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**DRAFT SCOPING REPORT FOR THE PROPOSED ADDITION OF THREE WASTE
ROCK DUMPS AT THE EXISTING TWO RIVERS PLATINUM MINE, LIMPOPO
PROVINCE.**

DMRE REF: LP 178 MR

ELEMENTAL REF: Two Rivers Platinum_02_2021_EA

**Various Portions of Farms Tweefontein 360KT, Dwarsrivier 372 KT, Kalkfontein 367 KT and
Buffelshoek 368 KT, Steelpoort, Limpopo Province**

29 April 2021

Submitted as part of an application process for environmental authorisation in terms of the National Environmental Management Act (Act 107 of 1998) [as amended], the National Waste Act (Act 59 of 2008) and National Water Act, (Act 36 1998) in respect of listed activities that have been triggered by application in terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002) [as amended].

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Document Control, Quality Control and Disclaimer

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| Responsible Person | Date | Position |
|---------------------------|---------------|---------------------------------------|
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| SR van de Giessen | 22 April 2021 | Environmental Assessment Practitioner |

BASIS OF REPORT

This document has been prepared in accordance with the Department of Mineral Resources and Energy (DMRE) Scoping Report template format and was informed by the guidelines posted on the official DMRE website. This is in accordance with the requirements of the Minerals and Petroleum Resources Development Act (Act No. 28 of 2002) (MPRDA). Given this, ELEMENTAL has included additional information in the introduction section of the report that it deems necessary and relevant to setting the scene for the Environmental Impact Assessment (EIA) process. In addition, this report has been compiled in line with the requirements of the National Environmental Management Act (Act No 107 of 1998) (NEMA) and EIA Regulations (2014), as amended. A Water Use Licence in terms of the National Water Act (Act No. 36 of 1998) will be submitted for the proposed additional activities.

The information contained in this report is relevant only to the specific additional activities (three additional Waste Rock Dumps), located with the approved mining right area. This information cannot be relied on for any other purposes or by any other person.

Information reported herein may be based on the interpretation of public domain data collected by ELEMENTAL and/or information supplied by the applicant and/or its other advisors and associates. The data has been accepted in good faith as being accurate and valid.

This document may contain information of a specialised and/or highly technical nature and the reader is advised to seek clarification on any elements which may be unclear.



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

DRAFT SCOPING REPORT

**FOR LISTED ACTIVITIES ASSOCIATED WITH THE EXISTING
MINING RIGHT FOR TWO RIVERS PLATINUM, LIMPOPO
PROVINCE**

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: Two Rivers Platinum (Pty) Ltd

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DMRE REFERENCE NUMBER: LP 178 MR

EXECUTIVE SUMMARY

Elemental Sustainability (Pty) Ltd (ELEMENTAL) was appointed by Two Rivers Platinum (Pty) Ltd (Pty) Ltd (TRP) to undertake the environmental authorisation process, in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) (as amended), and the National Environmental Management Waste Act, 2008 (Act 59 of 2008), to amend the existing environmental authorisation to include the proposed addition of three (3) additional waste rock dumps within the existing Environmental Authorisation (EA) and mining right area.

The TRP mine is located approximately 20 km south-west of the town of Steelpoort, within the Greater Tubatse Local and Sekhukhune District Municipalities, in the Limpopo Province. Two Rivers Platinum has a New Order Mining Right (LP 178 MR), Environmental Management Programme (approved 30 July 2015) and a Section 102 Amendment (20 January 2020) to explore and mine the Platinum Group Metals (PGM's), chrome and other precious metals (gold and silver), and associated base metals and ores thereof on portions of the farm Dwarsrivier 373 KT, Tweefontein 360 KT, Buffelshoek 368 KT and Kalkfontein 367 KT.

Based on current and projected Life of Mine (LoM) calculations, Two Rivers Platinum will require additional Waste Rock Dump (WRD) capacity to cater for the projected deposit rates. The proposed Waste Rock Dump 1, Waste Rock Dump 2, and Waste Rock Dump 3 will be located on Portion 6 of Dwarsrivier 372 KT.

Activities at TRP commenced in 2003 with bulk sampling for a feasibility study. Trial mining operations and preliminary access development took place in 2004. The mining plan was submitted to the JV Board in December 2004, where after the project was released in June 2005 and construction commenced. Operations commenced with the Upper Group 2 (UG 2) been mined from the underground via two portals, namely the Main decline and the North decline.

In 2018, TRP applied to extend its mining operations to sustain the UG2 production and grow the Merensky production. The expansion project includes a westward down-dip and northward strike extension of the UG2 production, and extended across the greater part of the Kalkfontein property. This expansion is also accessed via the Main and North decline underground sections. The existing processing plant and site infrastructure is utilised for the production of PGM concentrate.

Ore is mined from the production sections and transported by means of Load Haul Dumpers (LHD's) to a tipping facility located at the tail end of the nearest strike conveyor. The ore is transported via the strike conveyor system, along the strike towards the primary decline. Ore handling on surface is performed by either an overland conveyor system or by trucking, to the processing plant for

processing, as per current operations. Waste rock and slimes are disposed at the current waste rock dump or slimes dam. Product is transported to the intended market.

Table 1 below, summarises the additional activities proposed for Two Rivers Platinum mine:

Table 1: Proposed Activities for Two Rivers Platinum Mine

| APPLICATION | ACTIVITY | FARM PORTIONS INVOLVED |
|--|-------------------|---------------------------------|
| Construction and operation of three additional residue stockpiles (waste rock dumps) | Waste Rock Dump 1 | Portion 6 of Dwarsrivier 372 KT |
| | Waste Rock Dump 2 | Portion 6 of Dwarsrivier 372 KT |
| | Waste Rock Dump 2 | Portion 6 of Dwarsrivier 372 KT |

Mining Right Area

The mine is a fully operational mine with two declines and associated processing infrastructure consisting of the following.

- Storm water dams, Drying Beds, Settling Dams and a treatment facility
- Dirty Water Handling Infrastructure – RWD, Cut off trenches
- Overland ore conveyances
- Waste material stockpiles
- High mast lighting. 10-15 high mast lights at each new shaft, in high traffic and security critical areas
- Ore silo to provide surge capacity for the overland conveyor system
- Office blocks
- Change houses – change facilities, ablution and storage lockers for 350 – 400 people at each shaft
- Lamp and crush facility at each shaft
- Roads network
- Haul Roads
- Bus stop and parking for personnel and visitors
- Security and access control
- Cable storage and salvage yard
- Sewage (treatment plants included as vendor supplied units, sized according to personnel complement)
- Firefighting and prevention (fire hydrants and hose reels, electric and diesel pumps to operate the deluge systems in the main substations of both shafts)
- Storm Water Management (cut off drains and berms at the Main and North shafts)
- General stores at each shaft for rock drills, rotary equipment, batteries and gas cylinders

- Explosive stores (a local explosives magazine to cater for daily usage, filled daily from the primary storage)
- Bulk fuel and lubricant storage (to receive store and dispense a week's consumption of each product)
- Miscellaneous facilities: portal rainwater sump and drain, dirty water sump and drain, covered walkways, brake test ramp, refuse disposal facilities, electrified fencing around the perimeter of the infrastructure
- Processing plants (UG 2 and Merensky)
- ROM Circuits, Silo's and Stockpiles
- Primary processing plant
- Secondary processing plant
- Underground infrastructure (refuge bays, workshops, offices and diesel and lubricant storage);
- Existing Tailings Storage and Waste Rock Facilities, and
- New Tailings Storage Facility and associated pipelines.

Mining Schedule

The LoM for Two Rivers Platinum is 25 years.

Legislative Requirements

The most important legislation applicable to the proposed project are the following:

- *National Environmental Management Act (No. 107 of 1998) [as amended]*
Section 28 (1) Duty of Care and responsibilities to minimise and remediate environmental degradation. EIA Regulations, 2017 (Government Notices 983 and 984) [as amended]
- *EIA Regulations, 2014 (Government Notices 982) [as amended]*
The proposed construction, operational and closure activities of the proposed development triggers the following listed activity that are listed in the EIA regulations for which a Scoping and Environmental Impact Assessment (EIA) process must be conducted:
- *Mineral and Petroleum Resources Development Act (Act No. 28 of 2002) [as amended]* ○ In order to apply for a mining permit, an application was submitted on the Department of Mineral Resources' Samrad online application system.
- *National Water Act (Act No.36 of 1998) [as amended]* ○ Section 19: Prevention and remedying effects of pollution
- *National Environmental Waste Act (Act No. 59 of 2008) [as amended]* ○ Section 16: General duty in respect of waste management

- *List of Waste Management Activities that have, or are likely to have a detrimental effect on the environment as promulgated in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) [as amended]*
- *Waste Classification and Management Regulations and Norms and Standards for the assessment of for landfill disposal and for disposal of waste to landfill, 2013 (Government Notice 634 – 635 of 2013) promulgated in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) [as amended]*
- *Regulations regarding the planning and management of residue stockpiles and residue deposits from a prospecting, mining, exploration or production operation (GN R. 632 of 2015); Mine Health and Safety Act, 1996 (Act No. 29 of 1996) [as amended]*
- *National Heritage Resources Act, 1999 (Act No. 25 of 1999)*
- *National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) [as amended]*
- *National Dust Control Regulations, 2013 (Government Notice 827 of 2013)*
- *Veld and Forest Fire Act, 1998 (Act No. 101 of 1998) [as amended]*
- *National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) [as amended]*
- *Alien and Invasive Species Regulations (Government Notice 598 of 2014) and Alien and Invasive Species List, 2016 in terms of NEMBA (Government Notice 864 of 2016)*
- *Conservation of Agricultural Resources Act (no. 43 of 1983);*
- *Deeds Registries Act, 1937 (Act no. 47 of 1937) [as amended];*
- *Hazardous Substances Act, 1973 (Act 15 of 1973) [as amended];*
- *Hazardous Chemical Substances Regulations, 1995 (Government Notice 1179 of 1995); and*
- *Other relevant national, provincial, district and local municipality legislation and guidelines that may be applicable to the application. Some of these are discussed in the next section.*

Need and Desirability

Two Rivers Platinum (TRP) is an established mine with surface processing plants, waste storage facilities and two decline shafts (i.e. North and Main). The underground mining activities produce approximately 22 000 tons RoM, per month for the two sections. At the current mining rate, the mine will exhaust its Waste Rock storage capacity, in terms of storage required for waste rock. To ensure that the mine's operation is not impacted due to a lack of waste rock storage capacity as the mine plan is executed, TRP requires three additional waste rock dumps to be constructed on site which will ensure continuity of operation.

The main benefits of the Two Rivers Platinum mine are:

- Direct economic benefits derived from wages, taxes and profits. Indirect economic benefits derived from the procurement of goods and services and the spending power of employees
- Increased job security to employees
- Implementation of the proposed project will result in continued skills development associated with mining and mining activity
- Continued contribution to the economic welfare of the surrounding community by creating working opportunities, in-house training to the regional population, creation of school and sport facilities, education and housing assistance and medical and clinical facilities
- Continued contribution to the upliftment of living standards and the health and safety of the local community
- Continued economic mining of a known resource, as existing surface and underground infrastructure will be utilised, and
- The net benefit to South Africa is a product produced for the world commodity market, earning South Africa the necessary foreign exchange and capital needed for a healthy economy and further capital investments in development projects for the long-term future of the country.

The project is aligned with the objectives of the MPRDA (Act 28 of 2002):

- To promote economic growth and mineral development in the Republic
- To promote employment and advance the social and economic welfare of all South Africans
- To ensure that the nation's mineral resources are developed in an orderly and ecologically sustainable manner while promoting justifiable social and economic development; and
- To ensure that holders of mining rights contribute towards the social-economic development of the area in which they are operating

The Department of Environmental Affairs published a Guideline on Need and Desirability in terms of the Environmental Impact Assessment (EIA) Regulations, 2017. The key components are listed and discussed below:

- Securing ecological sustainable development and use of natural resources, and
- Promoting justifiable economic and social development.

Ecological sustainable developments and use of natural resources

The additional construction of three new waste rock dumps will ensure the continuity of mining operations of the economically mineable resources in the existing mining area. The existing surface infrastructure will continue to be utilised for the processing of ore and disposal of waste, and the additional residue stockpiles (waste rock dumps) will ensure no impact on continuing with the mining plant.

The proposed additional surface impact will include the removal of vegetation. Some impacts on biodiversity are anticipated and the impact will be further investigated by the relevant specialist, during the EIA phase. Any impacts on groundwater resources, while not anticipated, will also be investigated further by the relevant appointed specialist, during the EIA phase. Specialist studies will also be conducted to determine the potential impact on the water resources located in close vicinity of the proposed project area.

The results of these studies will be included in the EIA. Measures to mitigate the impacts to these resources will be included in the EIA.

Promoting justifiable economic and social development.

Community/society priorities are officially expressed through public documents including the provincial growth and development strategy and spatial development framework documents. The TRP project falls within the Greater Tubatse Municipality and forms part of the Greater Tubatse Municipality LED Strategy. Four programmes for economic development comprise:

- (1) Sector Development
- (2) Economic Infrastructure Support
- (3) Social Development, and
- (4) Institutional/Governance Reform

The projects that have been identified in the LED are aimed at economic development by ensuring job opportunities are created, jobs security is created, skills development takes place and that opportunities are created for Small, Medium and Micro-Enterprises (SMME) development. Mining plays an important part in the sector development of the Local Economic Development (LED) strategy. Mines contribute towards the socioeconomic development of the region through social-upliftment and job creation as primary agents.

The additional waste rock dumps will ensure continuity of the current mining operation, benefitting society and the surrounding communities both directly and indirectly by providing job security at the

proposed operation and through the extraction of mineral resources and beneficiation of mineral resources within Limpopo. Direct economic benefits will be derived from wages, taxes and profits. Indirect economic benefits will be derived from the procurement of goods and services and the spending power of employees. Continuation of the mining operation will also ensure local economic development through the implementation of projects identified in the Social and Labour Plan. TRP is fully committed to implementing development plans and projects that will facilitate local community and rural development in the area surrounding its project, in line with the provisions of the Broad-Based Socio-Economic Empowerment Charter for the South African Mining Industry.

Alternatives

According to the Department of Environmental Affairs (DEA) Guideline on Need and Desirability (2017) in terms of the Environmental Impact Assessment (EIA) Regulations, 2014 (as amended), to describe the need for a development, it must be determined whether it is the right time for locating the type of land use and/or activity being proposed. To describe the desirability for a development, it must be determined, whether it is the right place for locating the type of land use and/or activity being proposed. Need and desirability can be equated to the concept of wise use of land which can be determined through asking the question: “what is the most sustainable use of land?” The “no-go” alternative refers to the option of not going ahead with the proposed project. This would mean that there would be no change to the current status of the site and the positive socio-economic benefits of the proposed project would not be realised. The “no-go” alternative will result in closure of the mine.

There currently are no project alternatives being considered as feasible alternatives for the construction of the three required waste rock dumps (residue stockpile). The no-go option refers to the additional required waste residue stockpile not been constructed. This alternative will potentially avoid negative impacts on the conditions on the receiving environment. The no-go option will also prevent positive impacts i.e., cessation of positive socio-economic impact on the host and surrounding areas, if operations are stopped. Alternative layouts will be investigated during the EIA phase.

Public Participation

This section describes the public participation process (PPP) undertaken to date in line with Chapter 6 of the EIA Regulations (2014). The process is undertaken to ensure compliance with the requirements in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) [as amended] (MPRDA) and the Environmental Impact Assessment Regulations (2014) [as amended]. The intention of the PPP was to inform I&APs, in sufficient detail, of the proposed project in order that I&APs may contribute meaningfully to the EIA process.

On 5th June 2020, the Department of Environment, Forestry and Fisheries (DEFF) issued Directions GN650, in terms of the Disaster Management Act (Act 57 of 2002). As per the Directions, a Public Participation (PP) Plan is required for all public participation to be conducted in terms of the NEMA, which ensures that the EAP and Applicant will ensure that all reasonable measures are taken to identify potential I&APs for purposes of conducting public participation on the application; and ensure that, as far as is reasonably possible, taking into account the specific aspects of the application:-

- (a) Information containing all relevant facts in respect of the application or proposed application is made available to potential I&APs, and
- (b) Participation by potential or registered I&APs has been facilitated in such a manner that all potential or registered I&APs are provided with a reasonable opportunity to comment on the application or proposed application.

A copy of the PP Plan is included in Appendix D1 of this report.

To date, the PPP has included notification of I&APs through distribution of a Background Information Document (BID) (Appendix D4), the placement of a newspaper advertisement (Appendix D5) and the placement of site notices (Appendix D2). A key aspect of public consultation is the notification of landowners, occupier and users within and adjacent to the application area (Appendix D3). As part of the PPP, an I&AP database has been developed for the project, as included in Appendix D1 of this report. The Draft Scoping Report will be placed out for public review from **29 April to 31 May 2021**. All comments received will be included in the Final Scoping Report to be submitted to the Competent Authority for adjudication.

Environmental Authorisation Amendment Application

- A copy of the Draft Scoping Report has been made available for a 30-day review and comment period, as from **29 April to 31 May 2021**.
- An electronic copy of the scoping report can be downloaded. Please contact Elemental Sustainability (send an email to kumari@elemental-s.co.za or sonja@elemental-s.co.za) for the Dropbox link.
- Please send all comments to kumari@elemental-s.co.za or sonja@elemental-s.co.za with the following reference (**TRP_02_2021_EA**)

All I&AP's can register on the I&AP's database, by sending details of the I&AP to Elemental Sustainability. Please feel welcome to contact us should you have further queries or would need additional clarification.

All comments received from I&APS and organs of state, and responses sent, will be included in the final Scoping Report to be submitted to the Competent Authority (CA).

DMRE Review of the Scoping Report

On completion of the 30-day review period, a Final Scoping Report will be compiled which will include comments received during the I&AP review period. A hard copy will be submitted to the DMRE for review.

Specialist Studies

As part of the Environmental Impact Assessment (EIA) phase for the proposed construction of additional residue stockpiles (waste rock dumps) at TRP mine, the following specialist studies will be completed:

- Geotechnical Investigation
- Geohydrological Impact Assessment
- Surface Water (Hydrology) Assessment and Aquatic Assessment
- Wetland Assessment
- Fauna and Flora Assessment
- Archaeological and Cultural Heritage Impact Assessment Scan
- Palaeontological Assessment
- Visual Impact Assessment
- Closure and Rehabilitation Plans (including Financial Provisioning)

For the description of the baseline information, the following existing specialist studies conducted between 2013 and 2020 will be used as reference:

- Soil, Land Use and Land Capability (Terra Africa Environmental Consultants, 2013)
- Noise (Ben van Zyl Acoustic Consultant, 2010)
- Waste Classification (GCS Environmental Engineering, 2015 and 2020), and
- Archaeological Assessment (Tobias, 2018)
- Groundwater Assessment (NOVA, 2018)

Potential Impacts Associated with the Proposed Activity

| BIOPHYSICAL/SOCIO-ECONOMIC ASPECT | POTENTIAL IMPACT |
|---|--|
| Geology | Loss and sterilisation of mineral resources: The project has the potential to access mineral resources but also result in the loss and sterilisation of mineral resources. The project has the potential to sterilise mineral resources through the disposal of mineral resources onto mineralised waste facilities (waste rock dumps). |
| Topography | Placement of waste rock and tailings: The project has the potential to alter the topography by the creation of additional residue stockpiles (waste rock dumps). |
| Soils and land capability | Loss of soil and land capability: The project has the potential to compromise soil resources through physical disturbance (erosion and compaction) and/or pollution. |
| Biodiversity | Loss of biodiversity (terrestrial and aquatic): Impacts on biological aspects, ecosystems. Clearing of vegetation and the increase of siltation and salt load. |
| Surface water | Alteration of natural drainage patterns and pollution: the proposed project is for the construction and operation of additional waste rock dumps. The proposed project may alter the surface water infrastructure. Additional surface water infrastructure in the form of stormwater berms and a PCD on the northern side may be required, to ensure separation of clean and dirty water and prevent potential pollution. Impact on water resources through the increase of silt and salt load in the water resources. |
| Groundwater | Groundwater contamination and lowering of groundwater levels: The project has the potential to contaminate groundwater resources. |
| Air | Air quality: The proposed project has the potential to create additional dust and impact on air quality. |
| Noise | Disturbing noise levels: The proposed project has the potential to cause additional noise during construction. Limited noise pollution is anticipated, as the proposed waste rock dumps will be located within an existing mining right are, where noise from mining operations and related activities already takes place. |
| Traffic | Road disturbance and traffic safety: No increase in traffic is anticipated as a direct result of the proposed project. |
| Vibration | Vibration impact: No additional vibration is anticipated as a result of the additional waste rock dumps. |
| Heritage/cultural and palaeontological resources | Loss of heritage/cultural and palaeontological resources: The project does have the potential to damage heritage/cultural and palaeontological resources that may be present. |

| | |
|-----------------------|---|
| Socio-economic | Positive and negative socio-economic impact: The project has the potential for positive and negative socioeconomic impacts. Positive impacts include job creation and stimulation of local and regional economy as well as a parallel economy to mining. Negative impacts include the influx of job seekers and related issues of crime, disease and disruption to social structures |
| Land use | Change in land use: The proposed project has the potential to impact on surrounding land uses due to the construction and operation of the additional residue stockpiles (waste rock dumps). |

Reasoned Opinion of the EAP

Based on the findings of the preliminary impact assessment during the scoping phase, the EAP is of the opinion that the scoping phase be approved, due to the positive social and economic impacts it can have on the local and regional communities. The potential negative impacts will be investigated in the EIA phase and mitigation measures for the impacts will be developed and included in the Environmental Management Programme (EMP).

