agriculture, Forestry and Fisheries (DAFF) which authorises the removal and transplantation of trees will be required.</p>	<p>Throughout the S&EIA process.</p> <p>Biodiversity Assessment & baseline description (Section 11.7)</p> <p>The specialist biodiversity study takes into consideration NEMPAA, NEM:BA and NFA. The specialist screened the proposed project footprint area, and the information taken into consideration in the preliminary layout of the infrastructure areas in order to avoid sensitive areas. Detailed specialist assessments are currently underway for the proposed development, which will determine the presence of protected species. Should protected plant species be present on the proposed development footprint area, permits will be obtained for their removal, relocation or destruction.</p>
<p>Spatial Planning and Land Use Management Act, (Act No. 16 of 2013) (SPLUMA)</p> <p>The Spatial Planning and Land Use Management Act (Act 16 of 2013) (SPLUMA) was promulgated in May 2015.</p> <p>SPLUMA is a framework act for all spatial planning and land use management legislation in South Africa. It seeks to promote consistency and uniformity in procedures and decision-making in this field. SPLUMA will also assist municipalities to address historical spatial imbalances and the integration of the principles of sustainable development into land use and planning regulatory tools and legislative instruments.</p>	<p>Throughout the S&EIA process.</p> <p>The need for SPLUMA authorisation will be determined during the EIA/EMP process.</p>
<p>The Promotion of Administrative Justice Act, (Act No. 3 of 2000) (PAJA)</p> <p>This Act gives effect to the Constitutional right to administrative action that is lawful, reasonable and procedurally fair. It also gives effect to the right to written reasons for administrative action as contemplated in section 33 of the Constitution. The Act aims to promote an efficient administration and good governance and to create a culture of accountability, openness and transparency in the public administration or in the exercise of a public power or the performance of a public function by giving effect to the right to just administrative action. In terms of the Act, administrative action which materially and adversely affects the rights or legitimate expectations of any person must be procedurally fair. "Administrative action" as defined in section 1 of PAJA means any decision taken, or any failure to take a decision, by-</p> <p>(a) an organ of state, when:</p>	<p>Throughout the S&EIA process.</p> <p>The stakeholder engagement process will be undertaken in line with the NEMA requirements, throughout the authorisation process to keep registered stakeholders notified of the process and any decisions taken by the Competent Authorities.</p>

Applicable legislation and guidelines used to compile the report	Reference where applied
<p>(i) exercising a power in terms of the Constitution or a provincial constitution; or</p> <p>(ii) exercising a public power or performing a public function in terms of any legislation; or</p> <p>(b) a natural or juristic person, other than an organ of state, when exercising a public power or performing a public function in terms of an empowering provision, which adversely affects the rights of any person and which has a direct, external legal effect, excluding certain classes of executive, legislative and quasi-judicial functions set out in the Act.</p> <p>The Promotion of Access to Information Act, (Act No. 2 of 2000) (PAIA)</p> <p>This Act gives effect to Section 32 of the Constitution by providing mechanisms to ensure access to certain information held by a public body as well as to information held by private bodies (in the latter case, as long as this information is required in order to exercise or protect any rights). The Act allows for access to records, regardless of when such records came into existence. The Act specifically retains Sections 31 (1) and (2) of NEMA which also deal with access to information from a public or private body. While the Act confers specific rights of access to information, I&APs should not forego the normal public participation process and only try to obtain information through the PAIA provisions. As registered I&APs, they have specific rights (and responsibilities) in terms of being afforded an opportunity to "access" all the information to provide comments and to be informed of the outcome.</p>	
SUB-ORDINATE LEGISLATION	
<p>Noise Control Regulations</p> <p>In terms of section 25 of the ECA, the national Noise Control Regulations (NCR) (GN R154 in Government Gazette No. 13717, dated 10 January 1992) were promulgated. The NCRs were revised under GN R. 55 of 14 January 1994 to make it obligatory for all authorities to apply the regulations. These noise control regulations will need to be considered in relation to the potential noise that may be generated mainly during the construction and decommissioning phases of the proposed project. The two key aspects of the noise control regulations relate to: disturbing noise; and noise nuisance. The South African National Standard 10103 also applies to the measurement and consideration of environmental noise and should be considered in conjunction with these regulations.</p>	A noise specialist study is currently underway.
<p>Noise Standards</p> <p>There are a few South African Scientific Standards (SABS) relevant to noise from mines, industry and roads. They are:</p> <ul style="list-style-type: none"> • South African National Standard (SANS) 10103:2008. The measurement and rating of environmental noise with respect to annoyance and to speech communication; • SANS 10210:2004. Calculating and predicting road traffic noise; • SANS 10328:2008. Methods for environmental noise impact assessments; • SANS 10357:2004. The calculation of sound propagation by the Concave method; • SANS 10181:2003. The Measurement of Noise Emitted by Road Vehicles when Stationary; and • SANS 10205:2003. 'The Measurement of Noise Emitted by Motor Vehicles in Motion'. <p>The relevant standards use the equivalent continuous rating level as a basis for determining what is acceptable. The levels may take single event noise into account, but single event noise by itself does not determine whether noise levels are</p>	A noise specialist study is currently underway.

Applicable legislation and guidelines used to compile the report	Reference where applied
acceptable for land use purposes. With regards to SANS 10103:2008, the recommendations are likely to inform decisions by authorities, but non-compliance with the standard will not necessarily render an activity unlawful per se.	
APPLICABLE GUIDELINES	
<p>Integrated Environmental Management Information Guidelines series:</p> <p>This series of guidelines was published by the Department of Environmental Affairs (DEA), and refers to various environmental aspects. Applicable guidelines in the series include:</p> <p>Guidelines 5: Companion to NEMA EIA Regulations of 2010;</p> <p>Guideline 7: Public Participation; and</p> <p>Guideline 9: Need and Desirability.</p> <p>Additional guidelines published in terms of the NEMA EIA Regulations (2006), in particular:</p> <p>Guideline 3: General Guide to Environmental Impact Assessment Regulations, 2006;</p> <p>Guideline 4: Public Participation in support of the Environmental Impact Assessment Regulations, 2006; and</p> <p>Guideline 5: Assessment of alternatives and impacts in support of the Environmental Impact Assessment Regulations, 2006.</p>	<p>Throughout the S&EIA process.</p> <p>The NEMA guidelines are considered throughout the environmental authorisation process.</p>
<p>Best Practice Guideline (BPG) series:</p> <p>The BPG series is a series of publications by the then Department of Water Affairs and Forestry (now DWS – Department of Water and Sanitation) providing best practice principles and guidelines relevant to certain aspects of water management.</p>	<p>Surface water and groundwater specialist studies</p> <p>The water related specialist studies considers the DWS best practice guidelines.</p>
Provincial and Local Government Legislation	
<p>The Municipal Structures Act, (Act No. 117 of 1998)</p> <p>In terms of local government legislation, the Municipal Structures Act No. 117 of 1998, assigns responsibility for scheduled functions between the tiers of local government. Section 84 of this Act specifies those functions and powers which are vested specifically with District Municipalities (and are thus excluded from the functions and powers of local municipalities). In terms of the 'environmental cluster' of functions, this has the following implication:</p> <p>District municipalities (Category C) are responsible for solid waste disposal sites, in so far as it relates to-</p> <ul style="list-style-type: none"> • the determination of a waste disposal strategy; • the regulation of waste disposal; • the establishment, operation and control of waste disposal sites, bulk waste transfer facilities and waste disposal facilities for more than one local municipality <p>Local municipalities (Category B) are responsible for all environmental functions not assigned to districts.</p> <p>Metropolitan municipalities are assigned all environmental functions.</p>	<p>Throughout the S&EIA and public participation processes.</p> <p>The stakeholder engagement process will be undertaken in line with the NEMA requirements, throughout the authorisation process to keep registered stakeholders notified of the process and any decisions taken by the Competent Authorities.</p>
<p>Municipal Integrated Development Plan (IDP):</p> <p>Section 25 of the Municipal System Act (MSA) (Act No. 32 of 2000) requires that every elected Council must develop and adopt a strategic plan, commonly known as Integrated Development Plan (IDP) to guide & inform the municipality's planning.</p>	

Applicable legislation and guidelines used to compile the report	Reference where applied
<p>development and budgeting. This Act also requires that the approved IDP be reviewed annually based on its performance & other changing circumstances deemed relevant and necessary by the municipal council. Integrated development planning is a process through which a municipality prepare an inclusive strategic development plan for a period of five years. The need for the integrated development plans is entrenched in the South African Constitution (section 152 and 153). The Constitution states that local government is in charge of the development process in municipalities and it is in charge of municipal planning. Furthermore, the MSA provides that all municipalities have to undertake an integrated development planning process to produce integrated development plans. As the Integrated Development Plan is a legal requirement it has a legal status and thus supersedes all plans that guide development at a local government level.</p>	
<p>Municipal Environmental Management Framework (EMF):</p> <p>An EMF can be described as a set of information that can be used by decision-makers to assist in determining the best approaches (procedural and/or technical) to dealing with a variety of environmental challenges. EMFs can assist in mapping the ecological integrity of an area by considering impacts of invasive developments and harmonizing conflicting land use imperatives, identifying different interests, and understanding how the costs and benefits of conservation are distributed. EMFs are therefore a testament to and the embodiment of IEM, focusing on strategic and pre-emptive measures that guide stakeholders and raise awareness in biodiversity conservation. An Environmental Management Framework (EMF) aims to ensure that environmental limits to development are included in spatial planning documents. The purpose of the EMF is to function as a support mechanism in the environmental impact assessment process in the evaluation and review of development applications, as well as informing decision making regarding land use planning applications.</p>	
<p>Municipal By Laws:</p> <p>There may be relevant by-laws that apply, or monitoring requirements that the local authority may wish to perform. These will have to be approached directly.</p>	

5.1 Anglo American Policies and Guidelines

The Anglo American plc Executive Committee has endorsed and committed to the implementation of an internal document known as the Anglo American Safety, Health and Environmental (SHE) Way, which is governing framework for the management of SHE impacts for all new projects. The Board seeks assurance of compliance with the Anglo American SHE Way standards through regular self-assessments, peer review and third party audits.

The Anglo American SHE Policy describes Anglo's environmental vision, which is to minimise harm to the environment by designing, operating and closing all of their operations in an environmentally responsible manner.

Underpinning this vision are four core principles:

- Zero mind set: Anglo American shall apply the mitigation hierarchy of avoiding, minimising and mitigating environmental impacts arising from our activities, products and services;
- No repeats: all necessary steps will be taken to learn from environmental impacts, incidents, audit findings and other non-conformances, to prevent their recurrence; and
- Non-negotiable standards and rules: common, non-negotiable.
- Environmental Performance Standards and Procedures shall be applied throughout the Group as a minimum requirement.
- The Anglo American policies will guide and inform the study phase inputs.

5.1.1 Anglo American Platinum Strategy and Values

Anglo Platinum's strategy is to create maximum value through understanding and developing the market for PGMs, grow the Company to expand into those opportunities and to conduct its business cost effectively and competently. Anglo American Platinum has the six core company values as illustrated in Figure 5-1.



Figure 5-1: Anglo American Platinum core company values

5.1.2 Anglo American Platinum Environmental Policy

Der Brochen is committed to the implementation of the Anglo American Platinum policy towards environmental management, with specific focus on water related issues. The policy states that: "Anglo American Platinum Corporation Limited, as the world's leading primary producer of platinum group

metals, commits itself to the creation of a safe and healthy environment for all our employees and the citizens of the communities with which we interact”.

In order to give practical expression to their commitments and to measure their progress, Anglo American Platinum has the following aims with regard to the environment:

- Conserve environmental resources.
- Prevent or minimise adverse impacts arising from our operations.
- Demonstrate active stewardship of land and biodiversity.
- Promote good relationships with, and enhance capacities of, the local communities of which we are a part.
- Respect people’s culture and heritage.

5.1.3 Der Brochen SHE Policies

Each business unit has its own Safety, Health and Environmental Policy. Key policy commitments include the following:

“Management of every operation is responsible to provide effective leadership in environmental issues whilst recognising that environmental management is the responsibility of all who work for us”.