Recommendations

To achieve appropriate environmental management standards and ensure that the findings of the environmental studies are implemented through physical measures, the recommendations from the scoping report are included within the EMP. The EMP will be based on all the information to be contained in the Environmental Impact Report (EIR), as well as all the specialists' reports.

Conclusion

The Application is currently in the scoping phase. The project has the potential to impact on the biophysical, cultural and socio-economic environment, both within and surrounding project area. Input received during the scoping phase will allow for the meaningful assessment of all relevant biophysical, cultural and socio-economic issues. Potential impacts will be investigated by specialist studies as identified in this report. Stakeholder engagement will continue throughout the EIA process. The EMP will contain detailed mitigation measures which will also be incorporated into the Environmental Impact Report (EIR).

The proposed mitigation measures, if implemented, will reduce the significance of the majority of the identified impacts. It is therefore recommended based on the assessment of the current available information, that the Scoping Report for the proposed development be accepted by the Competent Authority.

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| Appendix D2 | Site Notices |
| Appendix D3 | Notification of Landowner, Occupier and Users |
| Appendix D4 | Background Information Document |
| Appendix D5 | Newspaper Advertisement |
| Appendix D6 | I&AP Database |

ABBREVIATIONS

| Abbreviation | Description |
|--------------|--|
| BPEO | Best Practicable Environmental Option |
| CS | Community Survey |
| DAFF | Department of Agriculture, Forestry and Fisheries |
| DEA | Department of Environmental Affairs |
| DEFF | Department of Environment, Forestry and Fisheries |
| DFS | Definitive Feasibility Study |
| DMRE | Department of Mineral Resources and Energy |
| DHSWS | Department of Human Settlements, Water and Sanitation |
| EAP | Environmental Assessment Practitioner |
| ECA | Environmental Conservation Act (Act 73 of 1989) |
| ECO | Environmental Control Officer |
| EIA | Environmental Impact Assessment |
| EIR | Environmental Impact Assessment Report |
| EMPR | Environmental Management Programme |
| GNR | Government Notice Regulation |
| I&APs | Interested and Affected Parties |
| IDP | Integrated Development Programme |
| IEM | Integrated Environmental Management |
| IWUL | Integrated Water Use License |
| IWULA | Integrated Water Use License Application |
| LIHRA | Limpopo Heritage Resources Agency |
| LoM | Life of Mine |
| MAMSL | Meter Above Mean Sea Level |
| MPRDA | Mineral and Petroleum Resources Development Act (Act 28 of 2002) |
| MRA | Mining Right Application |
| NEMA | National Environmental Management Act (Act 107 of 1998) |
| NEMAQA | National Environmental Management: Air Quality Act, 39 of 2004 |
| NEMBA | National Environmental Management: Biodiversity Act (Act 10 of 2004) |

| | |
|--------|---|
| NEMWA | National Environmental Management: Waste Act (Act 59 of 2008) |
| NFA | National Forest Act (Act 84 of 1998) |
| NHRA | National Heritage Resources Act (Act 25 of 1999) |
| NWA | National Water Act (Act 36 of 1998) |
| PAIA | Promotion of Access to Information Act (Act 2 of 2000) |
| PAJA | Promotion of Administrative Justice Act (Act 3 of 2000) |
| PES | Present Ecological State |
| PGMs | Platinum-Group Metals |
| PM10 | Thoracic Particulate Matter |
| PPP | Public Participation Process |
| RoM | Run of Mine |
| SAHRA | South African Heritage Resources Agency |
| SANRAL | South African National Roads Agency Limited |
| SANS | South African National Standard |
| TSF | Tailings Storage Facility |
| TPA | Tons Per Annum |
| TSP | Total Suspended Particulates |

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 uninterpreted information and that it unambiguously represents the interpretation of the applicant.

OBJECTIVE OF THE SCOPING PROCESS

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.

1. INTRODUCTION

Elemental Sustainability (Pty) Ltd (ELEMENTAL) was appointed by Two Rivers Platinum (Pty) Ltd (TRP) to undertake the environmental authorisation process in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) (as amended) and the National Environmental Management Waste Act, 2008 (Act 59 of 2008) for the proposed addition of three (3) waste rock dumps within the existing mining right and Environmental Authorisation area. The mine is located approximately 20 km south-west of the town of Steelpoort, within the Greater Tubatse Local and Sekhukhune District Municipalities, in the Limpopo Province.

Two Rivers Platinum has a New Order Mining Right (LP 178 MR), Environmental Management Programme (approved 30 July 2015) and a Section 102 Amendment (20 January 2020) to explore and mine the Platinum Group Metals (PGM's), chrome and other precious metals (gold and silver), and associated base metals and ores on portions of the farm Dwarsrivier 373 KT, Tweefontein 360 KT, Buffelshoek 368 KT and Kalkfontein 367 KT.

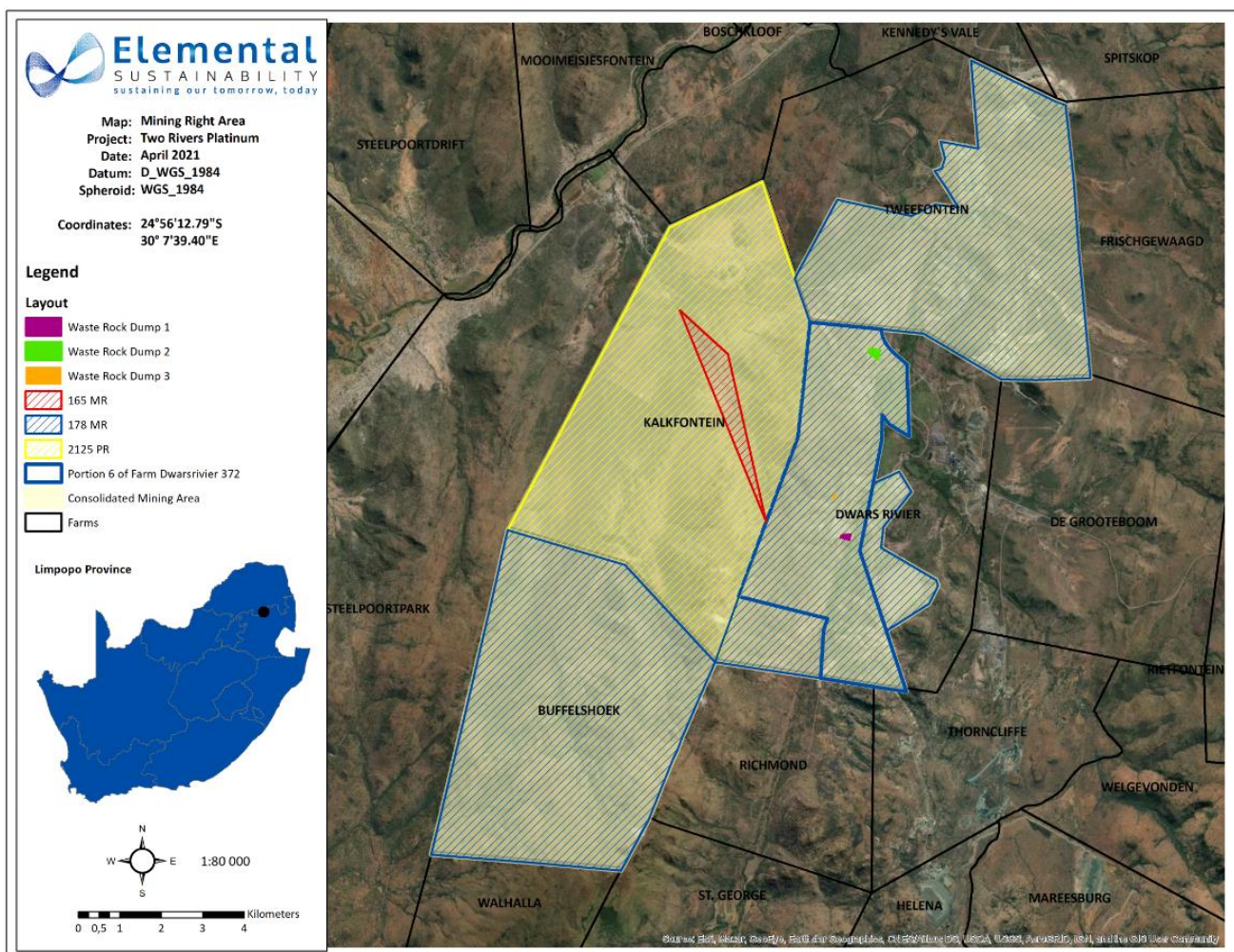


Figure 1: Mining Right Area

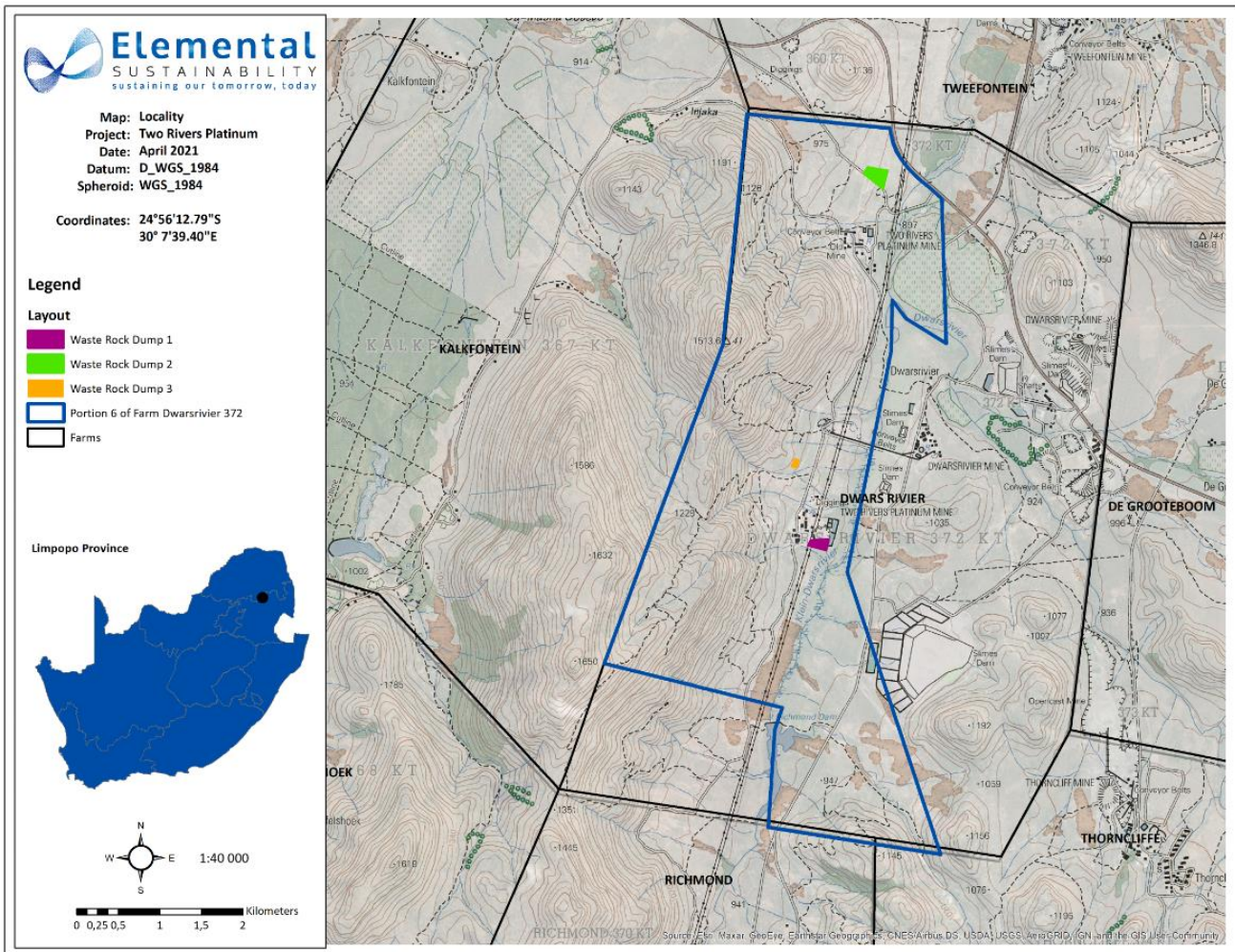


Figure 2: Location of Proposed Waste Rock Dumps

1.1. Summary of the Environmental Authorisation Requirements

Prior to the commencement of the proposed project, environmental authorisations are required from the following Competent Authorities:

- An amended Environmental Authorisation from the DMRE in terms of the NEMA. The proposed project incorporates activities listed in the Environmental Impact Assessment Regulations (EIA Regulations): Listing Notice 1 and 3, 2014 published in Government Gazette (GN) No. 983 and 985 of 4 December 2014 and amended by GN No. 327, and 324 of 7 April 2017, respectively. The EIA Regulations applicable in this study are EIA Regulations, 2014 published in GN No. 982 of 4 December 2014 and amended by GN No. 326 of 7 April 2017.
- An amended Waste Management Licence (WML) from the DMRE in terms of the NEM:WA. The proposed project incorporates waste management activities listed in GN 633 of 24 July 2015.

- A Water Use Licence (WUL) from the Department of Human Settlements, Water and Sanitation (DHSWS) in terms of the National Water Act, 1998 (No. 36 of 1998) (NWA). The proposed project incorporates water uses in terms of Section 21 of the NWA.

The applicable listed activities and water uses are listed in Section 3.1 (Table 5) of this report.

Additional permits or licences that may be required for the project include:

- Permit in terms of the National Heritage Act, 1999 (No. 25 of 1999) (NHRA), the Ordinance on Exhumations, 12 of 1980, and/or the Human Tissues Act, 1983 (No. 65 of 1983) if any heritage sites (including graves) are damaged or removed.
- Authorisation / permit in terms of the Threatened or Protected Species Regulations, 2007 (No. R. 152 of 2007).

This list will be refined, as may be required, during the course of the EIA process.

1.2. Report Structure

This Report has been compiled in accordance with the 2014 NEMA EIA Regulations as amended. A summary of the report structure, and the specific sections that correspond to the applicable regulations, is provided in Table 2 below:

Table 2: Report Structure

| Environmental Regulation | Description | Section in Report |
|--|--|--------------------------|
| NEMA Regulation 982 (2014) as amended by GNR 326 (2017) | | |
| Appendix 2(2)(a): | Details of – The EAP who prepared the report; and The expertise of the EAP, including a curriculum vitae | Section 2.1 |
| Appendix 2(2)(b): | The location of the activity. Including – The 21-digit Surveyor General code of each cadastral land parcel; Where available, the physical address and farm name; Where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties | Section 2 |
| Appendix 2(2)(c): | A plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is <ul style="list-style-type: none"> – A linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or – On a land where the property has not been defined, the coordinates within which the activity is to be undertaken | Appendix C |
| Appendix 2(2)(d): | A description of the scope of the proposed activity, including – <ul style="list-style-type: none"> – All listed and specified activities triggered; – A description of the activities to be undertaken, including associated structures and infrastructure; | Section 3 |
| Appendix 2(2)(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 | Section 4 |
| Appendix 2(2)(f): | A motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location | Section 5 |
| Appendix 2(2)(h): | A full description of the process followed to reach the proposed preferred activity, site and location within the site, including – | Section 6 Section 7 |

| Environmental Regulation | Description | Section in Report |
|--------------------------|---|---|
| | <p>Details of all alternatives considered;</p> <p>Details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;</p> <p>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;</p> <p>The environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;</p> <p>The impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts –</p> <ul style="list-style-type: none"> Can be reversed; May cause irreplaceable loss or resources; and Can be avoided, managed or mitigated; <p>The methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;</p> <p>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 and cultural aspects;</p> <p>The possible mitigation measures that could be applied and level of residual risk;</p> <p>The outcome of the site selection matrix;</p> <p>If no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and</p> <p>A concluding statement indicating the preferred alternatives, including preferred location of the activity</p> | <p>Section 8</p> <p>Section 9</p> <p>Section 10</p> <p>Section 11</p> <p>Section 12</p> |
| Appendix 2(2)(i): | <p>A plan of study for undertaking the environmental impact assessment process to be undertaken, including –</p> <ul style="list-style-type: none"> A description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity; A description of the aspects to be assessed as part of the environmental impact assessment process; Aspects to be assessed by specialists; | <p>Section 13 and Section 14</p> |

| Environmental Regulation | Description | Section in Report |
|--------------------------|--|---------------------------|
| | <p>A description of the proposed method of assessing the environmental aspects, including a description of the proposed method assessing the environmental aspects to be assessed by specialists;</p> <p>A description of the proposed method of assessing duration and significance;</p> <p>An indication of the stages at which the competent authority will be consulted;</p> <p>Particulars of the public participation process that will be conducted during the environmental impact assessment process; and</p> <p>A description of the tasks that will be undertaken as part of the environmental impact assessment process;</p> <p>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.</p> | |
| Appendix 2(2)(j) | <p>An undertaking under oath or affirmation by the EAP in relation to –</p> <p>The correctness of the information provided in the report;</p> <p>The inclusion of comments and inputs from stakeholders and interested and affected parties; and</p> <p>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</p> | Section 19 and Appendix A |
| Appendix 2(2)(k): | <p>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</p> | Appendix A |
| Appendix 2(2)(l): | <p>Where applicable, any specific information required by the competent authority; and</p> | N/A |
| Appendix 2(2)(m): | <p>Any other matter required in terms of section 24(4)(a) and (b) of the Act.</p> | N/A |

2. CONTACT PERSON AND CORRESPONDENCE ADDRESS

2.1. DETAILS OF EAP WHO PREPARED THE REPORT

| | |
|-------------------------|--|
| Name of Author | Yanaikumarie Pillay |
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| | |
|-----------------------------------|--|
| Name of EAP (Practitioner) | Sonja R van de Giessen |
| Telephone Number | +27 83 388 4633 |
| Email Address | sonja@elemental-s.co.za |

2.2. EXPERTISE OF THE EAP

2.2.1. THE QUALIFICATIONS OF THE EAP

In terms of Regulation 13 of the 2014 EIA Regulations (Government Notice R. 982) as amended by GNR326 (2017), an independent Environmental Assessment Practitioner (EAP), must be appointed by the applicant to manage the application. Elemental Sustainability (Pty) Ltd. has been appointed by the Applicant as the EAP and is compliant with the definition of an EAP as defined in Regulations 1 and 13 of the EIA Regulations and Section 1 of the NEMA. This includes, inter alia, the requirement that Elemental Sustainability is:

- Objective and independent;
- Has expertise in conducting EIA's;
- Complies with the NEMA, the Regulations and all other applicable legislation;
- Takes into account all relevant factors relating to the application; and
- Provides full disclosure to the applicant and the relevant environmental authority.

The declaration of independence of the EAP and the Curriculum Vitae (indicating the experience with environmental impact assessments and relevant application processes) are attached as Appendix A to this report.

2.2.2. SUMMARY OF THE EAP's EXPERIENCE

Attach the EAP's curriculum vitae as Appendix A.

Please refer to Table for a summary of the qualification and experience of the EAP, as well as Appendix A of this report.

Table 3: Details of EAP

| | | |
|------------------------------------|---|---|
| Environmental Consultants | Elemental Sustainability (Pty) Ltd | |
| Postal Address | P.O. Box 39080 Moreletapark, Pretoria 0044 | |
| Telephone | +27 72 062 5489 | +27 83 388 4633 |
| Fax | None | None |
| Practitioner Details | Yanaikumarie Pillay (Author) | Sonja van de Giessen – EAP (<i>Pr.Sci.Nat</i> and EAPASA) |
| Qualifications | University of Durban Westville, BSc – 1998 University of Durban Westville, BSc Hons, 1999 | University of North West, MSc Environmental management – 2018 University of South Africa, BSc Hons Environmental Science – 2010 Tshwane Technical College, B. Tech Degree Nature Conservation – 1998 Tshwane Technical College, Diploma Nature Conservation - 1995 |
| Professional affiliation(s) | None | Natural Professional Scientist (<i>Pr. Sci.Nat.</i> Number: 400084/18) Environmental Assessment Practitioner South Africa (EAPASA Number: 2019/1496) |
| Expertise of the EAP | Environmental management (mining, iron and steel, production and manufacturing), Water Use Licence Applications, Environmental Management Programmes, Rehabilitation Strategy and Implementation Plans, Integrated Water and Waste Management Plans, and Environmental Auditing | Environmental management, specifically the mining industry sector, focusing on Environmental Impact Assessments, Environmental Management Programmes, Water Use Licence Applications and Integrated Water and Waste Management Plans and Environmental Auditing. |
| Experience | Approximately 20 years of experience in Environmental Management | Approximately 10 years of experience. |

2.2.3. SPECIALIST CONSULTANTS

Specialist consultants will be appointed to provide discipline-specific input during the EIA phase and the following specialist disciplines are proposed at this stage:

- Geotechnical Investigation
- Geohydrological Impact Assessment
- Surface Water (Hydrology) Assessment and Aquatic Assessment
- Wetland Assessment
- Fauna and Flora Assessment
- Archaeological and Cultural Heritage Impact Assessment Scan
- Palaeontological Assessment
- Visual Impact Assessment
- Closure and Rehabilitation Plans (including Financial Provisioning)

In line with NEMA GNR 982 as amended by GNR 326 (2017), Appendix 6, the details of the relevant specialists, a summary of their expertise, as well as their declarations of independence will be included in their respective reports that will be appended to the EIA Report.

2.3. DESCRIPTION OF THE PROPERTY

Table 4: Description of the Property

| | | |
|---|---|-----------------------|
| Name | Two Rivers Platinum Project | |
| Application area (Ha) | Mining Area: Approximately 13 890ha Waste Rock Dump 1: Approximately 2 ha (final size TBC during EIA phase) Waste Rock Dump 2: Approximately 2 ha (final size TBC during EIA phase) Both WRD will be located on Portion 6 of the farm Dwarsrivier 372 KT (T0KT00000000037200006) | |
| Magisterial district | Greater Tubatse Local and Sekhukhune District Municipalities | |
| Distance and direction from nearest town | Approximately 20 km south-west of the town of Steelpoort, in the Limpopo Province | |
| 21-digit Surveyor General Code for each farm portion | Portion 1 of the farm Kalkfontein 367 KT | T0KT00000000036700001 |
| | Portion 2 of the farm Kalkfontein 367 KT | T0KT00000000036700002 |
| | Portion 3 of the farm Kalkfontein 367 KT | T0KT00000000036700003 |
| | Portion 4 of the farm Kalkfontein 367 KT | T0KT00000000036700004 |
| | Portion 5 of the farm Kalkfontein 367 KT | T0KT00000000036700005 |
| | Portion 6 of the farm Kalkfontein 367 KT | T0KT00000000036700006 |
| | Portion 8 of the farm Kalkfontein 367 KT | T0KT00000000036700008 |
| | Portion 10 of the farm Kalkfontein 367 KT | T0KT00000000036700010 |
| | Portion 11 of the farm Kalkfontein 367 KT | T0KT00000000036700011 |
| | Remaining Extent of the farm Kalkfontein 367 KT | T0KT00000000036700000 |
| | Portion 1 of the farm Buffelshoek 368 KT | T0KT00000000036800001 |

| | | |
|---|--|-----------------------|
| | Portion 2 of the farm Buffelshoek 368 KT | T0KT00000000036800002 |
| | Portion 3 of the farm Buffelshoek 368 KT | T0KT00000000036800003 |
| | Remaining Extent of the farm Buffelshoek 368KT | T0KT00000000036800000 |
| | Portion 6 of the farm Dwarsrivier 372 KT | T0KT00000000037200006 |
| | Portion 7 of the farm Dwarsrivier 372 KT | T0KT00000000037200007 |
| | Remaining Extent of Portion 1 of the farm Tweefontein 360 KT | T0KT00000000036000001 |
| | Portion 3 of the farm Tweefontein 360 KT | T0KT00000000036000003 |
| | Remaining Extent of Portion 4 of the farm Tweefontein 360 KT | T0KT00000000036000004 |
| | Remaining Extent of Portion 5 of the farm Tweefontein 360 KT | T0KT00000000036000005 |
| | Portion 6 of the farm Tweefontein 360 KT | T0KT00000000036000006 |
| | Portion 9 of the farm Tweefontein 360 KT | T0KT00000000036000009 |
| | Portion 10 of the farm Tweefontein 360 KT | T0KT00000000036000010 |
| | Portion 11 of the farm Tweefontein 360 KT | T0KT00000000036000011 |
| | Portion 12 of the farm Tweefontein 360 KT | T0KT00000000036000012 |
| | Portion 13 of the farm Tweefontein 360 KT | T0KT00000000036000013 |
| Portion 14 of the farm Tweefontein 360 KT | T0KT00000000036000014 | |

2.4. LOCALITY MAP

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

Figure 3 below indicates the location of the proposed project. The locality map is also appended in Appendix B.

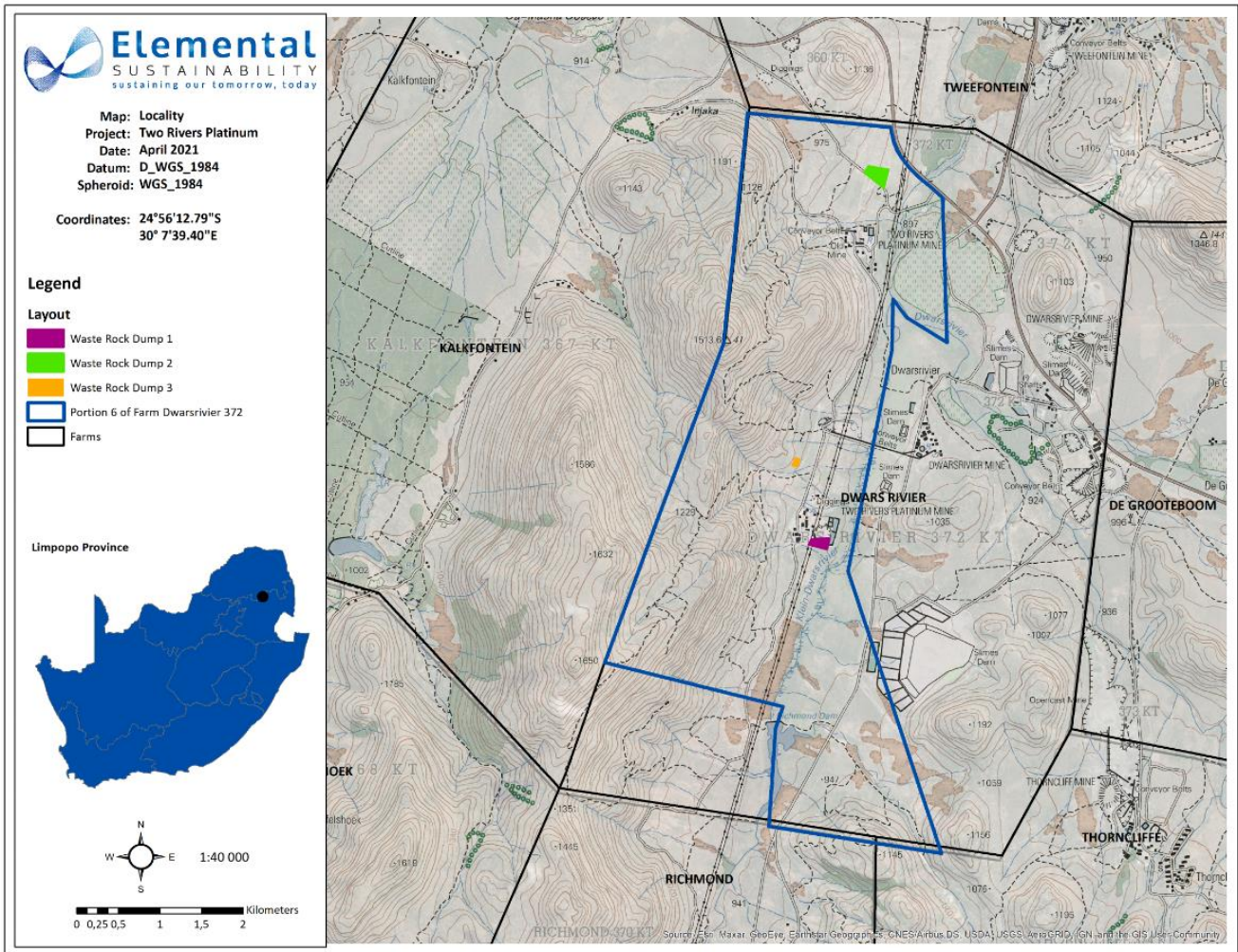


Figure 3: Locality of Proposed Project

3. DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY

3.1. LISTED AND SPECIFIED ACTIVITIES

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

Table 5 provides a summary of the mining rights and property descriptions for the existing mining right area, and the proposed extension.

Table 6 provides the listed and specified activities that are applicable to the Two Rivers Platinum Amendment Project (TRP).

Table 7 provides a description of the EIA Listed Activities. Also refer to the layout plans included in Appendix C.

Table 5: Summary of Mining Rights

| Farm Name | Farm Number | Portions | Mining Right Number |
|--------------------|--------------------|---|----------------------------|
| Kalkfontein | 367 KT | 1,2,3,4,5,6,8,9,10 and 11 | LP 30/5/1/2/3/2/1 (178) MR |
| Kalkfontein | 367 KT | Remaining Extent | |
| Dwarsrivier | 372 KT | 6 and 7 | |
| Tweefontein | 360 KT | 1, RE of 1, 3, RE of 4, RE of 5, 10, 11,12,13 and 14 | |
| Kalkfontein | 367 KT | 1,2,3,4,5 and 6 | |
| Buffelshoek | 368 KT | All portions | |

Table 6: Listed and Specific Activities

| NAME OF ACTIVITY | AERIAL EXTENT OF THE ACTIVITY | LISTED ACTIVITY | APPLICABLE LISTING NOTICE | WASTE MANAGEMENT AUTHORITY |
|--|-------------------------------|---|--|--|
| <p>(E.g. For prospecting to drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc</p> <p>E.g. for mining, to excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)</p> | Ha or m ² | Mark with an X where applicable or affected | (GNR 327, GNR 325 or GNR 324) of 7 April 2017 | (Indicate whether an authorisation is required in terms of the Waste Management Act). (Mark with an X) |
| Construction and operating of Pollution Control Dams and Stormwater management infrastructure | To be confirmed in EIA phase | | Not listed | |
| Tripping and stockpiling of topsoil and subsoil | To be confirmed in EIA phase | | Not listed | |
| Infrastructure (access roads) | Existing approved | | Existing approved | |
| Waste Rock; Stockpiles, Waste residue Deposits. | To be confirmed in EIAR | X | GN 327, Listing Notice 1: Activity 27 and 30 GNR 324: Listing Notice 3: Activity 12 | GN 633, Category B Activity 11: Residue stockpile in terms of GN 632 (2015) |
| Clearing of Vegetation | To be confirmed in EIAR | X | GN 327, Listing Notice 1: Activity 27 and 30 GNR 324: Listing Notice 3: Activity 12 | GN 633, Category B Activity 11: Residue stockpile in terms of GN 632 (2015) |

Table 7: Description of the EIA Regulations Listed Activities

| Legislation | Listed activities | Applicability of the activity | Competent Authority |
|---|--|-------------------------------|-------------------------|
| NEMA and the EIA Regulations, 2014, as amended (7 April 2017) | <p><u>GN 327 - Listing Notice 1:</u></p> <ul style="list-style-type: none"> • <u>Listing Notice 1 – Activity 27</u> <i>The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for –</i> <ul style="list-style-type: none"> <i>(i) the undertaking of a linear activity; or</i> <i>(ii) maintenance purposes undertaken in accordance with a maintenance management plan.</i> • <u>Listing Notice 1 – Activity 30</u> Activity within a Threatened Ecosystem. <i>Any process or activity identified in terms of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).</i> | | DMRE – Limpopo Province |
| | <p><u>GNR 324: Listing Notice 3:</u></p> <ul style="list-style-type: none"> • <u>Listing Notice 3 – Activity 12</u> The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. | | |
| | <p><u>Waste License Activities Triggered:</u></p> <ul style="list-style-type: none"> • <u>GNR 921 as amended by GN633: Category B – Activity 11</u> Waste residue stockpiles establishment <i>Establishment or reclamation of a residue stockpile or residue deposit resulting from activities which requires a mining right under the MPRDA.</i> | | |

| Legislation | Listed activities | Applicability of the activity | Competent Authority |
|------------------------------|--|-------------------------------|---|
| NWA Section 21 Water Uses | <u>Water Use Activities Triggered:</u> <ul style="list-style-type: none"> • <u>Section 21 c:</u> Impeding or diverting the flow of water in a watercourse • <u>Section 21 g:</u> Disposing of waste in a manner which may detrimentally impact on a water resource • <u>Section 21 i:</u> Altering the bed, banks, course or characteristics of a watercourse | Water Use Licence | Department of Human Settlements Water and Sanitation (DHSWS) |

3.2. DESCRIPTION OF THE ACTIVITIES TO BE UNDERTAKEN

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

This section provides a detailed project description. The aim of the project description is to indicate the activities that are planned to take place at the proposed project area, and activities that are being applied for in this application. Furthermore, the detailed mine/project description is presented to facilitate the understanding of the project related activities, which result in the impacts identified and assessed, and for which management measures have been proposed.

3.2.1. BACKGROUND

Elemental Sustainability (Pty) Ltd (ELEMENTAL) was appointed by Two Rivers Platinum (Pty) Ltd (TRP) to undertake an amendment application of the existing environmental authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and Waste Management Licence in terms of National Environmental Management Waste Act, 2008 (Act No. 59 of 2008) as amended, and the Environmental Impact Assessment Regulations of 2014 for the proposed addition of three (3) additional waste rock dumps within the existing mining right area.

Two Rivers Platinum (TRP) is a Joint Venture (JV) between African Rainbow Minerals (ARM) and Impala Platinum. The mine is located in the Steelpoort area within the Greater Tubatse Local and Sekhukhune District Municipalities, approximately 20 km south-west of the town of Steelpoort, in the Limpopo Province.

Two Rivers Platinum has a New Order Mining Right (LP 178 MR) and Environmental Management Programme (approved 30 July 2015) and a Section 102 Amendment (20 January 2020) to explore and mine the Platinum Group Metals (PGM's), chrome and other precious metals (gold and silver), and associated base metals and ores thereof on portions of the farm Dwarsrivier 373 KT, Tweefontein 360 KT, Buffelshoek 368 KT and Kalkfontein 367 KT.

The aim of the proposed addition of three waste rock dump is to ensure continuity of operation to accommodate the projected tonnage, based on the current Life of Mine plan.

3.2.2. THE MINERAL RESOURCE

Both the Merensky and underlying UG2 Reefs occur on the property. The UG2 outcrops in the Klein Dwarsrivier valley over a north-south strike length of 7.5 kilometres and dips to the west at about 7 to 10 degrees. Merensky is a westward down-dip with a northward strike extension. The vertical separation between the Merensky and UG2 Reefs is around 140 to 160 metres. The depth of minerals

extends from surface outcrop at an elevation of approximately 900m above mean sea level to an elevation of between 750m and 400m from north to south, respectively. Due to the extreme topography, the Merensky reef outcrops further up the mountain slope and also results in the UG2 occurring at a depth of 935 metres below surface on the western boundary. Three distinct reef types have been defined for the UG2 Reef at Two Rivers, namely the 'normal reef' with a thick main chromitite layer; a 'split reef' characterised by an internal pyroxenite/norite lens within the main chromitite layer; and a 'multiple split reef' with numerous pyroxenite/norite lenses occurring within the main chromitite layer.

3.2.3. MINING OPERATIONS

The estimated life of mine for the Two Rivers Platinum mine and the extension is more than 25 years. Figure 4 below is an indication of the scheduled mining operations for the next 5 years.

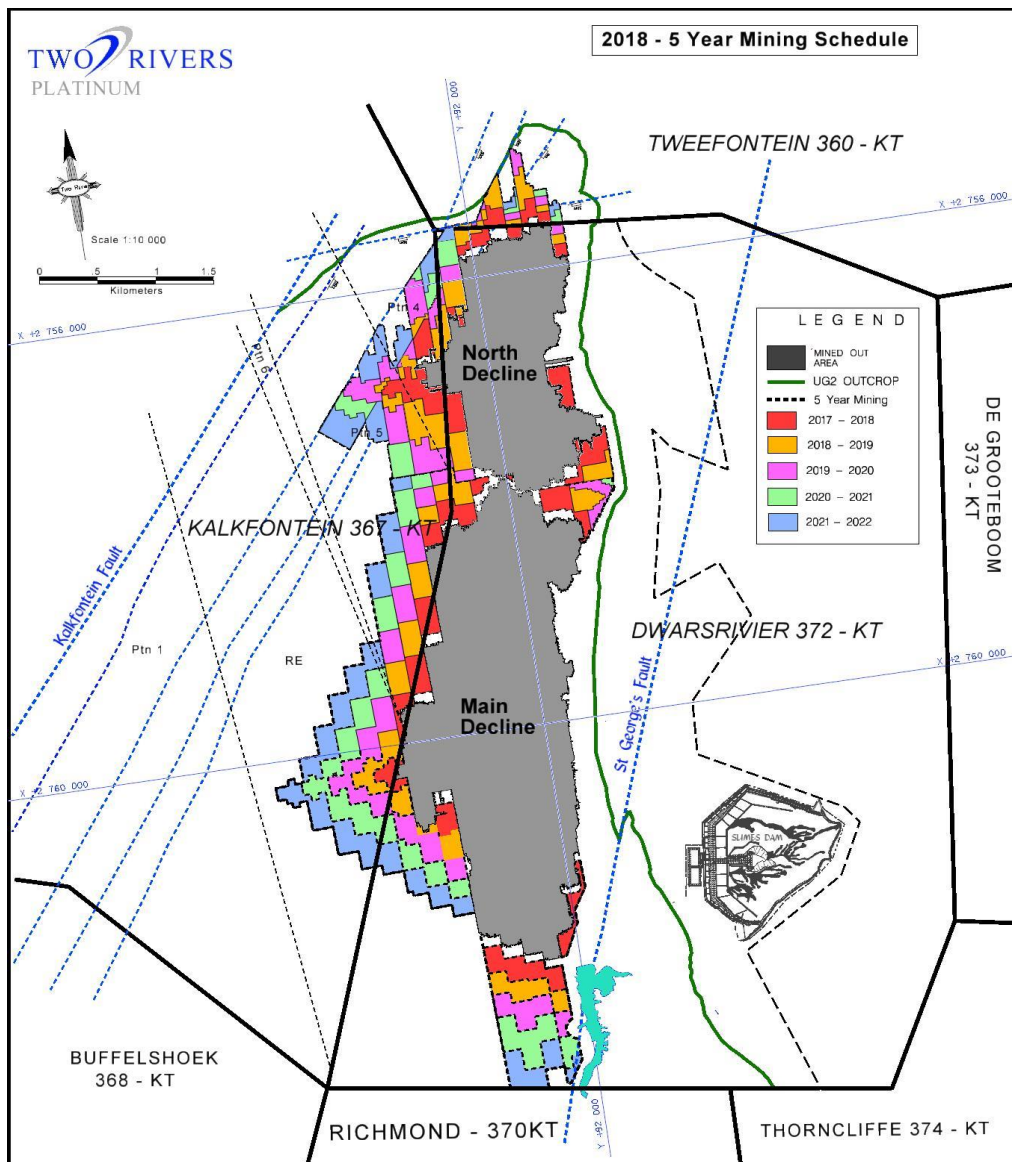


Figure 4: 5-year Mining Schedule

Table 8: Existing Authorisations of Current Operation

| AUTHORISATION | DESCRIPTION | DATE |
|---|---|------------------|
| DMR 4/2003 OT 5/3/2/545 | Initial Mining Right (DMR) | 4 March 2003 |
| WUL 24053346. DWAF - NWA | Initial Water Use License (DWA) | 13 Dec 2004 |
| DWA, Nelspruit. 16/2/7/B400/C110/2 | Gen authorisation – NWA, low level culvert to cross the Groot Dwars. | 26 Jan 2006 |
| File No 17.2.4.E -66. Mpumalanga - ECA | DDS Storage Silos | 5 April 2006 |
| File No 17.2.5 E-54. Mpumalanga - ECA | Richmond Road upgrade | 4 Oct 2006 |
| File No 17.2.5 E-54. Mpumalanga - ECA | Fuel and lubrication system | 28 Nov 2006 |
| DME Witbank OT6/2/2/472 | Amendment EMP (North Decline) | 22 January 2007 |
| DMR Stamped EMP document. | Chrome Plant | 27 Nov 2007 |
| Ref 12/1/9-6/7-GS3. LDEDET - NEMA | Above ground diesel, explosive and oil storage tanks | 15 Oct 2008 |
| DME Ref MP 30/5/1/2/3/2/1 (234) EM OT6/2/2/472 | Plant upgrade – crusher and flotation cells | 21 January 2009 |
| Ref 12/1/9-6/7-GCS10. LDEDET - NEMA | Above ground explosive emulsion tanks | 31 December 2009 |
| DMR Polokwane Ref: LP 30/5/1/3/2/1 (178) EM. | North Opencast (authorised, but not yet undertaken). | 14 Dec 2010 |
| DMR Limpopo. LP 178 MRC. MPRDA | New Order Mining Right | 20 March 2013 |
| DMR Limpopo. LP 178 MRC. MPRDA | Section 102 – Consolidated EIA ad EMP | 30 July 2015 |
| DWS - IWUL Licence No: 06/B41H/AJIGC/6098 File No: 27/2/2/B741/10/1 | Integrated Water Use License (DWS) | October 2017 |
| DMR Limpopo. LP 178 MRC. MPRDA | Section 102 – Consolidated EIA and EMP (Incorporation of Prospecting Right) | 20 Jan 2020 |

3.2.3.1. MINING METHOD

Two Rivers Platinum mine consists of two declines shafts (i.e. North and Main), each with an associated underground mining area. Trackless Bord and Pillar type mining methods are utilised at shallow to intermediate depths where a sufficiently wide mining cut is indicated. A mining section consists of 8-12 metre bords, with pillar sizes increasing with depth below surface. These bords are mined principally in a strike direction, except when re-establishing sections with geological disturbances (faults, dykes, potholes etc.).