Managers of operations are responsible for the full implementation of the Anglo American Platinum Environmental Management Framework and participation in the Anglo American Platinum Peer Review Program. This requires the following:

- The allocation of appropriate resources and the provision of training, education, consultation and auditing to ensure compliance;
- The development, implementation and maintenance of environmental policies, objectives, targets, programs and procedures; and
- Effective environmental impact identification, assessment and control, designed to achieve proactive management of our activities, products and services.
- We shall conserve and protect environmental resources through, amongst others, the efficient use of energy and water, minimising waste and preventing pollution.

We shall demonstrate active stewardship of land, water systems and biodiversity with which we interact. We respect people’s culture and heritage. We shall comply with environmental legislation and other requirements to which we subscribe, and develop a culture of continual improvement.”

6 Need and desirability of the proposed activities

RPM embarked on a pre-feasibility study relating to a fit-for-purpose 320 ktpm mining strategy for the Der Brochen Mine Project. Through the pre-feasibility assessment, RPM found that Der Brochen is a high quality asset, lending itself to fully mechanised bord and pillar mining (shallow dip and a mining cut suitable for low profile mining equipment); with the UG2 reef already being exploited successfully on neighbouring properties by Mototolo, Booyseindal and Two Rivers Mines.

Der Brochen Mine can be developed via smaller investment phases, with the potential to ultimately expand to a large operation.

- **Phase 1 (Stay in Business & Replacement Infrastructure)**
 - Upgrade of the Mototolo Concentrator to 240 ktpm;
 - Change existing Chrome Plant to an inter-stage design;

- Construction of North and South decline shafts to replace the Lebowa and Borwa shafts in the near future.
- **Phase 2 (Expansion Capital)**
 - Construction of a DMS Plant to enable the implementation of a 320 ktpm plan;
 - Incorporate additional fleet and equipment;
 - Installation of a Mainstream Inert Grinding (MIG) Mill as part of the recovery enhancer strategy for the Mototolo Concentrator Plant.

Der Brochen Amendment Project will also serve as a replacement project to maximise existing infrastructure to supplement the future anticipated declining production profile of the Borwa and Lebowa shafts in order to sustain production of the existing Mototolo Concentrator Plant.

In addition, the Der Brochen Amendment Project will also aim to provide a sustainable production rate by reducing the impact of restructuring and downsizing when the Borwa and Lebowa shafts come to the end of their economic life.

6.1 Environmental Benefits

The potential change to the Der Brochen Mine's mining strategy from an opencast mining operation to an underground mining operation can have the following advantages in terms of environmental impacts.

- The two new proposed decline shafts and associated infrastructure will cover a smaller footprint area than the previously approved opencast mining areas.
- Since underground mining is a process wherein ore and minerals are extracted from deep underground, the mining operation itself does not incur large impacts on the surface environment of the mine area.
- There will be no need for the previously approved co-disposal facility, as the tailings produced from the Mototolo Concentrator Plant will be deposited onto the recently constructed and approved Mareesburg TSF.
- The DMS material produced through the incorporation of a DMS Plant as part of the processing operation can provide material that can be used for alternative uses such as road aggregate material.

6.2 No-go Option

The aim of the Der Brochen Amendment Project is to provide a sustainable production rate of at least 240 ktpm, whilst providing a replacement opportunity for the Borwa and Lebowa shafts when these shafts near the end of their economic life.

Should the production fall below the required tonnages, the Der Brochen Mine will be unable to sustain its current and proposed workforce nor maintain its infrastructure as it will not be generating enough profit.

The socio-economic impacts of cessation or restraining of operations at the Der Brochen Mine include local, regional and more than likely national impacts:

- Local and regional: planned socio-economic initiatives within the surrounding communities would not be able to go ahead and employees and contractors' workers would be impacted; more than half of whom are semi-skilled/unskilled and thus would not easily find alternative employment; and

- National: Reduction in foreign exchange for South Africa will be incurred due to the decrease in mine product sales internationally.

The cessation or curtailing of the Der Brochen Mine will also mean that ore reserves would remain underutilised, in addition to the employment and local economic opportunities and revenue that would be lost.

7 Period for which the environmental authorisation is required

It is estimated that adequate reserves are available for underground mining operation to extend the life of mine (LoM) to at least 2060 with underground mining scheduled to commence in 2021. It is envisaged that the construction of the projects will take approximately 2 years. The operational, closure and post closure timeframes associated with the Der Brochen Amendment Project will be in line with the current Life of Mine of 2060.

8 Description of the process followed to reach the proposed preferred site

During the pre-feasibility stage of the Der Brochen Amendment Project, RPM appointed various specialists to investigate the area of interest and identify sensitive areas that needed to be taken into consideration during the infrastructure layout plan phase. The specialist aspects that were covered during the pre-feasibility stage included:

- Ecology (terrestrial and aquatic);
- Soil, land use and land capability;
- Surface water; and
- Archaeology.

The findings of these investigations were presented to RPM and based on the recommendation of the specialists some of the infrastructure locations and layouts were altered to reduce or where possible avoid potential negative impacts that may be associated with the Der Brochen Amendment Project.

9 Details of all alternatives considered

Alternatives with regards to location, infrastructure and transportation were considered for the Der Brochen Amendment Project. The key activities and infrastructure associated with the project include the construction of two new decline shafts, the conveyor belt systems from the two decline shafts to the existing Mototolo Concentrator Plant and the DMS stockpile respectively, the construction of the DMS stockpile and associated PCDs and the DMS Plant. As more engineering detail become available in parallel to the scoping/EIA process, more alternatives may be uncovered which will be included in the Draft EIA/EMPr report.

9.1 Property Alternatives

The location of the proposed project is constrained to the location of the mineral resource and proven reserve, as well as the existing surrounding mining related infrastructure. As such, limited property alternatives were viable to be considered for this project. The preferred site currently being considered is a small footprint area located in close proximity to the existing infrastructure within the Der Brochen Mine's mining rights and lease areas.

Table 9-1 provides a summary of the properties that will be affected by the placement of the infrastructure required for the Der Brochen Amendment Project.

Table 9-1: Properties associated with the Der Brochen Amendment Project

Farm Name	Portion	Proposed Infrastructure
Helena 6 JT	Remaining Extent	<ul style="list-style-type: none"> • DMS Plant; • RoM Stockpiles & Silos; • Additional Chrome Plant; • Sections of the following conveyor systems: • Ore conveyor system; and • DMS conveyor system; • North decline shaft with associated water management infrastructure; • Offices and change houses at the North decline shaft; • 3 x up-cast ventilation shafts associated with the North decline shaft; • Access and haul roads; • Der Brochen gate house; and • River crossings (conveyor & roads).
	Portion 3	<ul style="list-style-type: none"> • A central ventilation complex; • Access and haul roads; • Explosive destruction bay area; • Portion of the South decline shaft; and • Section of the ore conveyor system.
Der Brochen 7 JT	Remaining Extent	<ul style="list-style-type: none"> • Portion of the South decline shaft with associated water management infrastructure; • Offices and change houses at the South decline shaft; • 3 x up-cast ventilation shafts associated with the South decline shaft; • Access roads; • River crossings (access roads); and • Staff accommodation (near the Der Brochen Dam).
Mareesburg 8 JT	Portion 1	<ul style="list-style-type: none"> • Portion of the DMS Stockpile.
	Portion 7	<ul style="list-style-type: none"> • Portion of the DMS Stockpile; • Section of the DMS Conveyor Belt system; • PCDs; and • Topsoil stockpile area.

9.2 Type of activity to be undertaken

The location of the proposed project is constrained to the location of the mineral resource, and proven reserve. As such, no activity alternatives were viable to be considered for this project.

9.3 Technology alternatives

It is the intention of RPM to utilise mechanised mining methods at the Der Brochen Mine, instead of conventional mining. Low profile mechanized equipment is currently considered for the Der Brochen mine in an effort for continuing modernization of mining operations and incorporating injury-free production and cost-effective mining technologies.

9.4 The design or layout of the activity

The following aspects were taken into consideration during the finalisation of the site layout plan of the Der Brochen Amendment Project:

- Site sensitivity (in terms of biodiversity, wetlands and heritage aspects) considering various alternatives before finalising the preferred location;
- Minimisation of the overall footprint;
- Regulation GN 704 promulgated under the NWA, which indicates that mining activities should take place outside the 1:100 year floodline or 100 m from a watercourse, whichever is the greatest.

From the initial project inception, several changes to the planned infrastructure was made. These changes are discussed in the following sections.

9.4.1 Sensitive Areas – Heritage and Biodiversity Considerations

In order to keep the project development footprint as small as possible, a conveyor and access/haul road corridor is proposed to localise the impacted area. The conveyor corridor will be undertaken in two phases:

- Phase 1 will be used as a haul road and be approximately 16m wide with engineered crossings during the construction phase.
- Phase 2 will allow for the widening of the haul road to accommodate pipeline and conveyors.

9.4.2 Project footprint area

Although the Der Brochen Amendment Project will be located on the farms as detailed in Table 3-1, only 185.21 Ha out of the combined farms' surface area will be used for the placement of the proposed infrastructure and mining related activities as detailed in Table 9-2 below.

Table 9-2: Proposed Infrastructure Areas

Proposed Infrastructure	Area (ha)
DMS Plant and crusher	0.25
RoM Stockpiles & Silos	0.20
Additional Chrome Plant	0.05
Ore conveyor system	24.00
DMS conveyor system	8.50
North decline shaft complex (including offices, change house and water management infrastructure)	19.00
Up-cast ventilation shafts (6 in total - 3 per shaft)	0.20
Access and haul roads combined	5.2
Der Brochen gate house	0.20
Central ventilation complex	3.00
Explosive destruction bay area	0.01
South decline shaft complex (including offices, change house and water management infrastructure)	14.00
Staff accommodation (near the Der Brochen Dam)	0.60
DMS Stockpile	100.00
PCDs (in total 3 PCDs)	5.00
Topsoil stockpile area	5.00
Total Area (ha)	185.21

9.4.3 TSF

During the concept phase of the Der Brochen Amendment Project, RPM considered three sites for the construction of an additional TSF. As the project advanced through the various feasibility stages, RPM established that no additional TSF will be required. The recently constructed Mareesburg TSF will have sufficient capacity.

9.5 The operational aspects of the activity

It is anticipated that during the construction and start-up of the shaft operations, ore will be transported to the existing Mototolo Concentrator Plant by truck. Once the construction of the conveyor system is completed, there will be a transportation transition period where ore will be trucked and conveyed to the plant for processing, there after only the conveyor belt will be used for the transportation of the ore to the Mototolo Concentrator Plant.

9.6 Option of not implementing the activity

Refer to Section 6.2 for the no-go option.

10 Details of the Public Participation Process Followed

10.1 Objectives of public participation

The objectives of public participation during the various phases of the Der Brochen Amendment authorisation process are presented below.

10.1.1 During pre-application

The objectives of the stakeholder engagement during pre-application phase are to introduce the project to stakeholders and to inform them that an environmental authorisation process will be followed.

10.1.2 During scoping

The objectives of public participation during scoping phase is to provide sufficient and accessible information to Interested and Affected Parties (I&APs) in an objective manner to enable them to raise comments, issues of concern and suggestions for enhanced benefits. I&APs will also have an opportunity to provide input into the specialists' terms of reference (ToR) for the specialist studies, and to contribute relevant local and traditional knowledge to the environmental assessment.

10.1.3 During impact assessment

The objectives of public participation during the EIA phase is to verify that stakeholder issues have been considered in the specialist study and environmental impact assessment phase and to comment on the findings of the environmental assessment including the potential negative and positive impacts and the proposed management measures.

10.1.4 During the decision-making phase

Following the outcome of the decision-making process by authorities, registered I&APs will be notified of the outcome and how and by when the decision may be appealed, should they wish to.

10.2 Public participation process

For the Der Brochen Amendment Project, SRK will undertake an integrated and public participation process that aligns with the requirements set out in the NEMA EIA Regulations of 2014 (GNR 982) as

amended, and the Regulations regarding the procedural requirements for water use licence applications of 2017 (GNR 267).

Various engagement activities (as detailed below) will be undertaken throughout the different phases associated with the integrated environmental authorisation process of the Der Brochen Amendment Project (i.e. Pre-application, Scoping, Impact Assessment and Decision-making phases).

10.2.1 Pre-application phase

Identification of potential Interested and Affected Parties (I&APs)

RPM has been identified as the landowner in respect of the Remaining Extent and Portion 3 of the farm Helena 6 JT, the Remaining Extent of the farm Der Brochen 7 JT and Portion 7 of the farm Mareesburg 8 JT, on which majority of the proposed infrastructure associated with the Der Brochen Amendment Project will be located. The only farm portion that is not owned by RPM and which will be affected by the proposed project is Portion 1 of the farm Mareesburg 8 JT, which belongs to Samancor. RPM is in consultation with Samancor regarding Portion 1 of the farm Mareesburg 8 JT and RPM's intention to construct a DMS stockpile over a section of Portion 1 of the farm Mareesburg 8 JT.

The Der Brochen Mine has developed a comprehensive I&AP database that consists of stakeholders from various sectors identified previous during environmental authorisation processes undertaken for the Der Brochen Project and stakeholders that RPM has regular contact with. This database has been used as the basis for the development of the stakeholder database in terms of the proposed Der Brochen Amendment Project.

10.2.2 Scoping phase

Project announcement and availability of Scoping Report for Public Review and Comment

The Der Brochen Mine has an established Social Performance Department through which information sharing between the mine and communities take place. Der Brochen's existing engagement forums were used to introduce the project and to give ongoing feedback on the progress of the proposed Der Brochen Amendment Project authorisation process to inform communities, residents and surrounding land owners/land occupiers of the proposed project and to provide them with the opportunity to raise any concerns or comments relating to the proposed project.

All project announcement documentation was made available in English and Sepedi.

A Background Information Document (BID), stakeholder letter and a I&AP Registration form and comment sheet have been distributed to the existing Der Brochen stakeholder database and additional identified stakeholders (via email and post) during the week of 07 January 2019. The purpose of these documentations are to introduce the project to the potential stakeholders by providing them with high level project information.

Through the distribution of the stakeholder letter and BID, stakeholders were invited to register as I&APs and to comment on the Scoping Report that will be available for a public comment period of more than 30 calendar days (from 25 January to 04 March 2019). The list of public venues where hard copies of the report have been made available are included in the stakeholder letter and BID. The stakeholder letter and BID also included a link to SRK's website where an electronic copy of the Scoping Report and all other project related documents, registration form and comment sheet can be sourced from. In addition, SMS notifications was sent out to existing stakeholders for whom no other contact details are available.

Advertisements were placed in the Sekhukhune Times newspaper (in Sepedi) on 10 January 2019 and the Platinum Gazette newspaper (in English) on 11 January 2019 announcing the availability of the Scoping Report for public review as well as the list of public venues where the report can be viewed.

Site notices were placed at the Der Brochen & Booyesdal Dual Access Main Gate, and surrounding area (in English and Sepedi) on 08 January 2019.

Please refer to **Appendix 5** for proof of the public participation undertaken in respect of the project announcement phase.

Conduct Scoping Phase Public Meetings

During the public review and commenting time period for the Scoping Report, SRK will conduct various focus group meetings to introduce the proposed project and the associated integrated environmental authorisation process to the stakeholders. The content of the Scoping Report will also be discussed during these meetings.

The objective of these meetings is to provide sufficient and accessible information regarding the proposed project in an objective manner to enable them to:

- Raise any issues of concern and suggestions for enhanced benefits;
- Contribute relevant local and traditional knowledge to the environmental assessment.

The Scoping Report will then be updated to reflect the outcomes of the public meetings and public participation done to date, before submitting the Final Scoping Report to the DMR for consideration.

10.2.3 Impact Assessment phase

Once the Final Scoping Report has been approved by the DMR, the EIA/EMP will be made available for public comment and meetings will be held with registered stakeholders to discuss the findings of the EIA/EMP and to obtain comments from stakeholders.

The public participation actions that will be undertaken during this phase include:

- Announce availability of the EIA/EMP for public review, via stakeholder letters and advertisements (English and Sepedi);
- Place copies of the EIA/EMP in public places as well as on SRK website; and
- Conduct focus group meetings and telephonic consultations to obtain stakeholder comments on the EIA/EMP report.

10.2.4 Outcomes of Decision Making Phase

All registered I&APs will be informed of the DMR's decision via email, post or sms. Registered I&APs will also be informed of the appeals process and the associated timeframes, should they wish to appeal the decision.

10.3 Summary of issues raised by I&APs

A summary of comments received will be included in the Comment and Response Report accompanying the FSR to be submitted to the DMR. Comments received to date from pre-application consultations are included in Table 10-1.

Table 10-1: I&AP comments received to date

Interested and Affected Parties	Date comments received	Issues raised	EAPs response to issues as mandated by the applicant	Consultation status
AFFECTED PARTIES				
INTERESTED PARTIES				
Tumi Mdungwa (adjacent community to the project area)	11 January 2019	Residents in the surrounding farms (Vygenhoek 10 JT and Scaapkraal 42 JT) feel that they are excluded when it comes to job opportunities, community development, skills development, CSI development. Their main focus is to be recognised.	The correspondence received from Tumi Mdungwa was sent to the Der Brochen Mine's Social Performance Department for consideration.	Not finalised
Solas Machipa	14 Jan 2019	Previously demands submitted to Anglo American Platinum (AAP) have not been acknowledged/addressed. Solas Machipa also requested that an I&AP Registration form be submitted to him.	On 14 January 2019, SRK's Stakeholder Engagement team send through a copy of the requested I&AP Registration form to Solas Machipa. The correspondence was also sent through to the Social Performance Department for consideration.	Not finalised

11 The Environmental attributes associated with the sites

This section of the Scoping Report provides a brief description of the environment aspects that may be affected by or could affect the proposed Der Brochen Amendment Project. This information has been sourced from existing information as well as previous and current specialist investigations. Currently detailed specialist assessments are underway, and a detailed baseline description will be provided in the EIA/EMPr Report, which will include the updated specialist studies as Appendices.

11.1 Geology

The Der Brochen project area is located within the 66 000 km² eastern limb of the Bushveld Complex. It comprises an assemblage of layered ultramafic to felsic Proterozoic plutonic and volcanic rocks. Der Brochen lies approximately 40 km south-east of the Steelpoort fault in the Rustenburg Layered Suite of the complex.

Approximately 9 km of Upper Group 2 (UG2) reef and 13 km of Merensky Reef horizons outcrop within the Der Brochen project area, with a 170 m reef parting. The UG2 reef dips to the west at an average

angle of 10° on Richmond farm, on the northern and central portions of Helena, as well as on Der Brochen farm.

The Merensky Reef dips at an overall average of 10.3° over the project area.

The Merensky Reef is located at the top of a thick pyroxenite (~ 5 m) sequence and is fairly consistent with a thin chromitite stringer located ~ 30 cm from the top of the Merensky pyroxenite/norite contact. The most prominent PGM mineralisation usually occurs within the upper two metres of the pyroxenite. A second Merensky facies has been identified and is termed the “Sunk Facies”. This facies is known to occur fairly extensively on the Helena farm and is characterised by mineralisation occurring at a lower stratigraphic position within the pyroxenite. The UG2 reef is usually characterised by a single thick chromitite layer overlain by a pyroxene hanging wall. A series of chromitite bands/stringers classified as the Triplets occurs above the pyroxenite.

Exploitation of the reefs in the area is complicated by various features such as the rugged topography limiting easy access via declines, as well as geological features present in the region, in particular the St George fault and the Helena depression (jointing, faulting, dykes, potholes, shear zones and slump features). The St George Fault displacement is approximately 35-41 m. Various dyke swarms have been delineated across the project area, being predominantly dolerite and diabase in composition and trending either north-northeast or north-south.

11.2 Topography

The area is characterised by a rugged topography with the relief measuring between 940 m and over 2 000 m above mean sea level (mamsl). The prominent north-south trending Steenkamps Mountains extend across the study area, with two deeply incised valleys lying in a north-south direction between the mountain ranges. Within these valley floors are the Groot-Dwars River in the east and the Klein-Dwars River in the west (both flowing northwards through the area).

The highest elevation of 2 300 mamsl is located to the extreme south of the project area, and the lowest elevation of 1 035 mamsl is located to the northern drainage path of the Groot Dwars River.

11.3 Climate

NOTE: *An air quality specialist study will be conducted as part of the impact assessment phase and any updates to the climate baseline based on this study will be included in the EIA/EMPr Report.*

The Der Brochen project area falls within the Highveld climatic region. This climatic region is associated with warm temperature and summer rainfall. The average daily maximum temperature for the region is 27°C in January and 17°C in July, with extreme averages of 38°C and 26°C respectively. Average daily minima for the region vary from 13°C in January to 0°C in July, while extremes reach 1°C and minus13°C, respectively.

The prevailing wind directions on the site are north-westerly and south-easterly due to the topographical orientation of valleys and ridges in the area. The average surface wind speed is 2.5 m/s, with a maximum observed wind speed of 7.9 m/s.

11.3.1 Rainfall and evaporation

The average annual rainfall for this climatic region varies from 900 mm in the east to 680 mm in the west. The rainfall pattern for the Der Brochen Project area has been obtained from the South African Weather Service for station 593419 (Maartenshoop: Lat. 24°98', Long. 30°23'), which lies about 12 km from the site. This station is the closest of the national weather stations and has a record over 80 years long although the station closed in 2002. Rainfall data is also obtainable from the currently

operational Tubatse station 0593484 7, located about 51 km from the site and 11 km north of Burgersfort or the Lydenburg station 0554816A7 which lies about 37 km from the site.

The closest station, Richmond weather station (private), has been relocated to the core yard at the Der Brochen Project geology offices and will in future provide local rainfall data. Data in this section are based on Maartenshoop as it is the closest station with the longest record.

The evaporation data were obtained from Station B4E003 which is the closest evaporation station to the site. It lies in the direction of the Maartenshoop rainfall station about 17 km from the site.

The average annual rainfall for the Der Brochen Project area is approximately 687 mm and occurs mostly in the summer (85%) from October to March, with a maximum in December.

11.3.2 Mean monthly maximum and minimum temperatures

The average daily maximum temperature at Der Brochen (based on Mashishing information) is 22.9°C and the minimum 9.5°C. Temperature extremes of 34.5°C have occurred in summer and 5.9°C in winter.

11.4 Air Quality

NOTE: *An air quality specialist study will be conducted as part of the impact assessment phase and any updates to the climate baseline based on this study will be included in the EIA/EMPr Report.*

11.4.1 Prevailing wind direction

The slope of the terrain accounts for the increased frequency of occurrence of northerly and north-westerly wind during the day-time and increased south-easterly winds during the night-time. The differential heating and cooling of the air along a slope typically results in down-slope (katabatic) flow at night, with low-level up-slope (anabatic) airflow occurring during the day (Airshed, 2014).

11.4.2 Existing sources of emissions

The Der Brochen Mine currently operate a dust fallout sampling network consisting of ten single dust fallout buckets. The sources of SO₂ and oxides of nitrogen (NO_x) that occur in the region include blasting operations at mines, veld burning, vehicle exhaust emissions and household fuel burning.

Various local and far-a-field sources are expected to contribute to the suspended fine particulate concentrations (which would include PM₁₀ and PM_{2.5}) in the region. Local sources include wind erosion from exposed areas, fugitive dust from agricultural and mining operations, vehicle entrainment from roadways and veld burning.

11.4.3 Sensitive receptors in the area

The closest residential developments to the Der Brochen Mine consist of:

- Ga-Masha (approximately 10 km north-west),
- Patantswane (approximately 20 km west-north-west),
- Eenzaam (approximately 20 km west),
- Matlakatle (approximately 25 km west-north-west),
- Ngwaritsi (approximately 25 km west),
- Syferfontein (approximately 30 km west),
- Dindela (approximately 40 km west),

- Mathula (approximately 35 km west-south-west),
- Sehlakwane (approximately 35 km south-west),
- Roosenekaal (approximately 25 km south-west),
- Lydenburg (approximately 30 km east-southeast),
- Ga-Mampuru (approximately 13 km north) and
- Steelpoort (approximately 18 km northeast).

Individual farmsteads also surround the mine area.

11.5 Surface Water

NOTE: A surface water specialist study will be conducted as part of the impact assessment phase and any updates to the climate baseline based on this study will be included in the EIA/EMPr Report.

The Der Brochen site falls in the extreme south of the Eastern Limb of the Bushveld Complex within the Klein and Groot Dwars River catchments of the B41G quaternary catchment. This catchment falls within the Olifants River Water Management Area B4.

The Der Brochen Project area is characterised by rugged topography with prominent north-south trending mountain ranges (the Steenkampsberge) extending across the project area. Two deep valleys extend in a north-south direction between the Steenkampsberge mountain ranges and the Groot-Dwars River (in the east) and the Klein-Dwars River (in the west) are contained within these valley floors.