Conventional drilling, blasting and scraper mining is utilised in the stoping and secondary development areas. Drilling of the main development faces are done by means of mechanised drill rigs, whilst stoping, secondary development and support drilling is done by pneumatic hand-held drills. Explosives are transported to the faces by means of an explosives carrier and charged up. The broken rock is loaded with load haul dumps (LHDs) and transported with dump trucks to the tipping points.

Stoping sections exercise a multi-cycle operation during a shift. The full mining cycle in an eight bord section comprises two faces being drilled, two faces being cleaned, two faces being supported, with two faces standing idle. All the various phases are decoupled from one another, which assists in productivity. The two faces standing idle are essential when geological discontinuities are encountered as this provides additional face flexibility. A standard trackless Bord and Pillar section at TRP produces approximately 22,000 RoM tons of ore per month. This modular design allows production targets to be specified per shaft in terms of the number of Bord and Pillar sections required.

3.2.3.2. MINING PROCESS

Two Rivers Platinum has two decline shafts and a processing plant. The schematic representation of the Ore flow is presented in Figure 5 below. RoM from the North shaft is conveyed to a stockpile area from where it is fed into the RoM silo. The RoM from the Main shaft is conveyed to the RoM Silo. From the RoM silo the RoM is crushed before the two plant silos. The plant is fed from the silos at a constant rate.

The plant consists out of the following.

- Crushing and screening
- Dense media separation (DMS) & waste rock disposal
- Milling and flotation processes
- Thickening of concentrate and tailings
- Stockpiling and loading of product, and
- Tailings disposal.

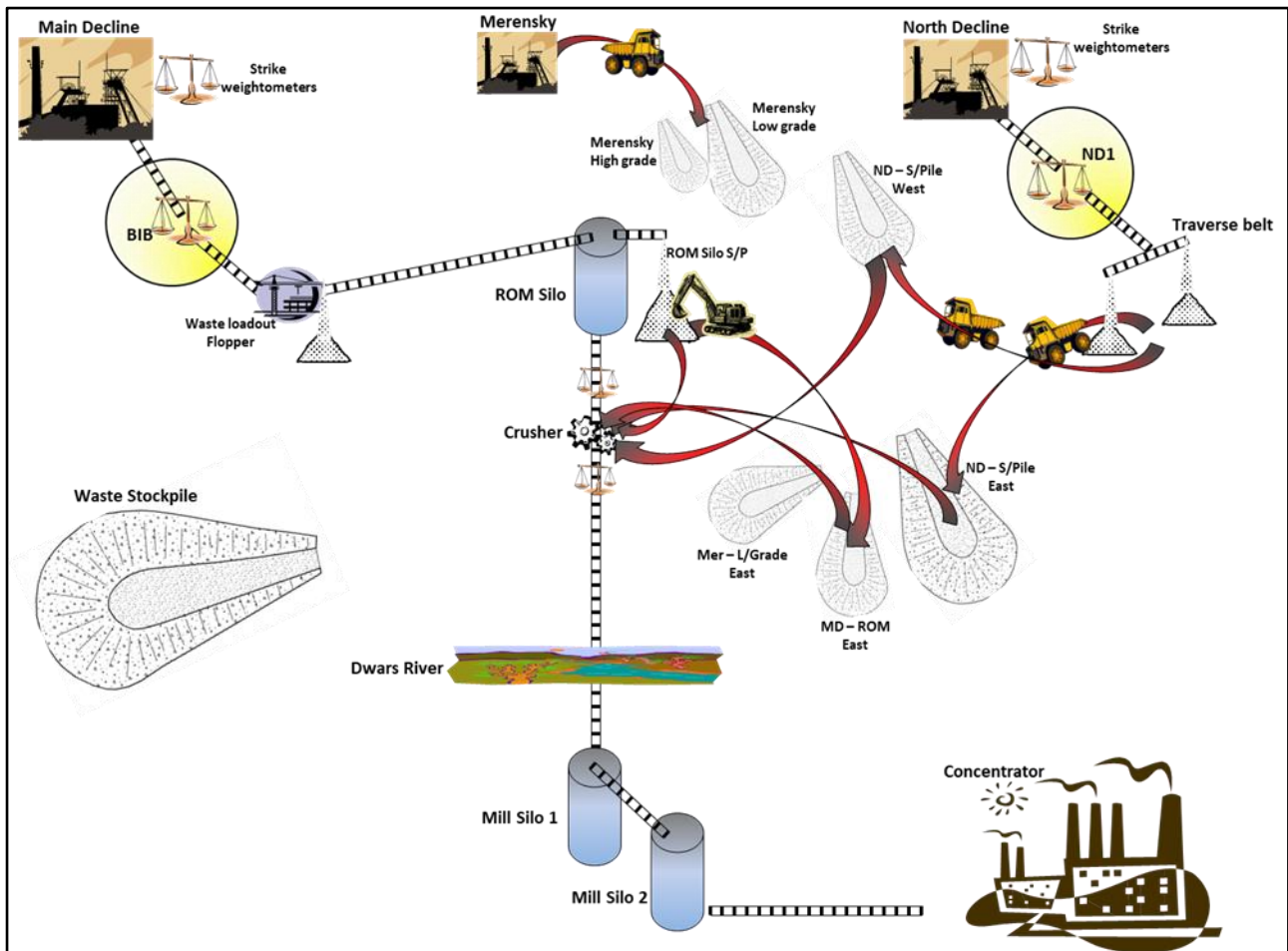


Figure 5: Schematic of TRP Ore Flow

3.3. DESCRIPTION OF MINERAL PROCESSING OPERATIONS

3.3.1. CRUSHING

ROM and stockpile ore is crushed from 400mm to -90mm size in a primary jaw crusher. This is further crushed to -20mm in a cone crusher that operates in closed circuit with a vibrating screen. The secondary crusher was an addition to the circuit to enable the milling rate to be increased by providing the primary mill with smaller feed.

The primary and secondary crushing plants are located halfway between the Main Shaft complex and the TRP plant, such that ROM ore existing the Main decline is first conveyed ~1km to a coarse ore silo over a section of overland conveyor.

Ore from the crushing plant is subsequently conveyed to the fine ore silos, located at the TRP process facilities.

3.3.2. MILLING

The standard MF2 process flow is employed, namely mill - float; mill – float. There are two Vecor ball mills installed in series, individually powered by 5,200 kW Alstom motors:

- One 24ft (grinding length) Primary mill
- One 26ft (grinding length) secondary mill

Primary milling is to 35% -75 microns. Secondary milling is to 75% -75 microns. The mills are installed in closed circuit with cyclone banks, which perform the separation of material, based on the size, with the undersize (overflow) from the cyclones being directed to the flotation plant, while the oversize (cyclone underflow (being returned to the mills)).

3.3.3. FLOTATION

The flotation circuit includes primary and secondary rougher flotation. This is followed by 3-stage cleaner flotation, i.e. cleaner, re-cleaner and re-re-cleaner flotation. The flotation process is subject to rigorous planned maintenance schedules.

3.3.4. FILTRATION

The concentrate from the flotation circuit is filtered by a single Larox vertical hydraulic press filter, which reduces the concentrate to 15% moisture. The dewatered concentrate is subsequently conveyed to a storage building, from where it is loaded into trucks for transport to an Impala smelting facility. It is reported that the possibility exists to send concentrate slurry directly to the smelting operations, which requires a tanker type transport truck, as the smelter does have the ability to conduct dewatering.

3.3.5. TAILINGS SCAVENGER PLANT (TSP)

The TSP receives live tailings from the concentrator plant and employs additional flotation cells to produce a low-grade concentrate. This is pumped to the final concentrate thickener. The TSP concentrate combines with the Concentrator final concentrate and is then filtered out and then trucked to Impala Smelter. The TSP plant produces ~1200 6E ounces monthly, of additional recovery.

3.3.6. TERTIARY MILLING PLAN

The TSP receives live tailings from the concentrator plant and employs additional flotation cells to produce a low-grade concentrate. This is pumped to the final concentrate thickener. The TSP concentrate combines with the Concentrator final concentrate and is then filtered out and then trucked to Impala Smelter. The TSP plant produces ~1200 6E ounces monthly, of additional recovery.

To further improve recovery of both PGM's as well as recover chromite, which is also present in the TRP orebody, a Tertiary Milling Plant has been constructed. The Main Plant concentrator tails is pumped to the Tertiary Milling and chromite recovery plant.

The incoming tailings are first processed through a set of cyclones, which are used to separate the fine and coarse material. The coarse material is rich in chromite. The coarse material from the cyclones is pumped to the "Spiral Concentration Circuit". This spiral plant is a highly specialised equipment with no moving parts, which uses gravity and centrifugal force to separate small particles of different sizes and densities. The circuit consists of Roughers, 1st stage cleaner, 2nd stage Cleaner, Recleaner, scavenger roughers, and scavenger cleaners. Additional spirals have been added to provide additional recovery.

Through the spiral circuit, the chromite is upgraded and recovered, with subsequent stacking for product load-out. The chromite is trucked to Maputo harbour. Currently, the production of chromite is reported at ~22,000tpm.

A portion of the stream (the rougher middlings) that is discarded by the spirals is high in silicate content and is also rich in PGMs. This stream is pumped to the tertiary mill, for subsequent grinding, resulting in additional size reduction of the materials. This slurry discharge from the mill is then pumped to the main plant flotation circuit, where the chemicals are added to recover the additional PGMs, upgrading the final concentrate grade.

3.4. MINE INFRASTRUCTURE

The mine infrastructure presently consists of, inter alia, the following structures and infrastructure - Approved in the 2015 (GCS) and 2018 (MALAN SCHOLES) EMP/EIA.

The mine is a fully operational mine with two declines and associated processing infrastructure.

- Storm water dams, Drying Beds, Settling Dams and a treatment facility
- Dirty Water Handling Infrastructure – RWD, Cut off trenches
- Overland ore conveyances
- Waste material stockpiles
- High mast lighting. 10-15 high mast lights at each new shaft, in high traffic and security critical areas
- Ore silo to provide surge capacity for the overland conveyor system
- Office blocks
- Change houses – change facilities, ablution and storage lockers for 350 – 400 people at each shaft

- Lamp and crush facility at each shaft
- Roads network and Haul Roads
- Bus stop and parking for personnel and visitors
- Security and access control
- Cable storage and salvage yard
- Sewage (treatment plants included as vendor supplied units, sized according to personnel complement)
- Firefighting and prevention (fire hydrants and hose reels, electric and diesel pumps to operate the deluge systems in the main substations of both shafts)
- Storm Water Management (cut off drains and berms at the Main and North shafts)
- General stores at each shaft for rock drills, rotary equipment, batteries and gas cylinders
- Explosive stores (a local explosives magazine to cater for daily usage, filled daily from the primary storage)
- Bulk fuel and lubricant storage (to receive store and dispense a week's consumption of each product)
- Miscellaneous facilities: portal rainwater sump and drain, dirty water sump and drain, covered walkways, brake test ramp, refuse disposal facilities, electrified fencing around the perimeter of the infrastructure
- Processing plants (UG 2 and Merensky)
- RoM Circuits, Silo's and Stockpiles
- Primary processing plant
- Secondary processing plant
- Underground infrastructure (refuge bays, workshops, offices and diesel and lubricant storage);
- Existing Tailings Storage and Waste Rock Facilities, and
- New Tailings Storage Facility and associated pipelines.

3.5. EXISTING AND PROPOSED ACTIVITIES

The main mining actions, activities and processes that are planning to take place on site are listed in Table 9. All actions, activities and processes have been grouped into each of the relevant project phases namely: pre-construction, operation, decommissioning, rehabilitation and closure. For this report, the following broad definitions apply:

- Pre-construction refers to the phases in which planning takes place

- Construction refers to the phase in which the site is prepared and infrastructure is established
- Operation refers to the phases in which physical mining and production takes place
- Decommissioning refers to the phases in which infrastructure is removed and rehabilitation efforts are applied, and their success monitored, and
- Closure refers to the phase in which maintenance and rehabilitation monitoring are undertaken to ensure that the mine's closure objectives are met.

Table 9: List of Main Actions, Activities and Processes On-site per Phase

| Main Activity/Action/Process | Ancillary Activity | Pre-Construction | Construction | Operation | Decommissioning | Closure |
|----------------------------------|---|-------------------|-------------------|-------------|-----------------|-------------|
| Site preparation | Vegetation clearance for ventilation shaft | | As required | As required | As required | |
| | Planned placement of infrastructure | | At start of phase | As required | | |
| Human resource management | Employment/recruitment | | At start of phase | As required | As required | As required |
| | I&AP consultations | | At start of phase | On-going | On-going | On-going |
| | CSI initiatives | | At start of phase | On-going | On-going | On-going |
| | Skills development programmes | At start of phase | On-going | On-going | On-going | On-going |
| | Environmental awareness training | | At start of phase | On-going | On-going | As required |
| | HIV/AIDS Awareness programmes | | At start of phase | On-going | On-going | |
| | Integration with Municipalities' strategic long-term planning | At start of phase | On-going | On-going | On-going | |
| Earthworks | Stripping and stockpiling of soils (waste rock dumps) | | At start of phase | As required | As required | |
| | Cleaning, grubbing and bulldozing (waste rock dumps) | | At start of phase | As required | As required | |
| | Removal of cleared vegetation | | At start of phase | As required | | |
| | Digging trenches and foundations | | At start of phase | As required | As required | |
| | Civil Blasting | | As required | As required | As required | |
| | Maintenance of storm water management measures | | At start of phase | As required | As required | |
| | Maintenance of firebreak | | At start of phase | As required | As required | |
| Civil Works | Maintenance of infrastructure and services | | At start of phase | As required | | |
| | Mixing of concrete and concrete works | | As required | As required | | |
| | PCD and storm water/return water dam | | At start of phase | As required | On-going | |
| | Establishment of dewatering pipelines | | At start of phase | As required | | |

| Main Activity/Action/Process | Ancillary Activity | Pre-Construction | Construction | Operation | Decommissioning | Closure |
|-------------------------------|--|------------------|-------------------|-------------|-----------------|----------|
| | Sewage and sanitation | | At start of phase | On-going | On-going | |
| | Fuel storage area | | Ongoing | | | |
| | Chemical storage area | | Ongoing | | | |
| | General waste area | | Ongoing | On-going | | |
| | Access control and security | | Ongoing | As required | As required | |
| | General site management | | On-going | On-going | On-going | On-going |
| Underground Mining | Drilling | | As required | As required | | |
| | Blasting | | As required | As required | | |
| | Excavations | | As required | As required | | |
| | Removal of overburden by dozing and load haul | | | As required | | |
| | Establishment of internal haul roads | | | As required | As required | |
| | Removal of ore | | | On-going | | |
| | Use of RoM stockpiles | | Ongoing | As required | As required | |
| | Use of Product Stockpiles | | | On-going | On-going | |
| | De-watering of underground workings | | | On-going | On-going | |
| | Pumping of water to PCD | | | On-going | On-going | |
| | Waste rock dumps for backfilling | | | On-going | On-going | |
| | Soil management | | On-going | On-going | On-going | On-going |
| | Water management | | On-going | On-going | On-going | On-going |
| | Concurrent rehabilitation | | | On-going | On-going | On-going |
| Water treatment | | | On-going | On-going | On-going | |
| Infrastructure removal | Dismantling and demolition of infrastructure | | | | As required | |
| | Blasting | | | | As required | |
| | Safety control | | | | On-going | On-going |
| Rehabilitation | Backfilling of pits and voids (underground mine and ventilation shaft) | | | On-going | On-going | |
| | Slope stabilisation | | | On-going | On-going | On-going |

| Main Activity/Action/Process | Ancillary Activity | Pre-Construction | Construction | Operation | Decommissioning | Closure |
|------------------------------|--|------------------|--------------|-----------|-----------------|----------|
| | Erosion control | | | On-going | On-going | On-going |
| | Landscaping | | | On-going | On-going | On-going |
| | Replacing topsoil | | | On-going | On-going | On-going |
| | Removal of alien/invasive vegetation | | | On-going | On-going | On-going |
| | Re-vegetation | | | On-going | On-going | On-going |
| | Restoration of natural drainage patterns | | | | On-going | On-going |
| | Remediation of ground and surface water | | | On-going | On-going | On-going |
| | Rehabilitation of external roads | | | | On-going | On-going |
| Maintenance | Initiate maintenance and aftercare program | | | | At end of phase | On-going |
| | Environmental aspect monitoring | | | On-going | On-going | On-going |
| | Monitoring of rehabilitation | | | | | On-going |