Surface water from the Der Brochen Project area flows via a number of unnamed ephemeral tributaries and drainage lines into the perennial Groot-Dwars River. The Der Brochen dam is situated on the Groot-Dwars River upstream of the Der Brochen Project area and proposed activities. The main tributary of the Groot-Dwars River in the project area is the ephemeral Mareesburg Stream, which is adjacent to the partially constructed Mareesburg TSF. The Groot-Dwars River together with the Klein-Dwars River joins the Dwars River on the farm Dwarsrivier 372 KT approximately 10 km north-northwest of Der Brochen. The Dwars River then joins the Tubatse River (formerly Steelpoort River), which in turn feeds into the Olifants River.

11.6 Groundwater

NOTE: A groundwater specialist study will be conducted as part of the impact assessment phase and any updates to the climate baseline based on this study will be included in the EIA/EMPr Report.

The Der Brochen Mine Project (and associated farms) falls within quaternary catchment (B41G), where numerous other mining activities and water authorisations /uses occur. The groundwater use within the catchment at present is estimated at 2.9 ML/d (1.06 Mm³/a), excluding the current and future Der Brochen Project authorization/demand. Due to the high groundwater contribution to baseflow within the catchment, the groundwater Reserve is set at 17.78 ML/d (6.49 Mm³/a), while the average groundwater recharge (input) is 42.9 ML/d (15.66 Mm³/a).

While a surplus recharge (inflow of 19.61 ML/d or 7.16 Mm³/a) exists for allocation, most of the groundwater potential (availability) is limited to the valley bottoms and hillslopes of the Groot- and Klein Dwars Rivers.

11.6.1 Local aquifers

Primary aquifers are present in locally distributed unconsolidated alluvial sediment deposits along the lower reaches of the Klein-Dwars River, Groot-Dwars River and Mareesburg stream. Alluvial sediment

development in the Groot-Dwars valley consists of mixed boulders, cobbles, gravel and sand. In general, the thickness is less than 6 m due to recent active channel incision and erosion, although remnant pockets of sediment may exceed this. Lateral distribution of the alluvial sediment in the Groot-Dwars River is restricted to the immediate banks of the current active channel (SRK, 2012).

These aquifers provide groundwater storage and recharge to the underlying secondary weathered bedrock aquifers with which they are in hydraulic continuity, as well as interacting and contributing to the baseflow of the main rivers. Due to their limited size and/or probable low transmissivity and connectivity to the river baseflow, the primary aquifers are not considered suitable groundwater production targets (SRK, 2012).

Due to their generally limited distribution in the Groot-Dwars River valley, these aquifers have limited extraction potential. They do interact and provide a baseflow contribution to the main rivers of the catchment. They are classified as Minor Aquifer Systems (SRK, 2012).

11.7 Biodiversity

NOTE: *An ecological specialist study will be conducted as part of the impact assessment phase and any updates to the climate baseline based on this study will be included in the EIA/EMPr Report.*

The proposed project area is predominantly located in areas of high biodiversity and increased sensitivity.

The Der Brochen Amendment Project area has four defined habitat units (Figure 11-1). These habitat units are:

- Freshwater Resources;
- Open Bushveld;
- Sekhukhune Mountain Bushveld; and
- Transformed areas.

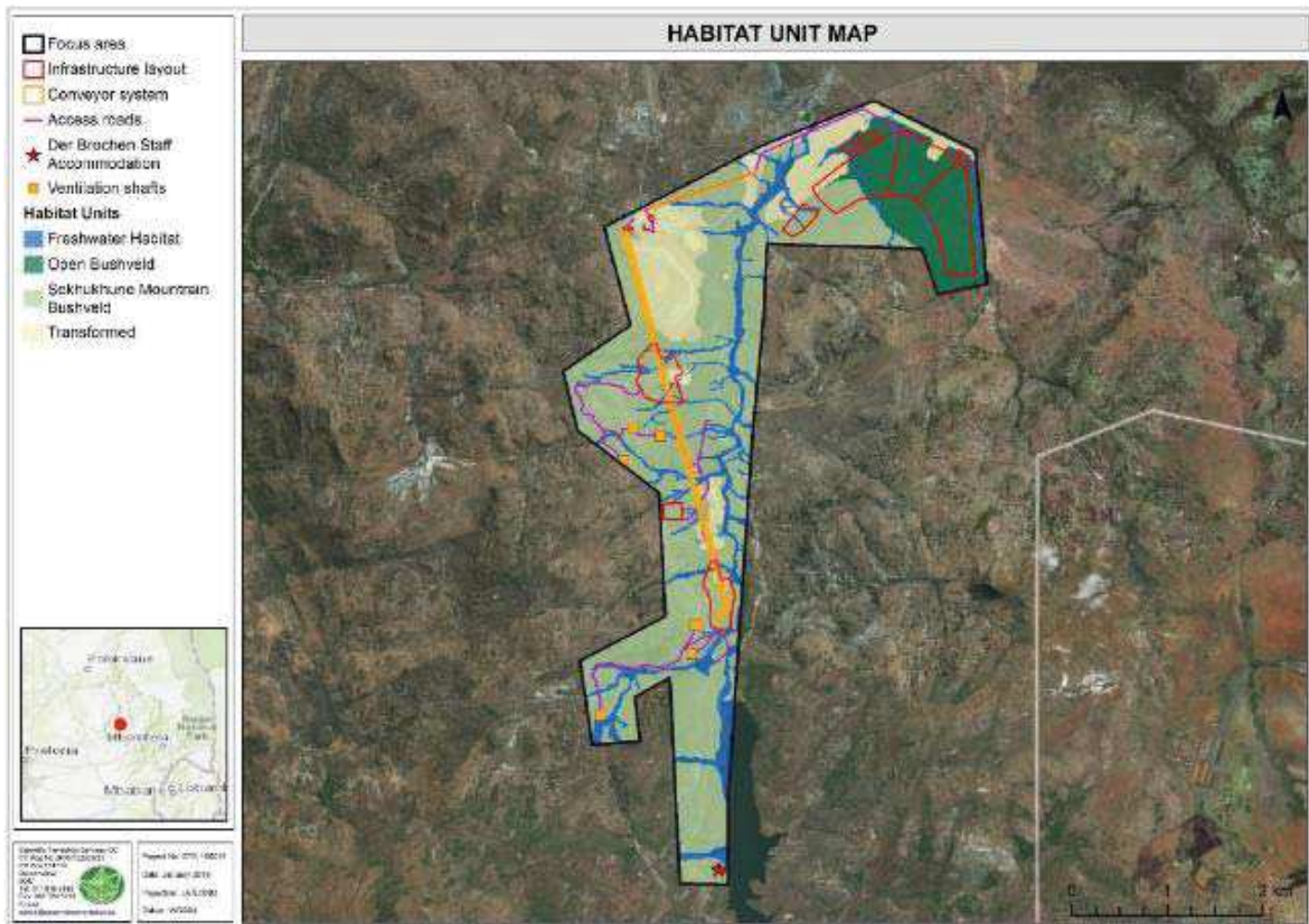


Figure 11-1: Conceptual illustration of the habitat units within the Der Brochen Amendment Project area

Sekhukhune Mountain Bushveld, Open Bushveld and Freshwater areas are located in areas of high diversity and increased sensitivity.

11.7.1 Vegetation/Flora

Floral Species of Conservation Concern Assessment

Threatened/protected species are species that are facing a high risk of extinction. Any species classified in the IUCN categories Critically Endangered (CR), Endangered (EN) or Vulnerable (VU) is a threatened species. Furthermore, Species of Conservation Concern (SCC) are species that have a high conservation importance in terms of preserving South Africa's high floristic diversity and include not only threatened species, but also those classified in the categories Extinct in the Wild (EW), Regionally Extinct (RE), Near Threatened (NT), Critically Rare, Rare and Declining.

The following protected species listed under the National Forest Act (Act 84 of 1998) were observed within the project related area during the baseline field assessment in November 2018:

- *Balanites maughamii*;
- *Catha edulis*;
- *Lydenburgia cassinoides*; and
- *Sclerocarya birrea subsp. caffra*.

In terms of this act, protected tree species may not be cut, disturbed, damaged or destroyed and their products may not be possessed, collected, removed, transported, exported, donated, purchased or sold - except under licence granted by the DAFF a delegated authority. Applications for such activities should be made to the responsible official in each province. Each application is evaluated on merit (including field assessments) before a decision is taken whether or not to issue a licence (with or without conditions). Such decisions must be in line with national policy and guidelines.

Additionally, several species listed as protected under the LEMA (Act 7 of 2003) were observed during the field assessment namely:

- *Huernia sp.*
- *Jamesbrittenia macrantha*
- *Scadoxys puniceus*

If individuals or communities of these species will be disturbed by construction/operational activities, they must be relocated to suitable, similar habitat in close proximity to where they were removed from, but outside the disturbance footprint after obtaining the relevant permits from the Limpopo Department of Economic Development, Environment and Tourism (LEDET).

Alien and Invasive Plant Species

During the floral assessment, dominant alien and invasive floral species were identified and are listed in Table 11-1.

Table 11-1: Dominant alien vegetation species identified during the field assessment

Species	English name	NEMBA Category*
Succulents		
<i>Opuntia ficus-indica</i>	Prickly Pear	1b
<i>Agave americana</i>	Sisal	2
Trees/ shrubs		
<i>Melia azedarach</i>	Syringa	1b
<i>Flaveria bidentis</i>	Smelter's Bush	-
Forbs		
<i>Argemone ochroleuca</i>	Mexican Poppy	1b
<i>Bidens pilosa</i>	Common blackjack	NA
<i>Datura ferox</i>	Large Thorn Apple	1b
<i>Flaveria bidentis</i>	Smelter's bush	1b
<i>Jacaranda mimosifolia</i>	Jacaranda	1b
<i>Ricinus communis</i>	Castor-oil plant	1b
<i>Solanum elaeagnifolium</i>	Silverleaf bitter apple	1b
<i>Solanum mauritianum</i>	Bugweed	1b
<i>Tagetes minuta</i>	Tall khakiweed	NA
<i>Xanthium strumarium</i>	Large Cocklebur	1b
<i>Zinnia peruviana</i>	Redstar Zinnia	-
N/L = Not Listed and not categorised National Environmental Management: Biodiversity Act (Act 10 of 2004): Alien and Invasive Species Regulations, GN R864 of 2016: Category 1a – Invasive species that require compulsory control. Category 1b – Invasive species that require control by means of an invasive species management programme. Category 2 – Commercially used plants that may be grown in demarcated areas, provided that there is a permit and that steps are taken to prevent their spread. Category 3 – Ornamentally used plants that may no longer be planted. Existing plants may remain, except within the flood line of watercourses and wetlands, as long as all reasonable steps are taken to prevent their spread (Bromilow, 2001).		

From the above, it is clear that a low abundance and diversity of alien species occurs within the focus area. The majority of alien and invasive plant species was observed within disturbed areas. Alien species located in the focus area must be removed on a regular basis as part of maintenance activities

according to the National Environmental Management: Biodiversity Act (Act 10 of 2004): Alien and Invasive Species Regulations, GN R864 of 2016.

Medicinal Plant Species

Medicinal plant species are not necessarily indigenous species, with many of them regarded as alien invasive weeds. The table below presents a list of dominant plant species with traditional medicinal value, plant parts traditionally used and their main applications, which were identified during the field assessment. These medicinal species are all commonly occurring species and are not confined to the focus area.

A moderately high diversity of medicinal species is present with most of the species being common, widespread and not confined to the project related area (Table 11-2). It is therefore unlikely that the proposed activities will pose a significant threat to medicinal species locally and regionally. If individuals or communities of these species will be disturbed by mining activities, they must be relocated to suitable, similar habitat in close proximity to where they were removed from, but outside the disturbance footprint after obtaining the required permits from the relevant departments.