4. POLICY AND LEGISLATIVE CONTEXT

Table 10: Policy and Legislative Context

| APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT | REFERENCE WHERE APPLIED |
|---|---|
| <p>Constitution of South Africa, 1996 (Act No. 108 of 1996) [as amended]</p> <ul style="list-style-type: none"> • <i>Section 24</i> <i>Environment: Everyone has the right-</i> <p>(a) <i>to an environment that is not harmful to their health or well-being; and</i></p> <p>(b) <i>to have the environment protected, for the benefit of present and future generations through reasonable legislative and other measures that-</i></p> <ol style="list-style-type: none"> i. <i>prevent pollution and ecological degradation;</i> ii. <i>promote conservation; and</i> iii. <i>Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.</i> | <p>The proposed development has the potential to harm the environment and poses a risk to the health and wellbeing of people. The development however, also has the potential to secure sustainable development through reusing process products and thereby limiting the use of natural resources.</p> <p>The Applicant has the overall responsibility to ensure that the rights of people in terms of Section 24 of the Constitution is protected in terms of the proposed development activity</p> |
| <p>National Environmental Management Act (No. 107 of 1998) [as amended]</p> <ul style="list-style-type: none"> • <i>Section 28 (1)</i> <i>Duty of Care and responsibilities to minimise and remediate environmental degradation.</i> | <p>The Applicant is the developer and overall responsibility of the mine rests with him, especially in terms of liabilities associated with the operational phase.</p> |
| <p>EIA Regulations, 2014 (Government Notices 982 – 984) [as amended]</p> <p><i>The proposed construction, operational and closure activities of the proposed development triggers the following listed activity that are listed in the EIA regulations for which a Scoping and Environmental Impact Assessment (EIA) process have to be conducted:</i></p> <p>Listing Notice 1 and 3 have been triggered as well as GN633 for waste activity requiring a Waste Licence as well.</p> | |
| <p>EIA Regulations Chapter 4: Application for Environmental Authorisation</p> | <p>The EIA Regulations, 2014 [as amended] prescribes inter alia:</p> <p>the manner in which public participation needs to be conducted as well as the requirements of a scoping and environmental impact assessment process and</p> |

| | |
|--|--|
| <p>Chapter 6: Regulation 39 to 44: Public Participation Part 3 Scoping and Environmental Impact Report (S&EIR) Appendix 2: Scoping Report</p> <p>Appendix 3: Environmental Impact Assessment Report</p> <p>Appendix 4: Environmental Management Programme</p> <p>Appendix 5: Closure Plan</p> <p>Appendix 6: Specialist Reports</p> | <p>the content of a scoping report, environmental impact assessment report and environmental management programme.</p> <p>The content of specialist reports, closure plans and environmental audit reports are also provided.</p> |
| <p>Mineral and Petroleum Resources Development Act, 2002 (Act. 28 of 2002) [as amended]:</p> | <p>Sections 16 and 22. In terms of Section 102 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) an amendment of the mine works programme and Environmental Management Programme (EMPR) for an existing mining right will be applied for.</p> |
| <p>National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) [as amended]</p> <ul style="list-style-type: none"> • <i>Section 16</i> <i>General duty in respect of waste management;</i> • <i>Section 17;</i> <i>Reduction, re-use, recycling and recovery of waste;</i> • <i>Section 18; and</i> <i>Extended producer responsibility; and</i> • <i>Section 21</i> <i>General requirements for storage of hazardous and general waste.</i> | <p>The proposed additional waste rock dumps will require an integrated NEMA and NEM:WA application which will be launched with the DMRE (this application).</p> |
| <p>National Water Act, 1998 (Act No. 36 of 1998) [as amended]</p> <p><i>Prevention of pollution to watercourses</i></p> <ul style="list-style-type: none"> • <i>Section 21</i> <i>The water use activities associated with the proposed development requires compliance with the requirements of the NWA as listed under GN No. 19182. An application for an integrated water use license is lodged in terms of Section 21 of the National Water Act, 1998 (Act 36 of 1998) [as amended] to undertake the following activity:</i> <p><i>Section 21: c, g and l.</i></p> | <p>The Mine has an existing Integrated Water Use Licence (Licence No. 06/B41H/AJIGC/6098) for the following Section 21 water uses:</p> <ul style="list-style-type: none"> - Section 21(a): Talking of water from a water resource - Section 21(b): Storage of water - Section 21(c): Impeding or diverting the flow of water in a watercourse - Section 21(g): Disposing of water in a manner which may detrimentally impact on a water resource - Section 21(i): Altering the bed, banks, course or characteristics of a watercourse - Section 21(j): Removing, discharging or disposing of water found underground |

| | |
|--|---|
| <p>Regulations Regarding the Procedural Requirements for Water Use Licence Applications and Appeals published in terms of NWA in Government Notice 267 of March 2017</p> | <p>The Regulations will be taken into consideration during the Water Use Licence Application process and will be utilised by the Wetland specialist to determine the impact of the mine on the wetland and pan areas. The C&I risk assessment will be in the format as required by the regulations.</p> |
| <p>Several General Authorisations have been published in terms of Section 39 of the NWA (various dates)</p> | |
| <p>Mine Health and Safety Act, 1996 (Act No. 29 of 1996) [as amended] and associated regulations</p> <ul style="list-style-type: none"> • <i>Chapter 2, Sections 2 – 4 Responsibilities of owner</i> • <i>Chapter 2, Sections 5 – 13 Responsibilities of manager</i> • <i>Chapter 2, Sections 14 – 18; Documentation requirements</i> • <i>Chapter 2, Section 19 – 20 and 22 to 24 Employee’s rights and duties, and</i> • <i>Chapter 2, Section 21 Manufacturer’s and supplier’s duty for health and safety.</i> | <p>The proposed project activities may create an environment that is not safe and healthy for workers on and visitors to the site (if not managed correctly). The act provides for measures to prevent threats to the health and safety of humans in the development area.</p> |
| <p>National Heritage Resources Act, 1999 (Act No. 25 of 1999)</p> <ul style="list-style-type: none"> • <i>Section 44 (1); Preservation and protection of heritage resources;</i> • <i>Section 3 Types and ranges of heritage resources (i) (i);</i> <p><i>Objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens.</i></p> | <p>Protection of indigenous heritage resources on the property. As the mine is an existing underground mine and the underground sections will only be expanded, it is anticipated that no new surface area will be disturbed.</p> |
| <p>National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) [as amended]</p> <ul style="list-style-type: none"> • <i>Section 32 Control of dust</i> • <i>Section 34 Control of noise</i> | <p>Impacts on surrounding landowners need to be managed through dust and noise mitigation measures.</p> |
| <ul style="list-style-type: none"> • <i>Section 4 Dust fall monitoring program</i> • <i>Section 6 Measures for control of dust</i> | <p>Dust fall out need to be monitored in accordance to the standards set out in the monitoring programme with the specified measures due to the Applicant being liable to offences and penalties associated with non-conformance to dust which may influence employees and surrounding landowners.</p> |

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| <ul style="list-style-type: none"> • <i>Section 7</i> <i>Ambient air quality monitoring (PM10)</i> • <i>Section 8</i> <i>Offences</i> • <i>Section 9</i> <i>Penalties</i> | |
| National Greenhouse Gas Emission Reporting Regulations, published in terms of NEM:AQA in Government Notice of July 2017 | During operational phase the mine will be required to report in the prescribed format. As an underground mine the mine will registered to report on the GHG emissions. |
| <p>Veld and Forest Fire Act, 1998 (Act No. 101 of 1998) [as amended]</p> <ul style="list-style-type: none"> • <i>Section 12 (1)</i> <i>Duty of the landowner to prevent fire from spreading to neighbouring properties.</i> | Cautionary steps in avoiding the spread of fires to and from neighbouring properties. |
| <p>National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) [as amended]</p> <ul style="list-style-type: none"> • <i>Section 9</i> <i>Norms and standards</i> • <i>Section 27</i> <i>Delegation of power and duties</i> • <i>Section 30</i> <i>Financial accountability</i> • <i>Section 43</i> <i>Biodiversity management plans.</i> | <p>Indigenous vegetation needs to be protected and managed in accordance with management measures set out in the management plans developed for the mine and the Applicant need to ensure he is aware of and covers his liabilities.</p> <p>An Activity for removing and clearing of vegetation has been applied for within this application and no other vegetation clearance will be permitted other than that approved in terms of the EA when/if the Competent Authority makes its decision.</p> <p>A biodiversity assessment (Fauna and Flora) will be undertaken and the recommendation, mitigation and management measures as identified by the specialist will be included in the EIA and EMPr</p> |
| <p>Alien and Invasive Species Regulations (Government Notice 598 of 2014) and Alien and Invasive Species List, 2014 in terms of NEMBA (Government Notice 599 of 2014)</p> <ul style="list-style-type: none"> • <i>Notice 2</i> <i>Exempted Alien Species in terms of Section 66 (1)</i> • <i>Notice 3</i> <i>National Lists of Invasive Species in terms of Section 70(1) – List 1, 3-9 & 11</i> • <i>Notice 4</i> <i>Prohibited Alien Species in terms of Section 67 (1) – List 1, 3-7, 9-10 & 12</i> | It is the responsibility of the Applicant to ensure that all prohibited plant and animal species are eradicated as far as possible. |

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| <p>Conservation of Agricultural Resources Act (No. 43 of 1983)</p> <ul style="list-style-type: none"> • <i>Section 5</i> <i>Prohibition of spreading of weeds</i> • <i>Section 12</i> <i>Maintenance of soil conservation works and maintenance of certain states of affairs</i> • <i>Section 16</i> <i>Regional Conservation Committees</i> | <p>Listed invader/alien plants occurring on site which requires management measures to be implemented to strive to maintain the status quo environment, especially through the guidelines provided by the Regional Conservation Committee.</p> |
| <p>Hazardous Chemical Substances Regulations, 1995 (Government Notice 1179 of 1995)</p> <ul style="list-style-type: none"> • <i>Section 4</i> <i>Duties of persons who may be exposed to hazardous chemical substances</i> • <i>Section 9A (1)</i> <i>Penalties</i> | <p>Hazardous substances will be stored and utilised on the site and non-compliance to management measures will result in prosecution of the Applicant in terms of his liabilities to the socio-economic environment.</p> |
| <p>Mining and Biodiversity Guideline (2013)</p> | <p>The Act, regulation and guideline have informed project planning and will be taken into account in the assessment and mitigation of impacts.</p> |
| <p>Waste Classification and Management Regulations and Norms and Standards for the assessment of for landfill disposal and for disposal of waste to landfill, 2013 (Government Notice 634 – 635 of 2013) promulgated in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) [as amended]; and Regulations regarding the planning and management of residue stockpiles and residue deposits from a prospecting, mining, exploration or production operation (GN R. 632 of 2015)</p> | <p>The underground mining area produces general and hazardous waste which need to be managed and disposed of according to best practices such as recycling, safe storage, etc.</p> <p>Disposal will take place on the existing approved waste disposal facilities (WRD and TSF) of the mine, and proposed waste rock dumps, for which this application is being submitted.</p> |
| <p>National Norms and Standards for the Storage of Waste, published in terms of NEM:WA in Government Notice 926 of 2013</p> | <p>The purpose of the norms and standards is to –</p> <ol style="list-style-type: none"> a. Provide a uniform national approach relating to the management of waste storage facilities. b. Ensure best practice in the management of waste storage facilities; and c. Provide minimum standards for the design and operation of ne waste storage facilities. <p>Management of the waste storage facility will be in line with the requirements.</p> |
| <p>National Norms and Standards for the Sorting, Shredding, Grinding, Crushing, Screening or Baling of General Waste, published in terms of NEM:WA in Government Notice 1093 of 2017</p> | <p>The purpose of this Norms and Standards is to provide a uniform national approach relating to the management of waste facilities that sort, shred, grind, crush, screen, chip or bale general waste. The waste</p> |

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| | rock dump is not regulated under this Norms and Standards. No general waste will be processed in terms of these norms and standards on the mining area. |
| Guideline on the Need and Desirability, Department of Environmental Affairs, 2017 | This guideline has been taken into account as part of project planning. |
| NEMA: Government Notice. 805 Companion Guideline on the Implantation of the Environmental Impact Assessment Regulations, 2010, October 2012. | The application for Environmental Authorisation is submitted in terms of the EIA Regulations. |
| NEMA: GN. 807 Public Participation Guideline, October 2012. | Consultation with Interested and Affected Parties and Communities. |
| Public Participation guideline in terms of NEMA EIA Regulations, Department of Environmental Affairs, 2017 | This guideline has informed the public participation process for the project. Public Participation for the project has been undertaken in terms of the guideline and other relevant requirements. |
| Regulations Pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production Operations, 2015 (Notice 1147 of 2015) <ul style="list-style-type: none"> • <i>Regulation 5: Scope of financial provision</i> • <i>Regulation 6: Method for determining financial provision</i> • <i>Regulation 12: Preparation and submission of plans and reports</i> | An applicant must determine the financial provision through a detailed itemisation of all activities and cost, calculated based on the actual cost of implementation of the measures required. |
| Regulations on use of Water for Mining and Related Activities Aimed at the Protection of Water Resources, 1999 (Notice 704 of 1999). <ul style="list-style-type: none"> • <i>Regulation 4: Restrictions on location of mining activities</i> • <i>Regulation 7: Protection of water resources</i> • <i>Regulation 12: Technical investigation and monitoring.</i> | Every person in control of a mine or activity must take measures to manage water in an effective manner as prescribe by the regulation. |
| NEM:AQA: GNR 283. National Atmospheric Emissions Reporting Regulations, 2015. <p><i>For purposes of these Regulations, emission sources and data providers are classified according to groups A to D listed in Annexure 1 to these Regulations. Section 5(3): For purposes of these Regulations, emission sources and data providers are classified according to groups A to D listed in Annexure 1 to these Regulations.</i></p> | Any person, that holds a mining right or permit in terms of the MPRDA. Emissions report must be made in the format required for NAEIS to the relevant air quality officer. |
| All other relevant national, provincial, district and local municipality legislation and guidelines that may be applicable to the application. Some of these are discussed in the next section but will be discussed in detail within the EIA / EMPR report. | |

5. NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES

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

Two Rivers Platinum (TRP) is established mine with surface processing plants, waste storage facilities and two decline shafts (i.e. North and Main). The underground mining activities produce approximately 22 000 tons RoM monthly. At the current operational rate and Life of Mine plan, additional waste rock dump facilities will be required to accommodate the projected tonnage and ensure that the mine is kept operational.

The main benefits of the proposed Two Rivers Platinum Amendment Project are:

- Extending the life of mine resulting in increased job security to employees
- Direct economic benefits will be derived from wages, taxes and profits. Indirect economic benefits will be derived from the procurement of goods and services and the spending power of employees
- It contributes to the economic welfare of the surrounding community by creating working opportunities, in-house training to the regional population, creation of school and sport facilities, education and housing assistance and medical and clinical facilities
- It contributes to the upliftment of living standards and the health and safety of the local community
- The project will result in the continued economic mining of a known resources, and
- The net benefit to South Africa is a product produced for the world commodity market, earning South Africa the necessary foreign exchange and capital needed for a healthy economy and further capital investments in development projects for the long-term future of the country.

The proposed project is aligned with the objectives of the MPRDA (Act 28 of 2002):

- To promote economic growth and mineral development in the Republic
- To promote employment and advance the social and economic welfare of all South Africans
- To ensure that the nation's mineral resources are developed in an orderly and ecologically sustainable manner while promoting justifiable social and economic development, and
- To ensure that mining developments contribute towards the social-economic development of the area in which they are operating.

The Department of Environmental Affairs (DEA) published a Guideline on Need and Desirability in terms of the Environmental Impact Assessment (EIA) Regulations, 2017. The key components are listed and discussed below:

- Securing ecological sustainable development and use of natural resources; and
- Promoting justifiable economic and social development.

According to DEA's (2017) Guideline on Need and Desirability, in order to describe the need for a development, it must be determined whether it is the right time for locating the type of land use and/or activity being proposed. To describe the desirability for a development, it must be determined, whether it is the right place for locating the type of land use and/or activity being proposed. Need and desirability can be equated to the concept of wise use of land which can be determined through asking the question: "what is the most sustainable use of land?" Considering the above, the need and desirability of an application must be addressed separately and in detail answering *inter alia* the questions as indicated in Table 11.

Table 11: Need and Desirability Considerations

| Securing ecological sustainable development and use of natural resources | | |
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| 1. 1.1 | <p>How will this development (and its separate elements/aspects) impact on the ecological integrity of the area? How were the following ecological integrity considerations taken into account?</p> <p>1.1.1 Threatened Ecosystems, 1.1.2 Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure, 1.1.3 Critical Biodiversity Areas (“CBAs”) and Ecological Support Areas (“ESAs”), 1.1.4 Conservation targets, 1.1.5 Ecological drivers of the ecosystem, 1.1.6 Environmental Management Framework, 1.1.7 Spatial Development Framework, and 1.1.8 Global and international responsibilities relating to the environment (e.g. RAMSAR sites, Climate Change, etc.).</p> | <p>The following specialist studies shall be conducted in support of this application:</p> <ul style="list-style-type: none"> • Geotechnical Investigation • Geohydrological Impact Assessment • Surface Water (Hydrology) Assessment and Aquatic Assessment • Wetland Assessment • Fauna and Flora Assessment • Archaeological and Cultural Heritage Impact Assessment Scan • Palaeontological Assessment • Visual Impact Assessment, and • Closure and Rehabilitation Plans (including Financial Provisioning) <p>The conclusions of these studies, and the identified impacts and mitigation measures stemming there from will be included in the EIA and EMPR.</p> |
| 1.2 | <p>How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity? What measures were explored to firstly avoid these negative impacts, and where these negative impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?</p> | <p>Refer to baseline ecological information in Sections 9, and the impact assessment and mitigation measures in Section 12 of this Scoping Report. These sections will be further expanded in the EIA and EMPR, with the addition of specialist input.</p> |
| 1.3 | <p>How will this development pollute and/or degrade the biophysical environment? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?</p> | <p>Refer to baseline ecological information in in Sections 9, and the impact assessment and mitigation measures in Section 12 of this Scoping Report. These sections will be further expanded in the EIA and EMPR, with the addition of specialist input.</p> |
| 1.4 | <p>What waste will be generated by this development? What measures were explored to firstly avoid waste, and where waste could not be avoided</p> | <p>General and hazardous waste will be generated during construction of the proposed waste rock dumps. Wastes that may cause soil contamination could originate from</p> |

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| | altogether, what measures were explored to minimise, reuse and/or recycle the waste? What measures have been explored to safely treat and/or dispose of unavoidable waste? | construction vehicles used in the construction of the proposed waste rock dumps. All waste must be kept in designated areas and disposed of to a licensed landfill facility. Regulations for soil clean-up and management is prescribed in the approved EMP. |
| 1.5 | How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts? | A Palaeontological Assessment and Archaeological and Cultural Heritage Impact Assessment Scan will be undertaken for the proposed project. |
| 1.6 | How will this development use and/or impact on non-renewable natural resources? What measures were explored to ensure responsible and equitable use of the resources? How have the consequences of the depletion of the non-renewable natural resources been considered? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts? | <p>The mine is an existing operation, removing a known resource (platinum group metals) within the designated area. This cannot be reversed. The study area has been transformed as noted in the specialist investigations, with the proposed project is planned to be undertaken within an approved mining right area to ensure the continuation of mining operations; TRP is an established, operating mine.</p> <p>Through implementing good practice, environmental management measures and mitigation measures, it will ensure that both human and environment are not negatively affected by the development.</p> |
| 1.7 | <p>How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part? Will the use of the resources and/or impact on the ecosystem jeopardise the integrity of the resource and/or system taking into account carrying capacity restrictions, limits of acceptable change, and thresholds? What measures were explored to firstly avoid the use of resources, or if avoidance is not possible, to minimise the use of resources? What measures were taken to ensure responsible and equitable use of the resources? What measures were explored to enhance positive impacts?</p> <p>1.7.1. Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency (i.e. de-materialised growth)? (note: sustainability requires that settlements reduce their ecological footprint by using less material and energy demands and reduce the amount of waste they generate, without compromising their quest to improve their quality of life).</p> | <p>TRP is an approved, operational mine, with approval for the use of renewable natural resources via the approved Integrated Water Use Licence (IWUL). Any additional water uses not already licenced in terms of the approved IWUL, and required in terms of the proposed waste rock dumps, will be licensed in terms of the National Water Act.</p> <p>Stormwater management, and the water stemming from the waste rock facilities will be captured in the PCD infrastructure and re-used and recycled for dust suppression.</p> <p>This will alleviate the requirement for clean make-up water to be sourced from groundwater.</p> |

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| | <p>1.7.2. Does the proposed use of natural resources constitute the best use thereof? Is the use justifiable when considering intra- and intergenerational equity, and are there more important priorities for which the resources should be used (i.e. what are the opportunity costs of using these resources this the proposed development alternative?)</p> <p>1.7.3. Do the proposed location, type and scale of development promote a reduced dependency on resources?</p> | |
| 1.8 | <p>How were a risk-averse and cautious approach applied in terms of ecological impacts?</p> <p>1.8.1 What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?</p> <p>1.8.2 What is the level of risk associated with the limits of current knowledge?</p> <p>1.8.3 Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?</p> | <p>The current knowledge gaps include:</p> <p>Detailed and site-specific information regarding some of the environmental aspects is not yet available for the proposed project. However, the outstanding information will be generated through the identified specialist studies identified below:</p> <ul style="list-style-type: none"> • Geotechnical Investigation • Geohydrological Impact Assessment • Surface Water (Hydrology) Assessment and Aquatic Assessment • Wetland Assessment • Fauna and Flora Assessment • Archaeological and Cultural Heritage Impact Assessment Scan • Palaeontological Assessment • Visual Impact Assessment, and • Closure and Rehabilitation Plans (including Financial Provisioning) <p>While the expected potentially significant impacts have been preliminarily identified as part of this Scoping Process, the impacts on all environmental aspects will be explored in more detail and quantified wherever possible during the EIA Phase. The mitigation measures associated with the impacts need to still be determined. The level of risk is low as this report represents the preliminary scoping level study whilst the EIA and EMPR will be further informed by the various specialist studies and feedback from the I&AP's (during Scoping review).</p> <p>It is noted that this project ensures continuity of a current mining operation.</p> |
| 1.9 | <p>How will the ecological impacts, resulting from this development, impact on people's environmental right in terms following.</p> <p>1.9.1 Negative impacts: e.g. access to resources, opportunity costs, loss</p> | <p>Refer to the impact assessment and mitigation measures in Section 12 in this Scoping Report. These aspects will be further explored in the EIA and EMPR.</p> |

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| | of amenity (e.g. open space), air and water quality impacts, nuisance (noise, odour, etc.), health impacts, visual impacts, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts? 1.9.2 Positive impacts: e.g. improved access to resources, improved amenity, improved air or water quality, etc. What measures were taken to enhance positive impacts? | |
| 1.10 | Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts (e.g. on livelihoods, loss of heritage site, opportunity costs, etc.)? | Refer to the impact assessment and mitigation measures in Section 12 in this Scoping Report. These aspects will be further explored in the EIA and EMPR. |
| 1.11 | Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives/targets/considerations of the area? | The environmental risk assessment for all environmental features will be assessed and included in the EIA/EMPr phase of the project. |
| 1.12 | Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the "best practicable environmental option" in terms of ecological considerations? | Refer to Section 7, where details of the alternatives are considered, and Section 12 (advantages and disadvantages of the proposed activity) of this Scoping Report. This aspect will be further explored in the EIA and EMPR. |
| 1.13 | Describe the positive and negative cumulative ecological/biophysical impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and existing and other planned developments in the area? | Refer to Section 12 of this Scoping Report. This aspect will be further explored in the EIA and EMPR. |
| "Promoting justifiable economic and social development" | | |
| 2.1 | What is the socio-economic context of the area, based on, amongst other considerations, the following considerations? 2.1.1 The IDP (and its sector plans' vision, objectives, strategies, indicators and targets) and any other strategic plans, frameworks of policies applicable to the area, 2.1.2 Spatial priorities and desired spatial patterns (e.g. need for integrated of segregated communities, need to upgrade informal settlements, need for densification, etc.), 2.1.3 Spatial characteristics (e.g. existing land uses, planned land uses, cultural landscapes, etc.), and 2.1.4 Municipal Economic Development Strategy ("LED Strategy"). | Community/society priorities are officially expressed through public documents including the provincial growth and development strategy and spatial development framework documents. The TRP project falls within the Greater Tubatse Municipality and forms part of the Greater Tubatse Municipality LED Strategy. Four programmes for economic development. This comprises (1) Sector Development (2) Economic Infrastructure Support (3) Social Development, and (4) Institutional/Governance Reform. |

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| | | <p>The projects that have been identified in the LED are aimed at economic development by ensuring job opportunities are created, jobs security is created, skills development takes place and that opportunities are created for SMME development. Mining plays an important part in the sector development of the LED strategy. Mines contribute towards the socioeconomic development of the region through social-upliftment and job creation as primary agents.</p> <p>It is noted that this project ensures continuity of a current mining operation.</p> |
| 2.2 | <p>Considering the socio-economic context, what will the socio-economic impacts be of the development (and its separate elements/aspects), and specifically also on the socio-economic objectives of the area?</p> <p>2.2.1. Will the development complement the local socio-economic initiatives (such as local economic development (LED) initiatives), or skills development programs?</p> <p>2.2.2. Implementation on Social labor Plan (SLP)</p> | <p>Also refer to the comments made above.</p> <p>The proposed project will benefit society and the surrounding communities both directly and indirectly by ensuring the continuity of the current TRP mining operation, thereby contributing to the continuing job security at the proposed operation and through the extraction of mineral resources and beneficiation of mineral resources within Limpopo.</p> <p>Direct economic benefits will be derived from wages, taxes and profits. Indirect economic benefits will be derived from the procurement of goods and services and the spending power of employees.</p> <p>The proposed development will also ensure local economic development through the implementation of projects identified in the Social and Labour Plan, by ensuring the continuation of the current TRP mining operation.</p> <p>TRP is fully committed to implementing development plans and projects that will facilitate local community and rural development in the area surrounding its project, in line with the provisions of the Broad-Based Socio-Economic Empowerment Charter for the South African Mining Industry.</p> |
| 2.3 | <p>How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?</p> | <p>Refer to comments made above. All aspects and comments received from I&APs during the process will be reasonably addressed and incorporated into the final EIA/EMPr submitted to the DMRE. Local economic growth and work opportunities will be the main benefits from the project if approved, as the proposed waste rock dumps will secure the continuing operation of the approved TRP mine, and may thereby address some of the physical, psychological, development, cultural and social needs.</p> |

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| | | Refer to the proposed public participation process in Section 8 of this Scoping Report, as well as the Public Participation Plan attached in Appendix D1 as per the requirements of the DEFF directive issued in terms of the Disaster Management Act (Act 57 of 2002). This aspect will be further expanded on in the EIA and EMPR. |
| 2.4 | Will the development result in equitable (intra- and inter-generational) impact distribution, in the short- and long-term? Will the impact be socially and economically sustainable in the short- and long-term? | Refer to the impact assessment and mitigation measures in Section 12 of this Scoping Report. This aspect will be further explored in the EIA and EMPR. |
| 2.5 | <p>In terms of location, describe how the placement of the proposed development will;</p> <p>2.5.1. result in the creation of residential and employment opportunities in close proximity to or integrated with each other,</p> <p>2.5.2. reduce the need for transport of people and goods,</p> <p>2.5.3. result in access to public transport or enable non-motorised and pedestrian transport (e.g. will the development result in densification and the achievement of thresholds in terms public transport),</p> <p>2.5.4. compliment other uses in the area,</p> <p>2.5.5. be in line with the planning for the area,</p> <p>2.5.6. for urban related development, make use of under-utilised land available with the urban edge,</p> <p>2.5.7. optimise the use of existing resources and infrastructure,</p> <p>2.5.8. opportunity costs in terms of bulk infrastructure expansions in non-priority areas (e.g. not aligned with the bulk infrastructure planning for the settlement that reflects the spatial reconstruction priorities of the settlement),</p> <p>2.5.9. discourage "urban sprawl" and contribute to compaction/densification,</p> <p>2.5.10. contribute to the correction of the historically distorted spatial patterns of settlements and to the optimum use of existing infrastructure in excess of current needs,</p> <p>2.5.11. encourage environmentally sustainable land development practices and processes</p> <p>2.5.12. take into account special locational factors that might favour the specific location (e.g. the location of a strategic mineral resource, access</p> | Alternatives have been assessed during the process and the best suited alternative will be described within this application and depicted in the EIA Phase. Refer to Section 7 in this Scoping Report, discussing the details of alternatives considered. |

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| | <p>to the port, access to rail, etc.),</p> <p>2.5.13. the investment in the settlement or area in question will generate the highest socio-economic returns (i.e. an area with high economic potential),</p> <p>2.5.14. impact on the sense of history, sense of place and heritage of the area and the socio-cultural and cultural-historic characteristics and sensitivities of the area, and</p> <p>2.5.15. in terms of the nature, scale and location of the development promote or act as a catalyst to create a more integrated settlement?</p> | |
| 2.6 | <p>How were a risk-averse and cautious approach applied in terms of socio-economic impacts?</p> <p>2.6.1. What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?</p> <p>2.6.2. What is the level of risk (note: related to inequality, social fabric, livelihoods, vulnerable communities, critical resources, economic vulnerability and sustainability) associated with the limits of current knowledge?</p> <p>2.6.3. Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?</p> | <p>Specialist studies will be undertaken during the EIA phase of the project. All knowledge gaps will therefore be identified and included in the EIA phase of the project.</p> |
| 2.7 | <p>How will the socio-economic impacts, resulting from this development impact, on people's environmental right in terms following:</p> <p>2.7.1. Negative impacts: e.g. health (e.g. HIV-Aids), safety, social ills, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?</p> <p>2.7.2. Positive impacts. What measures were taken to enhance positive impacts?</p> | <p>Refer to the impact assessment and mitigation measures in Section 12.1 of this Scoping Report. This aspect will be further explored in the EIA and EMPR.</p> |
| 2.8 | <p>Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socio-economic impacts will result in ecological impacts (e.g. over utilisation of natural resources, etc.)?</p> | <p>The area where the project is proposed, is located within an approved mining right area.</p> |
| 2.9 | <p>What measures were taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations?</p> | <p>Refer to the impact assessment and mitigation measures in Section 12 of this Scoping Report. This aspect will be further explored in the EIA and EMPR.</p> |

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| 2.10 | What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons (who are the beneficiaries and is the development located appropriately)? Considering the need for social equity and justice, do the alternatives identified, allow the “best practicable environmental option” to be selected, or is there a need for other alternatives to be considered? | Refer to the impact assessment and mitigation measures in Section 12 of this Scoping Report. The mine will be in line with the regulatory requirements, and provide financial provision to ensure that the mitigation measures proposed can be carried out. This aspect will be further explored in the EIA and EMPR. |
| 2.11 | What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination? | By conducting a Scoping and Environmental Impact Assessment Process, the Applicant ensures that equitable access has been considered. Refer to the impact assessment and mitigation measures in Sections 11 and 12 of this Scoping Report. This aspect will be further explored in the EIA and EMPR. |
| 2.12 | What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development’s life cycle? | Refer to the impact assessment and mitigation measures in Section 11 and 12 of this Scoping Report. The EIA and EMPR will specify timeframes within which mitigation measures must be implemented. |
| 2.13 | What measures were taken to: 2.13.1. ensure the participation of all interested and affected parties, 2.13.2. provide all people with an opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, 2.13.3. ensure participation by vulnerable and disadvantaged persons, 2.13.4. promote community wellbeing and empowerment through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means, 2.13.5. ensure openness and transparency, and access to information in terms of the process, 2.13.6. ensure that the interests, needs and values of all interested and affected parties were taken into account, and that adequate recognition were given to all forms of knowledge, including traditional and ordinary knowledge, and 2.13.7. ensure that the vital role of women and youth in environmental management and development were recognised and their full participation therein will be promoted? | Refer to Section 8 of this Scoping Report, describing the public participation process to be undertaken for the proposed project. |

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| 2.14 | Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g. a mixture of low-, middle-, and high-income housing opportunities) that is consistent with the priority needs of the local area (or that is proportional to the needs of an area)? | <p>Refer to Section 8 Error! Reference source not found. of this Scoping Report, describing the public participation process to be implemented for the proposed project. This aspect will be further explored in the EIA and EMPR.</p> <p>The Applicant is currently executing an approved Social Labour Plan for the Two Rivers Platinum mine, of which this project being applied for, will form part of.</p> |
| 2.15 | What measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected? | Two Rivers Platinum has an Environmental, Health and Safety Policy in place, which regulates activities on the mining area. All workers and contractors are required to abide to the policies and framework as specified. |
| 2.16 | <p>Describe how the development will impact on job creation in terms of, amongst other aspects:</p> <p>2.16.1. the number of temporary versus permanent jobs that will be created,</p> <p>2.16.2. whether the labour available in the area will be able to take up the job opportunities (i.e. do the required skills match the skills available in the area),</p> <p>2.16.3. the distance from where labourers will have to travel,</p> <p>2.16.4. the location of jobs opportunities versus the location of impacts (i.e. equitable distribution of costs and benefits), and</p> <p>2.16.5. the opportunity costs in terms of job creation (e.g. a mine might create 100 jobs, but impact on 1000 agricultural jobs, etc.).</p> | A Social Impact Assessment has been conducted, and an approved SLP is in place. A Soil and Land Capability Assessment has been undertaken as part of the 2015 EIA process. |
| 2.17 | <p>What measures were taken to ensure:</p> <p>2.17.1. that there were intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment, and</p> <p>2.17.2. that actual or potential conflicts of interest between organs of state were resolved through conflict resolution procedures?</p> | <p>The applicant is in the process of applying for the following aspects across different legislation requirements:</p> <ul style="list-style-type: none"> • WUL (Department of Human Settlements, Water and Sanitation –DHSWS – to be initiated for the inclusion of this process). • All legislation that has been incorporated within this process was discussed within the Section regarding Policy and Legislative Content, above. |
| 2.18 | What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people’s common heritage? | <p>Refer to Section 8 of this Scoping Report, describing the public participation process to be implemented for the proposed project, as well as Section 11 discussing the impact assessment.</p> <p>The Applicant has an approved Social and Labour Plan in place.</p> |

| | | |
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| 2.19 | Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left? | Refer to the impact assessment and mitigation measures in Section 11 and Section 12 of the Scoping Report. This aspect will be further explored in the EIA and EMPR. |
| 2.20 | What measures were taken to ensure that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects will be paid for by those responsible for harming the environment? | This will be addressed during the EIA phase of the project, and the Closure report will be updated and submitted as part of the EIAr. |
| 2.21 | Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the best practicable environmental option in terms of socio-economic considerations? | Refer to Section 7 (description of the process followed to reach the proposed preferred site), of the Scoping Report. This aspect will be further explored in the EIA and EMPR. |
| 2.22 | Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area? | Refer to Section 12 of this Scoping Report. This aspect will be further explored in the EIA and EMPR. |

6. PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED

This section provides a short discussion for the timeframes and scheduling for the implementation of the various project phases.

The authorisation for the waste management facilities is required for a period of 25 years. Two Rivers Platinum is an established, operational mine. The additional waste rock dump facilities being applied for, are required to accommodate the projected tonnage, based on the current Life of Mine plan.

7. DESCRIPTION OF THE PROCESS FOLLOWED TO REACH THE PROPOSED PREFERRED SITE

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

- i. *Details of all alternatives considered (With reference to the site plan provided as Appendix D).*
 - (a) the property on which or location where it is proposed to undertake the activity;*
 - (b) the type of activity to be undertaken;*
 - (c) the design or layout of the activity;*
 - (d) the technology to be used in the activity;*
 - (e) the operational aspects of the activity; and*
 - (f) the option of not implementing the activity)*

The identification of alternatives is a key aspect of the success of the scoping process. All reasonable and feasible alternatives must be identified and screened to determine the most suitable alternatives to consider and assess in the EIA phase. There are, however, some significant constraints that have to be taken into account when identifying alternatives for a project of this scope. Such constraints include social, financial and environmental issues, which will be discussed in the evaluation of the alternatives.

Alternatives can typically be identified according to:

- Location/layout/design alternatives
- Process alternatives
- Technological alternatives, and
- Activity alternatives (including the No-go option)

For any alternative to be considered feasible, such an alternative must meet the need and purpose of the development proposal without presenting significantly high associated impacts.

The alternatives are described, and the advantages and disadvantages are presented in this section. It is further indicated which alternatives are considered feasible from a technical as well as environmental perspective.

Alternatives can also be distinguished into discrete or incremental alternatives. Discrete alternatives are overall development options, which are typically identified during the pre-feasibility, feasibility and or scoping phases of the EIA process (DEAT; 2004). Incremental alternatives typically arise during the EIA process and are usually suggested as a means of addressing identified impacts. These alternatives are closely linked to the identification of mitigation measures and are not specifically identified as distinct alternatives.

Although an array of alternatives could be investigated for each project, such alternatives will not necessarily be applicable to each project and/or project phase. However, there must always be strived to seek alternatives that maximises efficient and sustainable resource utilisation and minimise any negative impacts on the bio-physical and socio-economic environments.

7.1. SITE ALTERNATIVES

7.1.1. SUITABLE MINING AREAS

Two Rivers Platinum is an existing, operational underground mine. Site alternatives for the proposed additional waste rock dumps are discussed in section 7.1.4 (below) .

7.1.2. ACTIVITY ALTERNATIVES

Two Rivers Platinum is an existing, operational underground mine. Process alternatives to the proposed waste rock dumps include sale of waste rock, and improved mining methods. Alternate layouts of the proposed waste rock dumps will be investigated during the EIA.

7.1.3. DETAILS OF MINING METHOD ALTERNATIVES

Two Rivers Platinum is an existing, operational underground mine. This Scoping Report is specific to the application for proposed waste rock dumps, and as such, no alternate mining methods are discussed in this report.

7.1.4. DESIGN AND LAYOUT ALTERNATIVES

Please refer to Section 7.1.1 to 7.1.3 above; TRP is an existing, operational underground mine.

Regarding the two additional waste rock dumps being applied for, the three options evaluated are discussed below.

The available tonnage that can be accommodated at the current waste dump east of the Main Decline Office Complex, as surveyed in October 2020, based on the design specifications at a height of 14m is 73Kt, gives the current Waste Dump a life of nine (9) months, based on an anticipated deposit rate of 8 000 tons per month.

Based on the current LoM plan, a further 747Kt will be generated, leaving a required 673Kt to be hauled and packed on surface in addition to the current available capacity. These tons include waste tons generated by both Main and North Declines and a Merensky Waste Decline system with an allowance of 20%.

Table 12 below shows the footprint areas required at various heights.

Table 12: Waste Rock Dump Footprint Requirements

| Scenario | Height (m) | Area (m ²) | Area (HA) | L x W (m) |
|----------|------------|------------------------|-----------|-----------|
| 1 | 14 | 30 476 | 3.05 | 175 x 175 |
| 2 | 20 | 22 184 | 2.22 | 149 x 149 |
| 3 | 25 | 18 239 | 1.82 | 135 x 135 |
| 4 | 30 | 15 570 | 1.56 | 125 x 125 |
| 5 | 35 | 13 638 | 1.36 | 117 x 117 |
| 6 | 40 | 12 171 | 1.22 | 110 x 110 |

Four options are considered for the additional waste rock dump facilities proposed. These scenarios, numbered on the plans below relates to the heights indicated in the table above.

Option 1:

This scenario entails the natural extension of the current facility towards the South. The main advantage of this option is the reduced hauling distance of waste on surface when compared to option 2. A disadvantage is that this option will extend over a water course that diverts surface water from the Main Decline infrastructure. This water course will be required to be diverted around the footprint of the proposed extension.

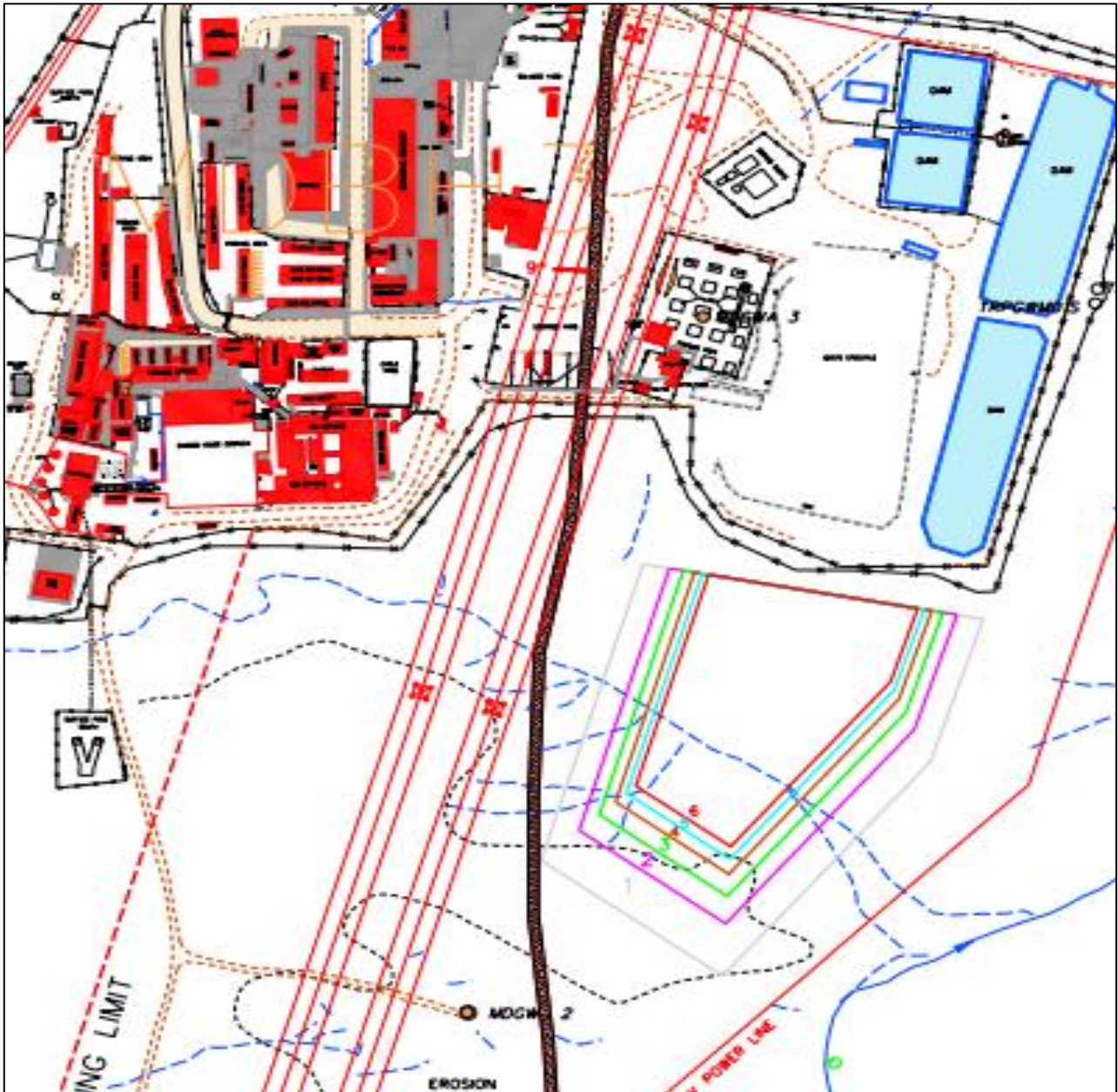


Figure 6 – Option 1: Extension of Current Facility

Option 2:

For this option, the North Decline “Open Pit” area is considered. Access haul roads are established to this area, as it was previously used to stockpile ore from North Decline. The main disadvantage of this option is the distance to haul the waste, which will be mainly generated from Main Decline and the Merensky project.