Table 11-2: Dominant traditional medicinal floral species identified during the field assessment

Medicinal floral	Medicinal uses
Species <i>Agave americana</i> Name Sisal Plant parts used Sap	Sap can be taken internally in the treatment of diarrhoea & dysentery. The sap is antiseptic, diaphoretic, diuretic and a laxative. The plant itself is used in the treatment of indigestion, flatulence, constipation, jaundice and dysentery.
Species <i>Aloe marlothii</i> Name Mountain aloe Plant parts used Sap	Healing of sores.
Species <i>Balanites maughamii</i> Name Torchwood Plant parts used Stem bar, root bark	Used in ritual emetics. Bark is applied in the form of cutaneous implantations to strengthen the body. Fruits are lethal to freshwater snails and other organisms.
Species <i>Lydenburgia cassinoides</i> Name Sekhukhune Bushman's Tea Plant parts used Leaves, Bark	Various parts taken medicinally. General remedy. Stimulating effect when leaves are chewed or extract ingested as tea.
Species <i>Catha edulis</i> Name Bushman's tea Plant parts used Leaves	The plant is widely used against respiratory diseases. In tropical Africa and Arab countries it provides the habit-forming stimulant found in the leaves. The leaves are brewed as tea or chewed for this purpose. The effects include wakefulness and hyperexcitability, and suppressed hunger. In South Africa, this plant is regarded as a drug, since the drug cathinone, which is extracted from it, is listed in the Drug Act. It is however not widely used in this country, except by some groups of people from the Eastern Cape.
Species <i>Carissa bispinosa</i> Name Common Num - Num Plant parts used Fruit	Edible fruit and the berries are also used to make jams and jellies. Roots to treat toothache.
Species <i>Dichrostachys cinerea</i> Name Sickie Bush Plant parts used Roots, bark, leaves and fruit	Pods are very nutritious, and eaten by game and stock. The wood is hard and durable, used as fencing posts. Roots, bark, leaves and fruit used in traditional medicine.
Species <i>Euclea crispa</i> Name Blue Guarri Plant parts used Roots	Ripe berries are edible. Root infusions are used to treat epilepsy, stomach disorders, rheumatism, coughs and diabetes.
Species <i>Grewia flava</i> Name Velvet Raisin Bush Plant parts used Bark & fruit	The bark is used for making baskets, and an intoxicating drink is made from the fruit. Porridge is made from dried fruit
Species <i>Kirkia wilmsii</i> Name Mountain Seringa Plant parts used Roots	Thickened roots contain water that is used by humans during droughts. Used for goats fodder.

Medicinal floral	Medicinal uses
Species <i>Sansevieria hyacinthoides</i> Name Mother - in - law's - tongue	Used traditionally to treat earache, toothache, intestinal worms, haemorrhoids and as a protective charm.
Species <i>Schotia brachypetala</i> Name Weeping Boer - bean Plant parts used Bark and leaves	Bark and leaves used against heartburn, diarrhoea, hangovers and ulcers. Wood used in furniture - making
Species <i>Sclerocarya birrea</i> subsp. <i>caffra</i> Name Marula Plant parts used Bark	Bark widely used for medicinal purposes (proven antihistamine and anti-diarrhoea properties) and to obtain a pale brown dye. Fruit is edible, eaten fresh or made into a jelly.
Species <i>Ziziphus mucronata</i> Name Buffalo Thorn	Cough & chest problems, diarrhoea & dysentery; boils, sores & glandular swellings; pain relief

11.7.2 Fauna

Several faunal Species of Conservation Concern are known or likely to occur within the focus area, utilising the proposed infrastructure areas either permanently or temporarily for foraging. These faunal species are listed in Table 11-3.

Table 11-3: Faunal Species of Conservation Concern

Scientific name	Common Name	Conservation listing
Mammals		
<i>Panthera pardus</i>	Leopard	VU, TOPS listed
<i>Aonyx capensis</i>	Cape clawless Otter	NT
<i>Hyaena brunnea</i>	Brown Hyaena	TOPS listed
<i>Leptailurus serval</i>	Serval	TOPS Listed
<i>Connochaetes taurinus</i>	Blue Wildebeest	TOPS listed
<i>Equus quagga</i>	Plains Zebra	NT, TOPS listed
<i>Oreotragus</i>	Klipspringer	TOPS listed
<i>Alcelaphus buselaphus</i>	Red Hartebeest	TOPS listed
<i>Damaliscus pygargus phililpsi</i>	Blesbok	TOPS listed
<i>Chrysospalax villosus</i>	Rough-haired Golden Mole	VU
Avifauna		
<i>Gyps africanus</i>	White Backed Vulture	VU
<i>Falco biarmicus</i>	Lanner Falcon	VU
<i>Sagittarius serpentarius</i>	Secretary bird	VU
<i>Neotis denhami</i>	Denham's Bustard	NT
Arachnids		
<i>Hadogenes polytrichobothrius</i>	Flat Rock Scorpion	Not formally protected but endemic to the region
Reptiles		
<i>Python natalensis</i>	African Python	VU, Listed Limpopo State of Environment Report of 2004
<i>Homoroselaps dorsalis</i>	Striped Harlequin Snake	NT

11.8 Soil, Land Use and Land Capability

NOTE: A soil, land use and land capability specialist study will be conducted as part of the impact assessment phase and any updates to the climate baseline based on this study will be included in the EIA/EMPr Report.

The Der Brochen Amendment Project area is dominated by shallow soils of Mispah, Outcrop, Glenrosa, Bonheim and Mayo soil forms which collectively constitute of approximately 70% of the total investigated area, whilst moderately deep soils of Hutton/Mispah occupies approximately 2.89% of the total investigated focus area. The shallow nature of the dominated soil forms can be largely attributed

to limited rock weathering or rejuvenation through natural erosion on steeper, convex slopes. The remainder of the focus area is occupied by mine associated structures (i.e. Mine plant complex, PCD, office areas, tar roads), Witbank (anthrosols) as well as soil types which are associated with freshwater features and these include Kroonstad, Katspruit and Willowbrook. Witbank soil forms were also identified within the proposed focus area. These soils have been extensively disturbed such that no recognisable diagnostic soil morphological characteristics, particularly in the topsoil, could be identified, corresponding to anthrosols in the international soil classification terminology.

Current land use activities associated with the focus area are largely dominated by wildlife and wilderness, with some mining operations in the surrounding areas. No agricultural activities were observed in the surrounding areas. Land capability classification of the identified soils are presented in **Table 11-4** and illustrated in **Figure 11-2** and **Figure 11-3** respectively.

Table 11-4: Identified soil forms and respective land capability associated with the Der Brochen Amendment Project area

Soil Form	Land Capability	Total Area (Ha)	% Areal Extent
Hutton	Arable (Class III)	27.43	2.49
Hutton/Mispah		21.36	1.94
Mispah/Outcrop	Grazing (Class VII)	289.60	26.31
Bonheim/Steendal		5.24	0.48
Mispah/Glenrosa		190.41	17.30
Mispah/milkwood		1.20	0.11
Mispah/Bonheim		25.63	2.33
Mispah/Bonheim/Mayo		204.71	18.60
Bonheim/Valsrivier		8.62	0.78
Steendal/Immerpan		77.69	7.06
Witbank (Anthrosols)	Wilderness	45.16	4.10
Freshwater Features (Kroonstad/katspruit/Willowbrook (Including Dam))	Wetland	116.40	10.57
Other (Stockpile. PCD, Tar Road, Mine Plant Area)	Non-Arable	87.32	7.93
Total Area Investigated		1100.77	100

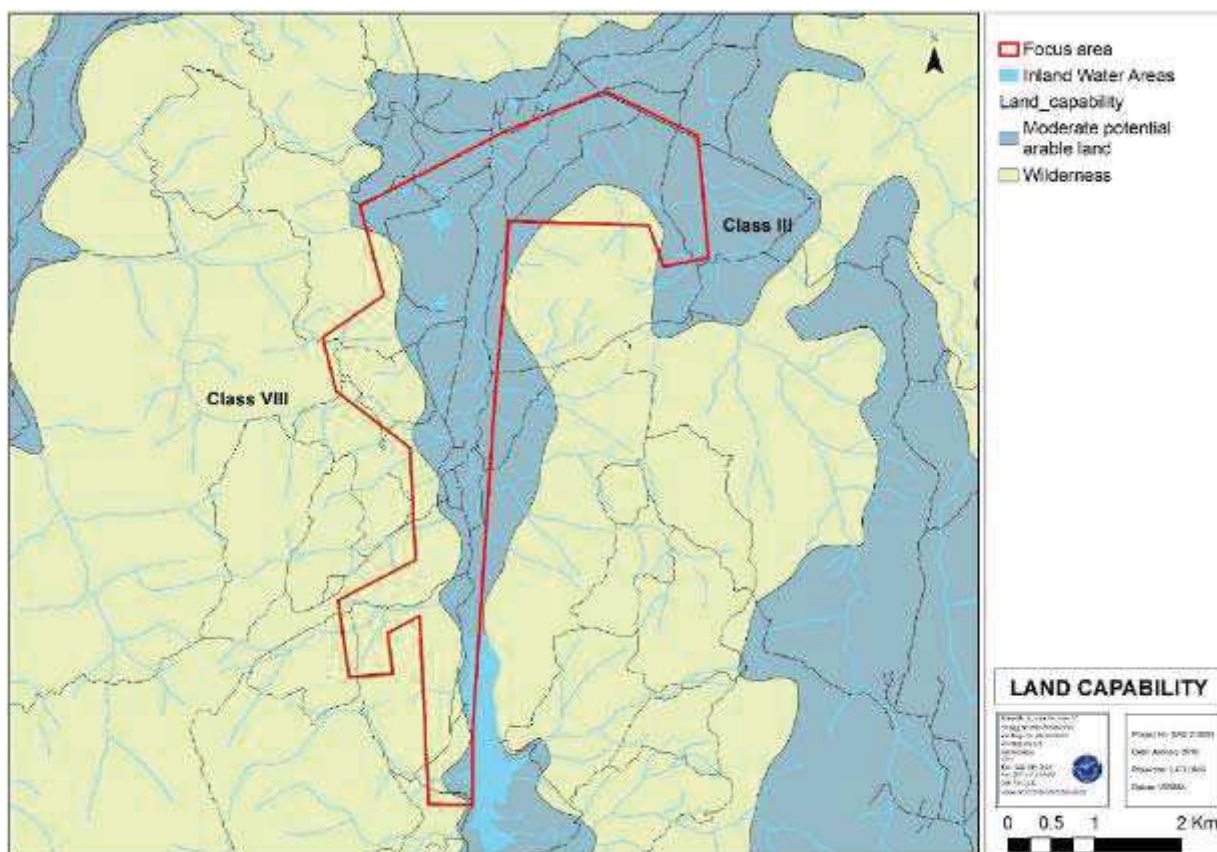


Figure 11-2: Land capabilities associated with the Der Brochen Amendment Project area

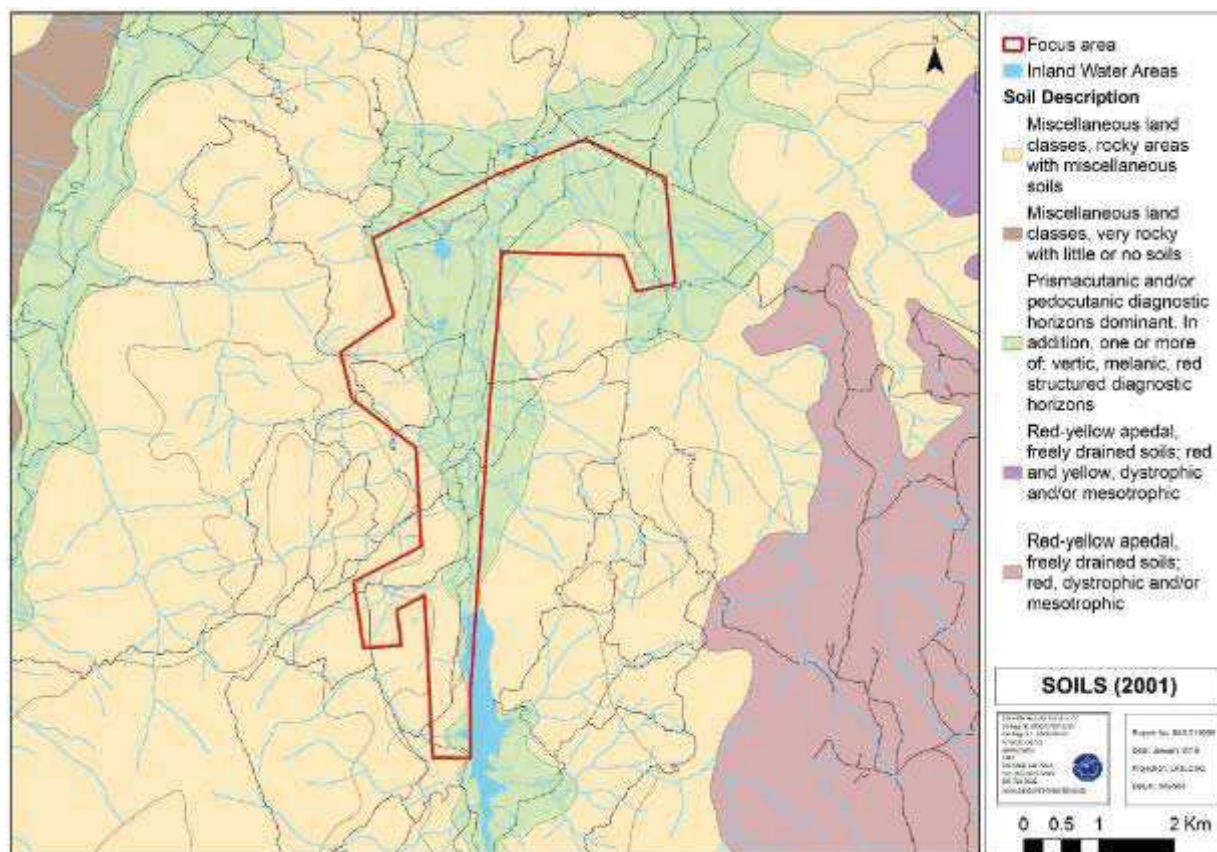


Figure 11-3: Soils associated with the Der Brochen Amendment Project area

11.9 Traffic

NOTE: A traffic impact assessment will be conducted as part of the impact assessment phase and any updates to the climate baseline based on this study will be included in the EIA/EMPr Report.

The area is serviced by an established road network, with Provincial Road R557 aligned to the north and east of the Mine and Provincial Road R555 aligned in a north – south direction to the west of the Mine. District Road 1261 links the R557 to the R555. The Mine is accessed by an approximately 10 km long access road, which intersects at a T-junction with the R557. The access road also serves a number of other mines along its length.

11.10 Visual

NOTE: A visual impact assessment will be conducted as part of the impact assessment phase and any updates to the climate baseline based on this study will be included in the EIA/EMPr Report.

The visual character of the area is influenced by the geology, vegetation and land use of the area, giving rise to a predominantly mountainous landscape under predominantly natural cover with limited rural activities but with significant influence from mining activities. Most of the area can be defined as a *natural transition landscape* as it is mostly natural scenery but mining elements and, to a lesser degree, rural elements, are visible in the landscape.

11.11 Heritage

NOTE: An archaeology specialist study will be conducted as part of the impact assessment phase and any updates to the climate baseline based on this study will be included in the EIA/EMPr Report.

Since 2002, various heritage surveys were conducted and numerous sites of archaeological importance have been recorded, ranging from the Middle Stone Age to the recent households of farm labourers in the Der Brochen project area. Their distributions on the landscape show different land use patterns. Many agriculturally orientated societies (making Eiland, Leolo and Marateng pottery) built their villages in the valleys near cultivatable alluvium. Others (probably Ndebele) built terraced-settlements on basal slopes of the valley edge, while farm labourers usually lived in the valleys as well. During the 19th Century, farmers lived around the edge of high meadows as a measure of protection. A few Middle Iron Age Eiland sites were also identified in this plateau environment (ARM, 2012).

11.12 Socio-economic

NOTE: A socio-economic specialist study will be conducted as part of the impact assessment phase and any updates to the climate baseline based on this study will be included in the EIA/EMPr Report.

The Der Brochen Mine located within the Fetakgomo - Greater Tubatse Local Municipality³ (FGTLM), under jurisdiction of the Greater Sekhukhune District Municipality (GSDM). Thaba Chweu Local Municipality (TCLM) is an important labour sending area for the mine and as such, has been included in this report. The TCLM falls under the Ehlanzeni District Municipality, within the Mpumalanga Province.

The growing mining sector in both FGTLM and TCLM has attracted many job seekers and their families to the area. FGTLM is part of the 7th largest regional economy in South Africa, while TCLM is showing promising upward economic growth in tourism, mining and trade. FGTLM is ranked 19th amongst

³ The FGTLM was established by the amalgamation of the Fetakgomo and Greater Tubatse Local Municipalities in August 2016, prior to which they were separate entities.

Local Municipalities according to population size (335 676 people), while TCLM is ranked 115th and has a population of 98 387.

11.12.1 Traditional governance

Traditional governance plays an important role in South Africa. This is particularly true in the Limpopo Province rural context, where traditional systems, although intertwined with western modernisation, continue to be influential in many communities. Traditional governance and influence is sustained by a number of traditional structures including Traditional Councils (Kgoshis and Councillors), Communal Property Associations and religious organisations and leaders.

The FGTLM currently has 39 wards and a larger portion of the municipality is predominantly rural. With its rural nature, the area is administered by Traditional Leaders and are responsible for the day to day running of the traditional authorities including land allocation in the rural areas. The majority of the land claims in the GSDM are lodged by Traditional Leaders.

There are 12 Traditional Leaders seconded by the Limpopo house of Traditional Leaders serving in the FGTLM council.

11.12.2 Communities

Three communities reside on farms falling within the Zol, those being the Gamawela, Moletsi and PakanengChoma (further elaborated on below). While these communities acknowledge the presence of ward councillors in their areas, there seem to be little or no interaction between these communities and the ward councillors; rather, these communities refer to their Communal Property Associations (CPAs) or community trusts for governance.

There is a complex and contradictory land claims situation in the study area, for example, several communities and families claimed the same farm portions separately; different communities collectively lodged claims; and, different communities collectively lodged claims but later decided to part ways thus leading to conflicts relating to the legitimacy of their claims (SRK SIA, 2014).

12 Description of the current land uses

The Der Brochen project area is situated in a remote rural area, which up until recently saw very little human activity. This is the result of:

- The steep Dwars-River valley combined with the rocky soils and low rainfall, which is not suitable for crop agriculture in the area;
- The steep gradients in the area and rocky soils leading to stock farming being marginal in the area; and
- The Dwars-River valley that is bordered by tall mountains to the east, west and south making accessibility and thoroughfare difficult, therefore limiting human activity in the area.

Based on the above observations historical land use in the area consisted of large areas of open wilderness with some game farming and cattle grazing activities occurring.

In more recent times mining development has become established in the area and now forms the most dominant land use feature in the area.

13 Description of specific environmental features and infrastructure on the site

The area is characterised by a rugged topography with the relief measuring between 940 m and over 2 000 m above sea level. The Der Brochen Project area is characterised by rugged topography with prominent north-south trending mountain ranges (the Steenkampsberge) extending across the project area. Two deep valleys extend in a north-south direction between the Steenkampsberge mountain ranges and the Groot-Dwars River (in the east) and the Klein-Dwars River (in the west) are contained within these valley floors.

The Der Brochen dam is situated on the Groot-Dwars River upstream of the Der Brochen Project area and proposed activities. The main tributary of the Groot-Dwars River in the project area is the ephemeral Mareesburg Stream, which is adjacent to the partially constructed Mareesburg TSF.

Historic land use in the region consisted of mostly open wilderness with some game farming and cattle grazing. The topographical and climactic conditions of the study area are unsuitable for large-scale commercial cultivation and stock farming. The steep topography also makes accessibility challenging. Isolated farmsteads, accommodation facilities and game lodges are scattered throughout the surrounding area.

The Mine area has been highly transformed due to surface mining activities resulting in scarring (due to stripping of vegetation) and large man-made landforms (e.g. RWDs, TSFs and waste rock dumps). The Mine precinct comprises long-term surface infrastructure to support mining including offices, a large concentration plant, a wide network of haul roads and conveyors, and earthmoving machinery and equipment.

14 Environmental and current land use map

Current land uses associated with the Der Brochen Project include mining, wildlife, wilderness and grazing. Refer to Figure 14-1 and Figure 14-2 below for the land use map of the Der Brochen Amendment Project area.

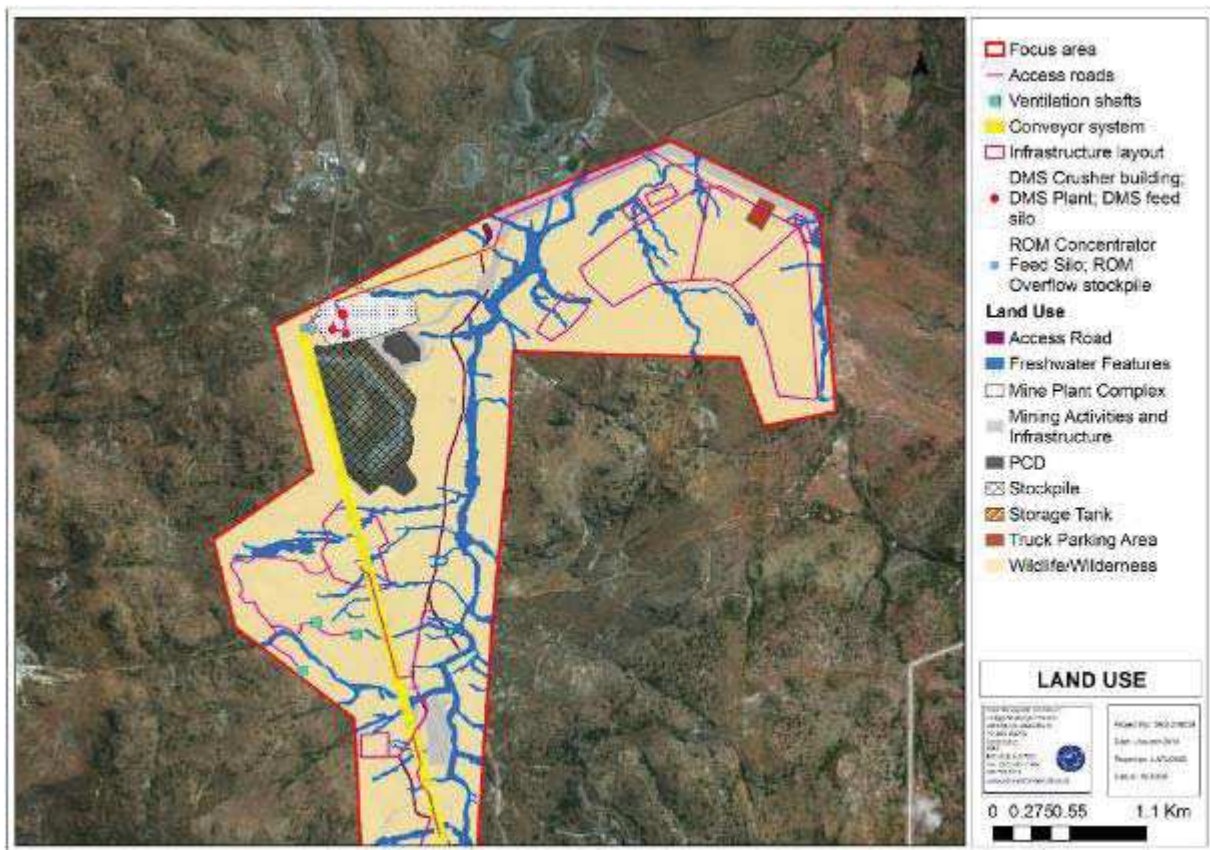


Figure 14-1: Map depicting identified land use within the northern portion of the focus area