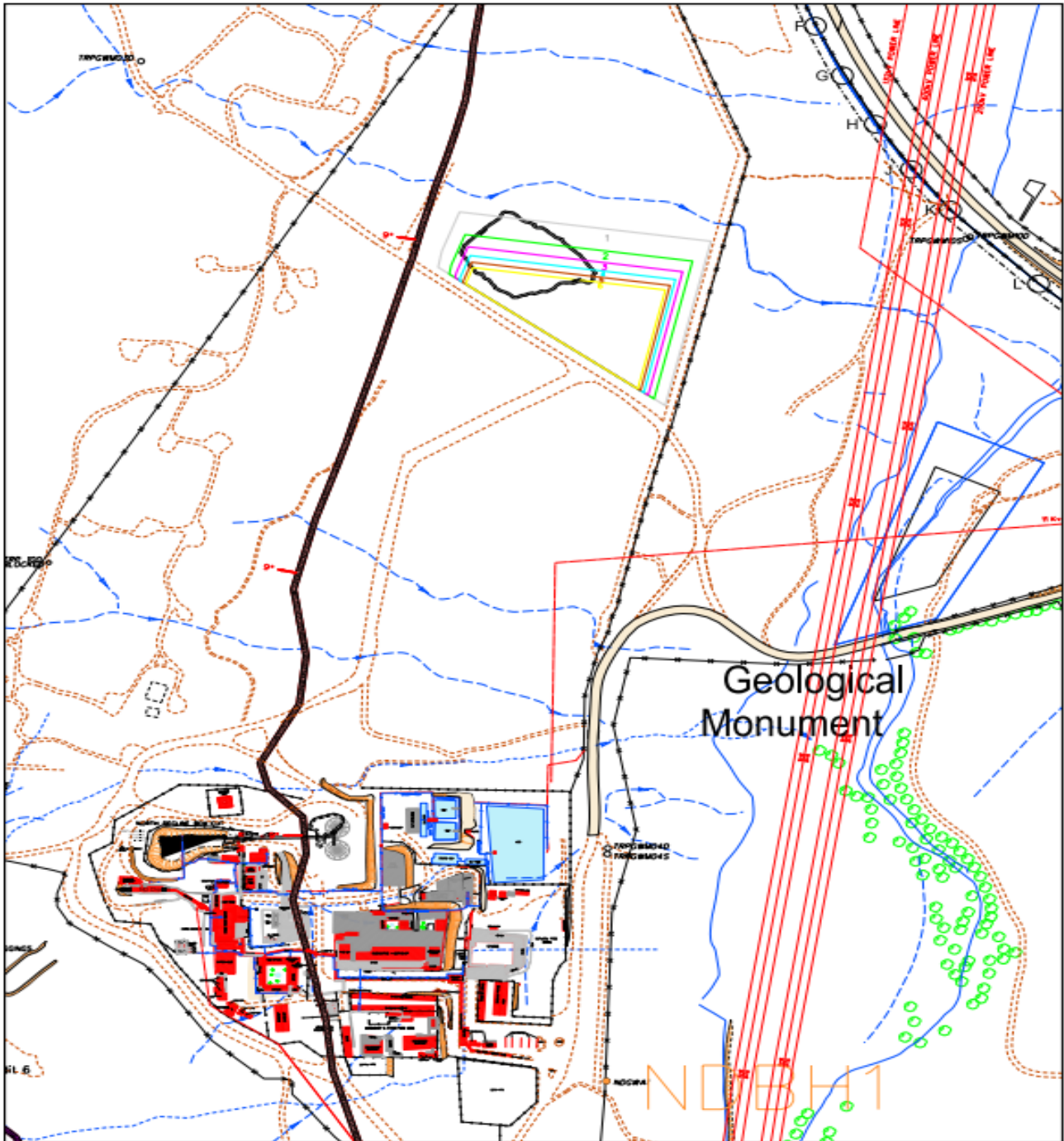


Figure 7 – Option 2: North Decline “Open Pit”

Option 3:

For this option, the open area adjacent to the South Shaft will be utilized for the Merensky development. The main disadvantage of this option is the distance to haul the waste which will be mainly generated from Main Decline and the Merensky project.

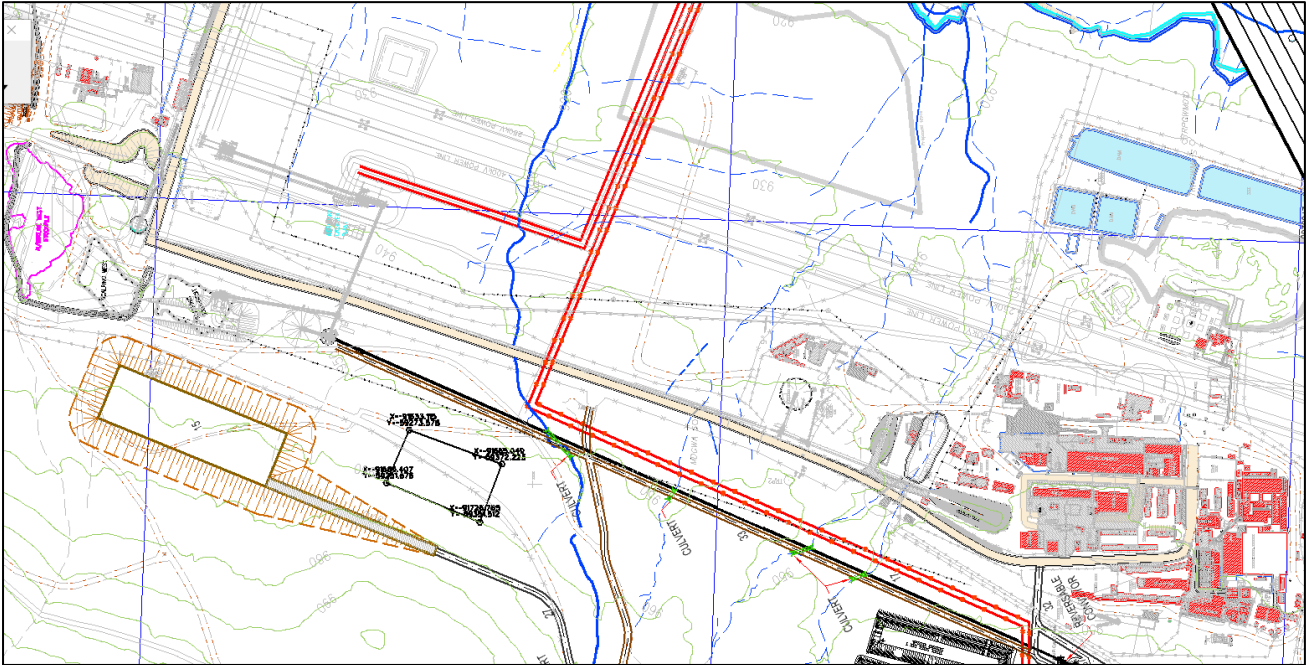


Figure 8: Option 3 – South Shaft

Option 4:

Option 4 evaluates a combination of Option 1, 2 and 3 discussed above. The main advantage is that the current facility can be extended to a position so as to not affect the existing water course, whereafter waste will be hauled to the Merensky waste rock area and the North “Open Pit “area. The advantage is that the hauling distance of Main Decline and Merensky waste will be significantly reduced for an extended period compared to Option 2. A further advantage is that the hauling distance of waste generated from North Decline will also significantly reduce if hauling as per Option 2 are introduced. This must be seen in the context that waste hauling from North Decline capital projects will be come to an end by 2025.

7.1.5. PROCESS ALTERNATIVES

Two Rivers Platinum is an existing, operational underground mine. Process alternatives to the proposed waste rock dumps include sale of waste rock, and improved mining methods. Alternate layouts of the proposed waste rock dumps will be investigated during the EIA.

7.1.6. NO-GO OPTION

The no-go option refers to the alternative of the proposed project not going ahead at all. This alternative will avoid potentially positive and negative impacts on the environment and the status quo of the area will remain, which is the conditions of the current environment without any deviations or expansions. The no-go option will impact the ability of the mine to continue operation.

The implications of the no-go option will be evaluated as part of the EIA, focusing on comparing potential impacts from the proposed project with the status quo, and will be particularly relevant should it be found, that detrimental impacts cannot be managed to an acceptable level.

The proposed waste rock dumps are located within the existing mining right of TRP, which has already been impacted on by the current activities. Granting the amendment application will allow TRP to continue with the mining activities which will extend the Life of Mine and thereby extend the employment period of the current employees, whilst continuing to boost the local economy through the sourcing of supplies. The proposed development, therefore, has the potential to provide many socio-economic benefits to the local and regional communities.

8. DETAILS OF THE PUBLIC PARTICIPATION PROCESS TO BE FOLLOWED

(Describe the process undertaken to consult interested and affected parties including public meetings and one on one consultation. NB the affected parties must be specifically consulted regardless of whether they attended public meetings. (Information to be provided to affected parties must include sufficient detail of the intended operation to enable them to assess what impact the activities will have on them or on the use of their land).

8.1. PUBLIC PARTICIPATION

The Public Participation Process (PPP) is a requirement of several pieces of South African legislation and aims to ensure that all relevant Interested and Affected Parties (I&APs) are consulted, involved and their comments are considered and a record of all comments and responses is included in the reports submitted to the Authorities. The process ensures that all stakeholders are provided an opportunity as part of a transparent process which allows for a robust and comprehensive environmental study. The PPP for the proposed project needs to be managed sensitively and according to best practises to ensure and promote:

- Compliance with international best practice options;
- Compliance with national legislation;
- Establishment and management of relationships with key stakeholder groups; and
- Involvement and participation in the environmental study and authorisation/approval process.

As such, the purpose of the PPP and stakeholder engagement process is to:

- Introduce the proposed project;
- Explain the authorisations required;
- Explain the environmental studies already completed and yet to be undertaken (where applicable);
- Solicit and record any issues, concerns, suggestions, and objections to the project;
- Provide opportunity for input and gathering of local knowledge;
- Establish and formalise lines of communication between the I&APs and the project team;
- Identify all significant issues for the project; and
- Identify possible mitigation measures or environmental management plans to minimise and/or prevent negative environmental impacts and maximize and/or promote positive environmental impacts associated with the project.

8.2. LEGAL FRAMEWORK

The PPP for the proposed project will be undertaken in accordance with the requirements of the MPRDA and the NEMA EIA Regulations (2014), as amended in 2017, as well as the NWA and in line with the principles of Integrated Environmental Management (IEM). IEM implies an open and transparent participatory process, whereby stakeholders and other I&APs are afforded an opportunity to comment on the project and have their views considered and included as part of project planning. On the 5 June 2020, the Department of Environment Forestry and Fisheries (DEFF) issued Directions GN650 in terms of the Disaster Management Act (Act 57 of 2002). As per the Directions, a Public Participation Plan is required for all public participation to be conducted in terms of the NEMA, which ensures that the EAP and Applicant will ensure that all reasonable measures are taken to identify potential I&APs for purposes of conducting public participation on the application; and ensure that, as far as is reasonably possible, taking into account the specific aspects of the application-

- (a) information containing all relevant facts in respect of the application or proposed application is made available to potential I&APs; and
- (b) participation by potential or registered I&APs has been facilitated in such a manner that all potential or registered I&APs are provided with a reasonable opportunity to comment on the application or proposed application.

The applicant and EAPs, in addition to the methods contained in Chapter 6 of the EIA Regulations, or as part of reasonable alternative methods proposed in terms of regulation 41(2)(e) of the EIA Regulations, may make use of the following non-exhaustive list of methods:

- emails, websites, Cloud Based Services, or similar platforms, direct telephone calls, virtual meetings, newspaper notices, community representatives, distribution of notices at places that are accessible to potential I&APs.

Hard copies or electronic versions of reports may be made accessible through any of the following non-exhaustive list of methods:

- websites, Zero Data Portals, community or traditional authorities, Cloud Based Services, provided that all registered I&APs have access to the reports.

A copy of the Public Participation Plan is included in Appendix D1 of this report.

The proposed public participation process for the Two Rivers Platinum – Waste Rock Dumps project is discussed in Sections 8.2.1 to 8.2.5 below.

8.2.1. SECTION 39: ACTIVITY ON LAND OWNED BY PERSON OTHER THAN THE PROPONENT - SUBREGULATION 1 AND 2(A), (B) AND (C)

- (1) If the proponent is not the owner or person in control of the land on which the activity is to be undertaken, the proponent must, before applying for an environmental authorisation in respect of such activity, obtain the written consent of the landowner or person in control of the land to undertake such activity on that land.*
- (2) Subregulation (1) does not apply in respect of—*
- (a) linear activities;*
 - (b) activities constituting, or activities directly related to prospecting or exploration of a mineral and petroleum resource or extraction and primary processing of a mineral or petroleum resource; and*
 - (c) strategic integrated projects as contemplated in the Infrastructure Development Act, 2014.*

As the application is for the amendment of an existing EA within a mineral rights application, the proponent is not required to obtain written consent of the landowner or person in control of the land to undertake the activity.

8.2.2. SECTION 41: PUBLIC PARTICIPATION PROCESS

8.2.2.1. SECTION 41, SUBREGULATION 2 (A) – SITE NOTICES

- 1) *The person conducting a public participation process must take into account any relevant guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of an application or proposed application which is subjected to public participation by –*
 - a) *fixing a notice board at a place conspicuous to and accessible by the public at the boundary, on the fence or along the corridor of –*
 - i. *the site where the activity to which the application or proposed application*
 - ii. *relates is or is to be undertaken; and*
 - iii. *any alternative site.*

Site notices were erected within and surrounding the proposed project area. The site notices have been placed in conspicuous areas that are accessible by the public at the boundary. The site notices include a short background to the proposed project, the locality of the project, information on the activities that are being applied for and details of how the Environmental Assessment Practitioner (EAP) can be contacted to provide any comments. Refer to Appendix D2 for a copy of the site notice and where these have been placed.

8.2.2.2. SECTION 41, SUBREGULATION 2 (B) – WRITTEN NOTICE

- b) *giving written notice, in any of the manners provided for in section 47D of the Act, to –*
 - i. *the occupiers of the site and, if the proponent or applicant is not the owner or person in control of the site on which the activity is to be undertaken, the owner or person in control of the site where the activity is or is to be undertaken and to any alternative site where the activity is to be undertaken;*
 - ii. *owners, persons in control of, and occupiers of land adjacent to the site where the activity is or is to be undertaken and to any alternative site where the activity is to be undertaken;*
 - iii. *the municipal councillor of the ward in which the site and alternative site is situated and any organisation of ratepayers that represent the community in the area;*
 - iv. *the municipality which has jurisdiction in the area;*
 - v. *any organ of state having jurisdiction in respect of any aspect of the activity; and*
 - vi. *any other party as required by the competent authority*

All preidentified I&APs have been provided with a written notice (refer to Appendix D3), together with a background information document (BID) (refer to Appendix D4 for a copy of the BID).

Written notices have also be sent to the municipality that has jurisdiction in the area and all organs of state as preidentified and that registered for the project. This includes the following:

- Department of Mineral Resources and Energy (DMRE);
- Department of Human Settlements, Water and Sanitation (DHSWS).
- Department of Environmental Affairs and Forestry;
- Department of Agriculture Forestry and Fisheries.
- Limpopo Department of Environment, Economic Development and Tourism
- South Africa Heritage Resource Agency (SAHRA);
- Limpopo Heritage Resources Authority;
- Greater Tubatse Local Municipality;
- Sekhukhune District Municipality;
- Tribal Authorities; and
- Ward Councillor/s

8.2.2.3. DETAILS OF BACKGROUND INFORMATION DOCUMENT (BID)

A BID in English has been compiled for distribution (refer to Appendix D4 for a copy of the BID). The BID contains the following information:

- Project name;
- Applicant name;
- Project location (including map of study area);
- Description of the EA application process, EIA flow chart, and public participation process;
- Information on future document review opportunities;
- A detailed questionnaire/ I&AP registration form; and
- Relevant EAP contact person for the project.

Copies of the BID were emailed to the registered I&AP's.

The following government departments and municipalities shall receive copies of the BID:

- Department of Human Settlements, Water and Sanitation (DHSWS);
- Department of Economic, Small Business Development, Tourism and Environmental Affairs (DESTEA);
- Department of Land Affairs;
- Sekhukhune District Municipality, and

- Greater Tubatse Local Municipality;

Copies of the BID were distributed to any other parties if required by the Competent Authority. The BID and distribution of the BID's will be presented in the Scoping Report (refer to Appendix D).

8.2.2.4. SECTION 41, SUBREGULATION 2 (C), (D) & (E) – ADVERTISEMENTS

- c) *placing an advertisement in—*
 - i. *one local newspaper; or*
 - ii. *any official Gazette that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;*
- d) *placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official Gazette referred to in paragraph (c)(ii); and*
- e) *using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desirous of but unable to participate in the process due to—*
 - i. *illiteracy;*
 - ii. *disability; or*
 - iii. *any other disadvantage.*

As the boundary of the proposed project is restricted to the Steelpoort area, an advertisement was placed in the local newspaper at the start of the project (notification period) containing the following information:

- Project name;
- Applicant name;
- Project location;
- Nature of the activity; and
- Relevant EAP contact person for the project.

An English advertisement will also be placed in the local newspaper to advise I&APs of the availability of the Scoping Report for review. Information in the advert will include a short project background (including project and applicant name), project location, nature of the activity, information regarding the availability of the reports for review and contact details for the relevant EAP where I&APs can send comments/concerns. A copy of the advert is attached in Appendix D5.

8.2.2.5. SECTION 41, SUBREGULATION 3

- 3) *A notice, notice board or advertisement referred to in subregulation (2) must—*
- a) give details of the application or proposed application which is subjected to public participation;*
- and*
- b) state—*
 - i. whether basic assessment or S&EIR procedures are being applied to the application;*
 - ii. the nature and location of the activity to which the application relates;*
 - iii. where further information on the application or proposed application can be obtained;*
- and*
- iv. the manner in which and the person to whom representations in respect of the application or proposed application may be made.*

As indicated in Section 8.2.2.2 and Section 8.2.2.4 above, both the site notice and the adverts will include all information as per the requirements of Section 41, subregulation 3.

The EAP's contact number and email address will be stated on the site notice and adverts. Comments/concerns and queries will be encouraged to be submitted in either of the following manners:

1. Electronically (email);
2. Telephonically; and/or
3. Written letters.

8.2.2.6. SECTION 41, SUBREGULATION 4

- 4) *A notice board referred to in subregulation (2) must—*
- a) be of a size of at least 60cm by 42cm; and*
 - b) display the required information in lettering and in a format as may be determined by the competent authority.*

Site notices erected around the boundary of the Two Rivers Platinum mine were at least 60cm by 42 cm. The proposed format is Arial and the font size is 14. A locality map is included on the site notice. Refer to Appendix D2 for a copy of the site notice, as well as a locality map of where the site notices have been placed.