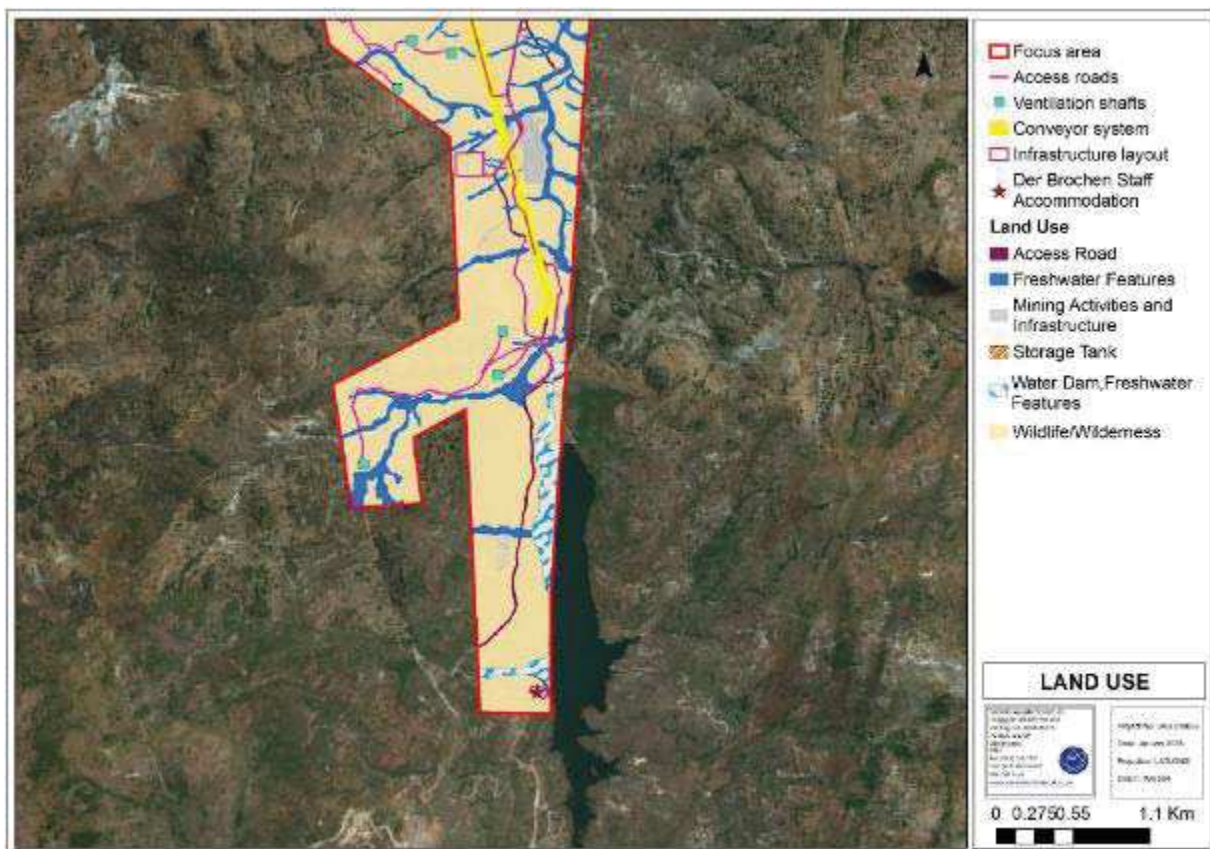


Figure 14-2: Map depicting identified land use within the southern portion of the focus area

15 Impacts identified

High-level potential impacts for the proposed project and associated activities are included in Table 15 1. The significance of these impacts will be determined during the EIA phase.

Table 15-1: High-level potential impacts identified for the Der Brochen Amendment project

Activity	Potential Impact
Construction	
Establishment of construction contractor's laydown area.	Emissions into the atmosphere through use of diesel powered equipment, machinery and vehicles.
	Soil loss due to land clearing excavations for establishment of contractors' laydown area. Loss of fertile topsoil layer and loss through erosion.
	Loss in grazing potential, loss of soil and deterioration of soil characteristics.
	Loss of local biodiversity.
	Increased runoff and associated potential silt-loading and contamination of downstream water bodies.
	Alien invasive establishment and bush encroachment.
	Potential harm to sensitive flora and fauna in the riparian habitats.
Construction of terrace for shaft and related infrastructure.	Soil loss due to land clearing excavations for establishment of contractors' laydown area. Loss of fertile topsoil layer and loss through erosion.
	Increased runoff and associated potential silt-loading and contamination of downstream water bodies.
	Irresponsible use of water and water wastage.
	Compaction and alteration of physical characteristics of soil.
	Alien invasive establishment and bush encroachment.
	Potential harm to sensitive flora and fauna in the riparian habitats.
	Potential harm to flora and fauna through littering.
	Emissions into the atmosphere through use of diesel powered equipment, machinery and vehicles.
Establishment of access roads and the upgrading or widening of haul roads	Loss of fertile topsoil layer and loss through erosion.
	Compaction and alteration of physical characteristics of soil.
	Loss in grazing potential, loss of soil and deterioration of soil characteristics.
	Potential harm to sensitive flora and fauna in the riparian habitats.
	Potential harm to flora and fauna through littering.
Operation	Emissions into the atmosphere through use of diesel powered equipment, machinery and vehicles.
	Generation of dust and spillages could contaminate water bodies in neighbouring areas.
	Emissions into the atmosphere through use of diesel powered equipment, machinery and vehicles.
	Change in groundwater aquifers and alteration of groundwater flow.
	Loss in grazing potential and loss of soil.
Stockpiling of material.	Loss of local biodiversity.
	Increased runoff and associated potential silt-loading and contamination of downstream water bodies.

Activity	Potential Impact
	Alien invasive establishment and bush encroachment.
Loading and hauling of material to concentrator.	Emissions into the atmosphere through use of diesel powered equipment, machinery and vehicles.
Decommissioning and closure	
Removal and rehabilitation of infrastructure areas.	Lack of functional vegetation due to poor rehabilitation.
	Potential damage to groundwater aquifers and alteration of groundwater flow.
	Free drainage restored to area. Poor drainage if area is not adequately rehabilitated.

16 Methodology used in determining the significance of environmental impacts

The impact assessment methodology used, has been formalised to comply with Regulation 31(2)(l) of the National Environmental Management Act (Act 107 of 1998) as amended (NEMA), which states the following:

“ (2) An environmental impact assessment report must contain all information that is necessary for the competent authority to consider the application and to reach a decision ..., and must include –

- (i) an assessment of each identified potentially significant impact, including –
 - (i) **cumulative** impacts;
 - (ii) the **nature** of the impact;
 - (iii) the **extent** and **duration** of the impact;
 - (iv) the **probability** of the impact occurring;
 - (v) the **degree** to which the **impact can be reversed**;
 - (vi) the **degree** to which the impact may **cause irreplaceable loss of resources**; and
 - (vii) the **degree** to which the **impact can be mitigated**.”

Based on the above, the EIA Methodology will require that each potential impact identified is clearly described (providing the nature of the impact) and be assessed in terms of the following factors:

- Extend (spatial scale) - *will the impact affect the national, regional or local environment, or only that of the site?*
- Duration (temporal scale) - *how long will the impact last?*
- Magnitude (severity) - *will the impact be of high, moderate or low severity?; and*
- Probability (likelihood of occurring) - *how likely is it that the impact may occur?*

To enable a scientific approach for the determination of the environmental significance (importance) of each identified potential impact, a numerical value has been linked to each factor. The ranking scales applicable are shown in Table 16-1 below.

Table 16-1: Impact Ranking Scales

Occurrence	Duration	Probability
	5 – Permanent	5 – Definite/don't know
	4 - Long-term (ceases with the operational life)	4 – Highly probable
	3 - Medium-term (5-15 years)	3 – Medium probability
	2 - Short-term (0-5 years)	2 – Low probability
	1 – Immediate	1 – Improbable
Severity		0 – None
	Extent/Scale	Magnitude
	5 – International	10 - Very high/uncertain
	4 – National	8 – High
	3 – Regional	6 – Moderate
	2 – Local	4 – Low
	1 – Site only	2 – Minor

	0 – None	
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Once the above factors had been ranked for each identified potential impact, the environmental significance of each impact can be calculated using the following formula:

$$\text{Significance} = (\text{duration} + \text{extend} + \text{magnitude}) \times \text{probability}$$

The maximum value that can be calculated for the environmental significance of any impact is 100.

The environmental significance of any identified potential impact is then rated as either: high, moderate or low on the following basis:

- More than 60 significance value indicates a high (H) environmental significance impact;
- Between 30 and 60 significance value indicates a moderate (M) environmental significance impact; and
- Less than 30 significance value indicates a low (L) environmental significance impact.

In order to assess the degree to which the potential impact can be reversed and be mitigated, each identified potential impact will need to be assessed twice.

- Firstly the potential impact will be assessed and rated prior to implementing any mitigation and management measures; and
- Secondly, the potential impact will be assessed and rated after the proposed mitigation and management measures have been implemented.

The purpose of this dual rating of the impact before and after mitigation is to indicate that the significance rating of the initial impact is and should be higher in relation to the significance of the impact after mitigation measures have been implemented. In order to assess the degree to which the potential impact can cause irreplaceable loss of resources, the following classes (%) will be used:

- 5 100% - Permanent loss
- 4 75% - 99% - significant loss
- 3 50% - 74% - moderate loss
- 2 25% - 49% - minor loss
- 1 0% - 24% - limited loss

Please note that the Loss of Resources aspect will not affect the overall significance rating of the impact.

In terms of assessing the cumulative impacts, specialists are required to address this in a sentence/paragraph fashion, as the spatial extent of the cumulative impacts will vary from project to project. Cumulative impact, in relation to an activity, means the impact of an activity that in itself may not be significant, but may become significant when added to the existing or potential impacts eventuating from similar or diverse activities or undertakings in the area.

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

Various changes have been made to the initial project layout since the finalisation of the pre-feasibility study by RPM. Table 16-2 provides a summary of the positive and negative impacts can be anticipated due to the initial change from opencast mining to underground mining operation as well as the finalisation of the preferred layout plan.

Table 16-2: Positive and negative impacts regarding project alternatives

Positive Impacts		Negative impacts	
Underground mining method			
<ul style="list-style-type: none">A smaller surface footprint area will be required for the establishment of the decline shaftsThe anticipated impacts associated with underground mining operations are less than those anticipated for opencast mining activities.		<ul style="list-style-type: none">Due to the extent of the underground mine workings, there is a potential that additional groundwater ingress volumes will need to be appropriately managed.	
Mine residue deposits and stockpiles			
<ul style="list-style-type: none">Due to the change in the mining methodology strategy, no additional TSF will be required nor the previously approved co-disposal facility.Only one DMS stockpile will be required instead of the initial contemplated two waste rock storage areas.The conveyor system required for the DMS material transportation to the DMS stockpile area will follow existing linear infrastructure servitudes.		<ul style="list-style-type: none">Additional diversion trenches will be required around the proposed DMS stockpile area.	
DMS Plant			
<ul style="list-style-type: none">The DMS material produced through the incorporation of a DMS Plant as part of the processing operation can provide material that can be used for alternative uses such as road aggregate material		<ul style="list-style-type: none">The DMS Plant will require additional services, such as electricity and water supply.	
Decline Shafts			
<ul style="list-style-type: none">Initially RPM considered the construction of three decline shafts, i.e. North, Central and South shafts. This has subsequently been reduced to only two required decline shafts.		<ul style="list-style-type: none">The initial footprint of South decline shaft area were marginally increased to accommodate the facilities that would have been placed at the Central decline shaft.	
Transportation			
Trucking (current scope)			
<ul style="list-style-type: none">Use of existing road networks, therefore no construction for new roads are required.		<ul style="list-style-type: none">Increase of traffic volumes on existing road networks.Increased possibilities for road accidents involving vehicles and pedestrians.Deterioration of existing road network due to additional heavy vehicles.	
Conveying (alternative)			
<ul style="list-style-type: none">Larger volumes of ore can be transported by means of conveying.Area where conveyor belt is planned is sparsely populated.		<ul style="list-style-type: none">Construction of new linear activity.Increased noise levels due to operation of conveyor belt.Increase in dust fallout due to conveyor belt not covered.Potential for surface water contamination at watercourse crossings.	

16.2 The possible mitigation measures that could be applied and the level of risk

Each impact identified during the impact assessment phase of the authorisation process will be evaluated in terms of whether mitigation measure can be applied or not, and the type of mitigation measures that can be applied. The level of risk to the project, biophysical, social and heritage aspect will also be assessed during the impact assessment phase. The results of the impact assessment will be reported in the fully completed and detailed impact assessment table that will be completed for the EIA/EMPr Report. Therefore, each impact, whether the significance is low or high, will have a mitigation measure stipulated where applicable. Furthermore, a post-mitigation assessment of the significance of the impact will also be completed, which will provide an indication of the effectiveness of said mitigation measure.

16.3 The final Site Layout Plan

A final site layout plan is shown in **Appendix 3** and this map will be presented to stakeholders at public meetings.

16.4 Motivation where no alternative sites were considered.

Alternatives considered are discussed in Section 9 of this document.

16.5 Statement motivating the preferred site

Alternatives relating to location, infrastructure and transportation are being considered as part of the impact assessment phase. However, the location of the proposed project is constrained to the location of the mineral resource, and proven reserve area. As such, limited property alternatives were viable to be considered for this project. The preferred site currently being considered is a small footprint area located in close proximity to the existing infrastructure within the Der Brochen Mine's mining rights and lease areas.

17 Plan of study for the Environmental Impact Assessment process

17.1 Description of alternatives to be considered including the option of not going ahead with the activity

Please refer to Section 9 for alternatives.

17.2 Description of the aspects to be assessed as part of the environmental impact assessment process

The following aspects will be assessed as part of the impact assessment process:

- Biophysical:
 - Air Quality
 - Soils, land capability and land use;
 - Biodiversity (fauna, flora and aquatics);
 - Groundwater;
 - Surface water;
 - Air Quality;
 - Visual;
 - Noise;

- Social;
- Traffic;
- Cultural Heritage; and
- Closure.

17.3 Description of aspects to be assessed by specialists

A team of specialist has been appointed to undertake various specialist investigations. Specialist studies will be undertaken as part of the impact assessment phase of the integrated environmental authorisation process associated with the Der Brochen Amendment Project.

The specialist studies will investigate the baseline environment, potential impacts and provide management measures for incorporation into the Der Brochen Amendment Project's EIA/EMPr Report. The specialist studies will also take into consideration the inputs and recommendations provided from stakeholders obtained through the public participation process. Table 17-1 outlines the specialist studies that will be undertaken for the Der Brochen Amendment Project.

Table 17-1: Specialist studies to be undertaken for the Der Brochen Amendment Project

Specialist Field	Company	Contact Person
Air Quality	Airshed	Ms Reneé von Gruenewalt
Biodiversity – Terrestrial Ecology	SAS Environmental	Mr Chris Hooton
Biodiversity – Aquatic Ecology	SAS Environmental	Mr Stephen van Staden
Blasting and Vibrations	dBAcoustics	Mr Barend van der Merwe
Geohydrology & Geochemistry	Delta H	Dr Martin Holland & Prof Kai Witthüser
Heritage	PGS Heritage (Pty) Ltd	Mr Polke Birkholtz
Hydrology (Surface Water)	SRK	Mr Peter Shepherd
Rehabilitation and Closure	SRK	Mr James Lake
Social Impact	SRK	Ms Adel Malebana
Soil, land capability and land use	SAS Environmental	Mr Stephen van Staden
Traffic	Aurecon	Ms Sthembile Mnengela
Visual	SRK	Mr Scott Masson & Ms Jessica du Toit
WULA	SRK	Ms Jacky Burke

The Terms of Reference for the Specialist studies are provided for in **Appendix 6**.

17.4 Proposed method of assessing the environmental aspects including the proposed method of assessing alternatives

The environmental impact assessment will be undertaken according to a method (which is detailed below) that SRK has undertaken with previous AAP studies for impact assessment. This methodology is compliant with the NEMA Regulations.

Generally, the impact assessment is divided into three parts:

- Issue identification – each specialist will be asked to evaluate the ‘aspects’ arising from the project description and ensure that all issues in their area of expertise have been identified;
- Impact definition – positive and negative impacts associated with these issues (and any others not included) then need to be defined – the definition statement should include the activity (source of impact), aspect and receptor as well as whether the impact is direct, indirect or cumulative. Fatal flaws should also be identified at this stage; and

- Impact evaluation – this is not a purely objective and quantitative exercise. It has a subjective element, often using judgement and values as much as science-based criteria and standards. The need therefore exists to clearly explain how impacts have been interpreted so that others can see the weight attached to different factors and can understand the rationale of the assessment.

In order to understand the impact evaluation, the sensitivity of the receiving environment, the effect on the receiving environment and the significance of the impacts need to be clearly described.

The impact assessment methodology that SRK will use during the impact assessment phase is described in Section 16 of this report.

17.5 The proposed method of assessing duration significance

Duration significance of impacts will be assessed using the following criteria, where the duration of time relates to how long that impact will occur for during that phase of the project. Specific durations will be allocated to each project phase in the EIA/EMP_r document where the detailed impact assessment rating will be undertaken. For example, for the operation phase:

- **Short term:** 0 – 5 years;
- **Medium term:** 5 – 15 years;
- **Long term:** Longer than 5 years.

18 The stages at which the competent authority will be consulted

The competent authority (DMR Limpopo Regional Offices) will be consulted through various phases during the environmental authorisation process. This includes:

- Pre-application meetings → held on 10 December 2018;
- Announcement and Scoping Phase – During March 2019; and
- Impact Assessment Phase → During June 2019.

19 Particulars of the public participation process with regard to the Impact Assessment process that will be conducted

19.1 Steps to be taken to notify interested and affected parties

Engagement with I&APs during the Impact Assessment Phase involves a review of the findings of the impact assessment presented in the Draft EIA/EMP_r Report for public comment which will be made available. Stakeholders will be notified using the following:

- Media advertisements in the same newspapers used during the announcement and scoping phase to announce the availability of the EIA/EMP_r Report for public comment
- Registered stakeholders will be informed by way of personal letters/SMS distributed by mail and e-mail in advance of the report being available; and
- Ongoing contact through the Leadership Development Forum.

19.2 Details of the engagement process to be followed

Following the availability of the draft EIA/EMPr report, meetings with relevant I&APs will be undertaken. During the Impact Assessment Phase, stakeholders will be invited to comment on the EIA/EMPr Report in any of the following ways:

- By completing comments sheets available with the report at public places, and by submitting additional written comments, by email, fax or by telephone, to SRK; and
- The EIA/EMPr Report will be available for comment for a period of 30 days at public places in the project area and placed on the SRK website: www.srk.co.za.
- All comments and issues raised during the 30 day public comment period will be incorporated into the EIA/EMPr Report to be submitted to the competent and commenting authorities

19.3 Description of the information to be provided to Interested and Affected Parties

- The project description (final site layout, all alternatives investigated) and the surrounding baseline environment;
- Findings from the specialist studies undertaken;
- Potential biophysical and socio-economic impacts during construction, operations, closure and post-closure phases of the project;
- Management/ mitigation measures developed to address the potential impacts;
- The closure objectives, plan and financial provision; and
- Details on how stakeholders can comment on the EIA/EMP report.

19.4 Description of the tasks that will be undertaken during the environmental impact assessment process

The following activities will take place as part of the environmental impact assessment process going forward:

- Undertake specialist studies for the activities and infrastructure associated with the proposed Expansion Project;
- Conduct the environmental impact assessments: The assessment will be conducted according to SRK's impact assessment methodology;
- Develop an EMPr: The EMPr will be compiled to avoid and/or mitigate and manage the impacts identified in the impact assessment;
- Review specialist recommendations as stipulated in the various specialist reports for incorporation into the EIA/EMPr;
- Provide registered I&APs feedback on the assessment phase in accordance with the public participation process;
- Submit the draft EIA/EMPr for I&AP and authority review: The final EIA/EMPr will be submitted to the relevant authorities following the incorporation of I&APs comments to ensure that their comments have been addressed in the final report; and
- Communicate the decision of the relevant authorities to registered I&APs.

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

It must be noted that each impact identified within the impact assessment phase of the authorisation process will be evaluated in terms of whether mitigation measure can be applied or not, and what kinds of mitigation measures can be applied. This will be reported in the fully completed and detailed impact assessment table that will be completed for the EIA/EMPr Report. Therefore, each impact, whether the significance is low or high, will have a mitigation measure stipulated where applicable. Furthermore, a post-mitigation assessment of the significance of the impact will also be completed, which will provide an indication of the effectiveness of said mitigation measure.

Table 20-1 provides a list of potential mitigation measures that are typically considered to avoid, reverse, mitigate, or manage anticipated impacts identified during the Scoping Phase.

Table 20-1: Potential mitigation measures for anticipated impacts identified during Scoping

Activity	Potential Impact	Potential Mitigation Measures
Construction		
Establishment of construction contractor's laydown area.	Emissions into the atmosphere through use of diesel powered equipment, machinery and vehicles.	<ul style="list-style-type: none"> - Establish access control measures - Consider and avoid sensitive areas including heritage sites - Implementation of mine waste management plan - Implement dust suppression and monitoring - Implement noise management measures - Employment as per mine Social and Labour Plan and Mine Recruitment Strategy - Identification, permitting and translocation of protected flora and fauna - Stripping, clearing and stockpiling of soil for the purpose of rehabilitation
	Soil loss due to land clearing excavations for establishment of contractors laydown area. Loss of fertile topsoil layer and loss through erosion.	
	Loss in grazing potential, loss of soil and deterioration of soil characteristics.	
	Increased runoff and associated potential silt-loading and contamination of downstream water bodies and associated wetlands.	
	Alien invasive establishment and bush encroachment.	
	Potential harm to sensitive flora and fauna in the riparian habitats.	
Construction of terrace for shaft and related infrastructure.	Soil loss due to land clearing excavations for establishment of contractors laydown area. Loss of fertile topsoil layer and loss through erosion.	
	Increased runoff and associated potential silt-loading and contamination of downstream water bodies and associated wetlands.	
	Irresponsible use of water and water wastage.	
	Compaction and alteration of physical characteristics of soil.	
	Alien invasive establishment and bush encroachment.	
	Potential harm to sensitive flora and fauna in the riparian habitats.	

Activity	Potential Impact	Potential Mitigation Measures	
	Potential harm to flora and fauna through littering and waste toxins.		
	Emissions into the atmosphere through use of diesel powered equipment, machinery and vehicles.		
Establishment of access roads and the upgrading or widening of haul roads	Loss of fertile topsoil layer and loss through erosion.		
	Compaction and alteration of physical characteristics of soil.		
	Loss in grazing potential, loss of soil and deterioration of soil characteristics.		
	Potential harm to sensitive flora and fauna in the riparian habitats.		
	Potential harm to flora and fauna through littering and waste toxins.		
	Emissions into the atmosphere through use of diesel powered equipment, machinery and vehicles.		
Operation			
Removal/mining of material from the shafts.	Generation of dust and spillages could contaminate water bodies in neighbouring areas.		<ul style="list-style-type: none">- Implement dust suppression and monitoring- Implement and maintain stormwater management controls- Implement safety measures to prevent injury- Restrict access to the conveyor belt- Implementation of mine waste management plan- Maintain vegetation cover within the servitude- Implement spill management plan- Regulate and monitor water levels within PCD's- Implement leak detection management plan- Revegetate the topsoil stockpile and monitor vegetation cover
	Emissions into the atmosphere through use of diesel powered equipment, machinery and vehicles.		
	Change in groundwater aquifers and alteration of groundwater flow.		
Stockpiling of material.	Increased runoff and associated potential silt-loading and contamination of downstream water bodies.		
	Alien invasive establishment and bush encroachment.		
Loading and hauling of material to concentrator.	Emissions into the atmosphere through use of diesel powered equipment, machinery and vehicles.		
	Irresponsible use of water and water wastage.		
Decommissioning and closure			
Removal and rehabilitation of infrastructure areas.	Lack of functional vegetation due to poor rehabilitation.	<ul style="list-style-type: none">- Implement weed eradication plan- Rip project related areas and rehabilitate the areas with topsoil and natural vegetation- Implement dust suppression and monitoring- Implement and maintain stormwater management controls	
	Potential damage to groundwater aquifers and alteration of groundwater flow.		
	Free drainage restored to area. Poor drainage if area is not adequately rehabilitated.		

21 Specific Information required by the competent Authority

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

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

A social-economic impact assessment will be undertaken during the impact assessment phase. The result of such study will be incorporated into the EIA/EMPr Report.

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

A cultural heritage assessment will be undertaken during the impact assessment phase to confirm the presence of any heritage sites of significance. The result of such study will be incorporated into the EIA/EMPr Report.

Should such features be found within the boundary of the Der Brochen Amendment Project, the impacts on these features will be assessed and the relevant and appropriate mitigation measures will be recommended.

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

Please refer to Section 9 for the alternatives considered in respect of the Der Brochen Amendment Project.

23 UNDERTAKING REGARDING CORRECTNESS OF INFORMATION

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

Signature of the EAP

DATE:

30 January 2019

24 UNDERTAKING REGARDING LEVEL OF AGREEMENT

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

Signature of the EAP

DATE:

30 January 2019

-END-

Prepared by

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Selma Nel

Principal Environmental Scientist

Reviewed by

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Franciska Lake

Partner

All data used as source material plus the text, tables, figures, and attachments of this document have been reviewed and prepared in accordance with generally accepted professional engineering and environmental practices.