8.2.2.7. SECTION 41, SUBREGULATION 5, 6 & 7

- 5) *Where public participation is conducted in terms of this regulation for an application or proposed application, subregulation (2)(a), (b), (c) and (d) need not be complied with again during the additional public participation process contemplated in regulations 19(1)(b) or 23(1)(b) or the*

public participation process contemplated in regulation 21(2)(d), on condition that—

- a) such process has been preceded by a public participation process which included compliance with subregulation (2)(a), (b), (c) and (d); and*
- b) written notice is given to registered interested and affected parties regarding where the—*
 - i. revised basic assessment report or, EMPr or closure plan, as contemplated in regulation 19(1)(b);*
 - ii. revised environmental impact assessment report or EMPr as contemplated in regulation 23(1)(b); or*
 - iii. environmental impact assessment report and EMPr as contemplated in regulation 21(2)(d);*

may be obtained, the manner in which and the person to whom representations on these reports or plans may be made and the date on which such representations are due.

- 6) When complying with this regulation, the person conducting the public participation process must ensure that—*
 - a) information containing all relevant facts in respect of the application or proposed application is made available to potential interested and affected parties; and*
 - b) participation by potential or registered interested and affected parties is facilitated in such a manner that all potential or registered interested and affected parties are provided with a reasonable opportunity to comment on the application or proposed application.*

All relevant facts in respect of the proposed application, will be made available to potential I&APs. Both the Scoping Report and the Environmental Impact Assessment Report with the Environmental Management Programme Report will be made available for public review and comment for a period of 30 days each.

- 7) Where an environmental authorisation is required in terms of these Regulations and an authorisation, permit or licence is required in terms of a specific environmental management Act, the public participation process contemplated in this Chapter may be combined with any public participation processes prescribed in terms of a specific environmental management Act, on condition that all relevant authorities agree to such combination of processes.*

As this is an integrated application, namely an environmental authorisation and waste licence application in terms of the NEMA, and a water use licence application in terms of the NWA, it is proposed to combine the public participation process with all notification documentation and other public participation opportunities referring to all three authorisations/permits or licences.

8.2.3. SECTION 42: REGISTER OF INTERESTED AND AFFECTED PARTIES

8.2.3.1. INTERESTED AND AFFECTED PARTY (I&AP) DATABASE

A proponent or applicant must ensure the opening and maintenance of a register of interested and affected parties and submit such a register to the competent authority, which register must contain the names, contact details and addresses of—

- a) all persons who, as a consequence of the public participation process conducted in respect of that application, have submitted written comments or attended meetings with the proponent, applicant or EAP;*
- b) all persons who have requested the proponent or applicant, in writing, for their names to be placed on the register; and*
- c) all organs of state which have jurisdiction in respect of the activity to which the application relates.*

As part of the PPP, an I&AP database has been developed and will be continuously updated for the project. A copy of the database to date is included as Appendix D6 of the Scoping Report.

8.2.4. SECTION 43: REGISTERED INTERESTED AND AFFECTED PARTIES ENTITLED TO COMMENT ON REPORTS AND PLANS

8.2.4.1. INTERESTED AND AFFECTED PARTIES AND COMMENTING AUTHORITIES

- 43) 1). A registered interested and affected party is entitled to comment, in writing, on all reports or plans submitted to such party during the public participation process contemplated in these Regulations and to bring to the attention of the proponent or applicant any issues which that party believes may be of significance to the consideration of the application, provided that the interested and affected party discloses any direct business, financial, personal or other interest which that party may have in the approval or refusal of the application.*
- 2) In order to give effect to section 240 of the Act, any State department that administers a law relating to a matter affecting the environment must be requested, subject to regulation 7(2), to comment within 30 days.*

Stakeholders who are captured/registered on the database for the project shall include the following:

- The owners or persons in control of the land where the proposed mining is to be undertaken (if different than applicant);
- The occupiers of the property where the development is to be undertaken;
- The owners and occupiers of land adjacent to the mining area;
- Provincial and local government (relevant local and district municipalities);

- Organs of state, other than the authorising authority, such as the Department of Agriculture, Forestry and Fisheries (DAFF – now grouped with Environmental Affairs, forming DEFF since 2019), having jurisdiction in respect of any aspect of the proposed project;
- Relevant residents' associations, rates payers' organisations, community-based organisations and NGOs;
- Environmental and water bodies, forums, groups and associations; and
- Private sector (business, industries) in the vicinity.

8.2.4.2. DECISION MAKING AUTHORITIES IN TERMS OF THE ENVIRONMENTAL AUTHORISATION AND WATER USE LICENCE

The decision-making authorities includes the:

- Department of Mineral Resources and Energy (DMRE); and
- Department of Human Settlements, Water and Sanitation (DHSWS) – (Water Use License).

I&APs who attend any public open days and /or submitted contact details will be registered on the I&AP database. The database will be updated on an on-going basis throughout the process and included as an Appendix to the Scoping Report and the Environmental Impact Assessment Report, as well as the Integrated Water and Waste Management Plan.

8.2.4.3. ENVIRONMENTAL AUTHORISATION AND MINING RIGHT APPLICATION

- Notification:
 - All potential I&APs will be notified by means of advertisement, site notices and/or notification letter and be requested to register as an I&AP for the proposed project.
- Scoping Phase:
 - During the Scoping phase, the I&APs shall have the opportunity to comment on the Scoping Report, which will be made available for public review for 30 days. Registered I&APs will be notified of the availability of the Scoping Report. A hard copy of the report will be made available at the security (entrance) gate to the Two Rivers Platinum Mine, together with a hand sanitiser (The Draft Scoping Report will be made available for a 30-day review and comment period, from **29 April to 31 May 2020**). All necessary measures will be put in place to ensure that the COVID-19 protocols are adhered to when reviewing the document. Should you require a

CD copy of the report, please contact ELEMENTAL. Upon request, Zoom, Microsoft teams and skype meetings will be arranged and communicated with registered I&APs.

- CD copies of the Scoping Report will be submitted to stakeholders (LIHRA, SAHRA and the Greater Tubatse Local Municipality), and government departments (DMRE and DHSWS) for review
- All comments received during the scoping phase will be included as an Appendix in the Final Scoping Report to be submitted to the DMRE.

8.2.5. SECTION 44: COMMENTS OF INTERESTED AND AFFECTED PARTIES TO BE RECORDED IN REPORTS SUBMITTED TO COMPETENT AUTHORITY

8.2.5.1. PUBLIC MEETINGS AND OPEN DAYS

Due to the restrictions, as a result of COVID-19, and as per the requirements of the Disaster Management (Act 57 of 2002), and all regulations thereunder, no public open day will be held. However, to provide a further opportunity for I&APs to review the available documentation for the project for the scoping phase, as per the PP Plan (Appendix D1), Zoom meetings, Microsoft Team Meetings, Skype, and/or phone calls with landowners and I&AP's will be undertaken. The purpose of these meetings for the Scoping Phase will be to introduce the project and to get the potential Interested and Affected parties to register, as well as raise any concerns or issues that the I&APS may have with regards to the proposed project. Notes of the Zoom, Microsoft Team, Skype, and/or phone calls will be included in the Final Scoping Report as an Appendix.

8.2.5.2. SUMMARY OF ISSUES RAISED BY I&APS FROM PUBLIC PARTICIPATION

All issues raised and / or comments received will be included in the Public Participation Report, which will be attached as an Appendix in the Final Scoping Report, and updated for the EIAr to be submitted to the competent authority.

Comments received to date from the PPP session during the initiation of the Environmental Authorisation Application will be included in Table 13 in the Final Scoping Report.

SUMMARY OF ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

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

No comments have been received to date, and as such Table 13 (below) will be updated for the Final Scoping Report. Comments received during the public review period will be updated in this section when the Final Scoping Report is submitted to the Competent Authority.

Table 13: Summary of Issues Raised by Interested and Affected Parties

| Name and Surname | Issues Raised | Response Provided by Project Team |
|------------------|---------------|-----------------------------------|
| | | |
| | | |
| | | |
| | | |

9. THE ENVIRONMENTAL ATTRIBUTES ASSOCIATED WITH THE SITE: BASELINE ENVIRONMENT

Type of environment affected by the proposed activity. (Its current geographical, physical, biological, socio- economic, and cultural character)

The study area falls within the Tubatse Local Municipality and the Sekhukhune District Municipality, Limpopo Province.

The proposed construction of Waste Rock Dump 1, 2 and 3, and associated stormwater management infrastructure will both be located on Portion 6 of Dwarsrivier 372 KT, within the existing mining right and EA area.

9.1. TOPOGRAPHY

The project area is located on the gently undulating plains of the Steelpoort River valley. The valley features a strip of plains on either side of the river and the plains are flanked by a series of hills, which are the foothills of the eastern escarpment of southern Africa.

The surrounding area comprises of undulating, mountainous terrain, where elevations range from 1 900 mamsl in the Schurinksberg range in the east to 800-1 000 mamsl in the Steelpoort, Dwarsrivier and Klein-Dwarsrivier river valleys. The elevation rises steeply to 1 600m to the west and south west of the Dwarsrivier valley, on the western periphery of the Dwarsrivier farm. Major topographical features include the Dwarsriver and Klein Dwarsrivier river systems and steep slopes forming part of the Merensky and UG2 outcrops.

9.2. REGIONAL GEOLOGY

The baseline information in this section of the report is extracted from the approved GCS, EMP/EIA (approved 30 July 2015).

The proposed UG2 and Merensky expansion project areas, are situated in the eastern limb of the Bushveld Igneous Complex, mainly anorthosite and norite with thin localized layers of chromite and pyroxenite, the world's largest layered intrusion, comprising the emplacement of at least 7 105km³ of magma into the sediments of the Transvaal Supergroup. The UG2 sub-outcrops approximately north/south along the Klein Dwarsrivier valley and dips towards the west at 7-10°. Faults with dolerite intrusive dykes dominate the structural setting creating steeply incised valleys.

Two (2) dyke sets are evident. The most prominent set strikes NNE-SSW comprises a series of relatively closely spaced dyke intrusions. The second set strikes WNW ESE and is widely spaced.

The dolerite dykes are fine to medium grained with an average thickness of less than 10m.

The faults striking NNE-SSW on TRP property are predominantly strike-slip in character. In contrast, the ENE-WSW and NNW-SSE fault sets show little or no strike-slip movement. Mining exploration observations have been made of the intersections between dykes and faults and the age relationships is reported to be complicated, with the majority of the more prominent NNE-aligned faults appearing to post-date the dykes.

9.3. CLIMATE

9.3.1. TEMPERATURE

Average daily maximum temperatures are approximately 32 °C in January, and 22 °C in July, with extremes in the order of 42 °C and 31 °C respectively. Average daily minimum temperatures are approximately 18 °C in January and 4 °C in July, with extremes of the order of 8 °C and -7 °C respectively.

9.3.2. MEAN MONTHLY PRECIPITATION AND EVAPORATION

The project area is situated on the eastern escarpment on the border of the Highveld and Northern Transvaal climatic zones (Schulze, 1974) and falls within the Northern Transvaal Climate Zone, as defined by Schulze (1994). The climate is semi-arid and hot with rainfall occurring as a result of thunderstorms. The rainy season extends from November to March, with the peak rainfall occurring in January. Rainfall is somewhat variable, with 12% of all years experiencing drought conditions. The mean annual rainfall is in the order of 703mm. Frost is rare and generally only occurs from July to August.

9.3.3. WIND SPEED AND DIRECTION

The local wind field is characterised by south-easterly and north-easterly winds with a very low frequency of winds from the western sector (due to the mountainous terrain to the west). The north-easterly wind flow increases during day-time conditions with south-easterly wind flow increasing during the night.

Low to moderate wind speeds with an average wind speed of 3.3m/s. Local source contributors to ambient PM₁₀ concentrations in the vicinity of the study site are: domestic fuel burning and vehicle activity in residential areas close to the mine; surrounding chrome and platinum mining activities; cattle ranching in the Steelpoort Valley; agricultural activities and limited cultivation in fertile areas adjacent to the Steelpoort River.

9.4. GROUNDWATER

The baseline information for this section is extracted from the hydrogeological study report, compiled by GCS in 2012 (GCS, EMP/EIA 2015).

9.4.1. HYDROGEOLOGY

Groundwater in the current and proposed expansion areas (Kalkfontein and Tweefontein farms, the north of Dwarsrivier) is controlled by shallow weathered and deep fractured aquifers. Some alluvium primary aquifers are associated with the floodplain of the Dwars River, but this does not play a role for the underground mining. The groundwater occurrence in the deep aquifer is controlled by the lateral and vertical distribution of fracture zones.

A hydrocensus, as conducted in August 2012 within the Kalkfontein and Tweefontein properties, as well as neighbouring farms within a maximum radius of 2 km from prospective mine infrastructure indicated that a total of three (3) boreholes and one (1) fountain were visited during the hydrocensus. One (1) borehole was equipped with a submersible pump powered by a generator and the remaining two (2) boreholes were not equipped nor in use.

The water from the fountain is directed via a pipeline toward water troughs for stock watering, while the water from the borehole is used for domestic and small-scale irrigational purposes. Residents in the Kalkfontein area mostly buy water or collect the water from the Dwars River that flows past the site area at approximately 6km to the west.

According to available data from the NGDB as well as the hydrocensus, the water levels in boreholes surrounding the site area vary from ~3.0 to ~60 metres below ground level (mbgl).

A total of four (4) new boreholes were drilled with borehole depths ranging between 40m and 80m. Very low yields were obtained on all the boreholes except one, which intersected an underground cavity and is not regarded as representative of the ambient hydrogeology that will control the inflow into the proposed new mine workings.

The boreholes were pumped at abstraction rates that ranged between 1.21 to 1.45 l/s. Time periods for the constant rate tests ranged between 9 to 480 minutes. The aquifer test data was interpreted using the Cooper-Jacob (1946) method for drawdown data, and the residual drawdown method for the recovery data. Very low transmissivities were obtained, with no significant water strikes related to the lineaments shown on the geological maps.

A total of four (4) groundwater samples were collected during the pumping tests on the newly drilled boreholes and were sent to Analytico (an accredited laboratory) for analyses. The chemistry data was compared to the Department of Water Affairs South Africa Water Quality Target Values (DWA

SAWQTV) for drinking water, as well as the South Africa National Standard (SANS241:2011) guidelines for domestic use.

The following observations were made from the results:

- All boreholes showed compliance with the (SANS241:2011) standard for drinking water for all constituents;
- All boreholes exceeded the target values for drinking water but remained compliant with the SANS241:2011 standard for drinking water for the electric conductivity (EC) and calcium (Ca);
- Only TRP GWM16 were compliant with the target values for magnesium (Mg); and
- TRP GWM16 and TRP GWM17 exceeded the target values for total dissolved solids (TDS).

9.5. SURFACE WATER (HYDROLOGY)

The baseline information for this section is extracted from the hydrological assessment, compiled by GCS in 2012 (GCS, EMP/EIA 2015).

9.5.1. CATCHMENT

TRP is located within the B41G quaternary catchment of the Olifants Water Management Area (WMA), also referred to as WMA 4. The Olifants River originates near Bethal in the Highveld of Mpumalanga, initially flowing northwards before curving eastwards and reaching Mozambique via the Kruger National Park. In Mozambique, the Olifants River joins the Limpopo River before discharging into the Indian Ocean.

The main tributaries of this WMA are the Wilge, Elands and Ga-Selati Rivers on the left bank, and the Steelpoort, Blyde and Klaserie Rivers.

The project area consists of a main catchment within which a relevant sub-catchment was delineated. The catchment is mainly rural. In order to calculate the peak flows, the Rational, Alternative Rational, Standard Design Flood and an Empirical Method were utilised. The flows were calculated under current conditions (natural and current mining activities) and were determined for a 24-hour rainfall event. The area is not anticipated to have a large potential stream flow reduction impact on the runoff of the immediate and general area. The results of the SDF method were chosen as the best of those calculated. For the larger of the two catchments analysed, the 1 in 100-year peak flow, using this method, was 2155.1m³/s and the 1 in 50-year peak flow was 1693.8m³/s. For the smaller catchment the results were 67.9m³/s and 53.3m³/s, respectively.

9.5.2. SURFACE WATER QUALITY

A water quality evaluation was performed on a sampling point in the site area. The water sample indicated relatively good quality water in terms of compliance to the SAWQG and SANS standards. The sample had elevated metals (iron and aluminium), which could have resulted from natural water rock interactions. These will not have an adverse effect on health. The water quality results did not show an impact from mining on the streams. Floodlines on river sections were analysed to evaluate risks associated with potential flooding of infrastructure and protection of natural resources. The floodline analysis showed that the relevant floodlines fall largely but not exclusively within 100m of the rivers analysed.

9.6. WETLANDS

The existing EMP/EIA (GCS 2015) states that small pockets of wetland vegetation exist on the property, but this is only associated with the major rivers that run through the site (Groot and Klein Dwars Rivers). Wetlands do not exist in isolation on any other area of the property.

9.7. WATER AUTHORITY

The Department of Human Settlements and Water and Sanitation (DHSWS) with the regional office based in Polokwane, Limpopo Province is the commenting authority for this area.

9.8. FLORA (PLANT LIFE)

The following baseline information for the existing mining area was extracted from the EMP/EIA (GCS 2015) South Africa National Standard (SANS241:2011)

9.8.1. REGIONAL VEGETATION

The Dwars River area comprises two vegetation types, namely Sekhukhune Plains Bushveld and Sekhukhune Mountain Bushveld (Mucina & Rutherford, 2006). Sekhukhune Plains Bushveld is confined to the level plains of major river valleys in northern Mpumalanga and southern Limpopo Provinces. It has a conservation status of Vulnerable and is considered poorly protected. Almost 50% of the project area is covered by transformed and untransformed portions of Sekhukhune Plains Bushveld. Sekhukhune Mountain Bushveld dominates the mountainous western half of the project area.

This vegetation type is also confined to northern Mpumalanga and southern Limpopo provinces, and has a conservation status of Least Threatened. However, it is hardly protected and Mucina and Rutherford (2006) comment that the area within the vicinity of the Dwars River is under increasing pressure from mining activities. The project area is situated within the Sekhukhuneland Centre of

Plant Endemism (SCPE), an area characterised by a high proportion of range-restricted endemic plants, many of which are threatened (Van Wyk & Smith, 2001).

Fourteen vegetation communities are within the project area based on distinctive plant structure and floristic composition, as follows:

- Kirkia – Triaspis Closed Woodland
- Lydenburgia – Vitex Open Woodland
- Protea – Tristachya Open Woodland
- Lydenburgia – Olea Outcrop Thicket
- Xerophyta - Myrothamnus Sheetrock Shrubland
- Acacia Closed Woodland
- Sclerocarya - Bolusanthus Open Woodland
- Euclea - Rhus Open Shrubland
- Lydenburgia - Euclea Open Woodland
- Plains Thicket
- Degraded Old Lands
- Lydenburgia - Olea Riverine Thicket
- Combretum erythrophyllum Riverine Woodland
- Phragmites - Imperata Marsh

Fifteen Red Data plants has been identified in the existing mining area. Three of these are significantly threatened and are in urgent need of conservation attention:

- *Gladiolus sp. nov.* – This spectacular iris has only recently been discovered in the Kennedy's Vale area by Graham Deall in 2005. It has subsequently also been located at TRP near the North Decline (M. Lötter pers. comm.). The species is currently being described by Dr John Manning of the South African National Biodiversity Institute and is confirmed as a very range-restricted endemic of the SCPE. Mervyn Lötter of the MTPA has suggested that the preliminary Red Data status of this new species should be Critically Endangered. The species appears to favour arid woodland on rocky hillslopes and flowers at the end of summer. Within the project area it is only known from a small area on a hill slope above the North Decline.
- *Zantedeschia pentlandii* – this well-known bulb is endemic to the SCPE and is most common at higher altitudes in the upper Dwars River valley and the Roosenekal area. It has a National Red Data status of Vulnerable and is threatened by illegal collecting. Scattered specimens

were located in Lydenburg – Vitex Open Woodland, Protea – Tristachya Open Woodland and Xerophyta – Myrothamnus Sheetrock Shrubland within the project area.

- *Resnova sp. aff. megaphylla* – this is a bulbous plant that appears to be very similar to *Resnova megaphylla*, which has a Red Data status of Vulnerable. However, this species complex has not yet been satisfactorily described and there is some measure of uncertainty over the precise identification of the Two Rivers taxon. It is confined to shady areas below large boulders on the upper east-facing slopes, only in Lydenburgia – Vitex Open Woodland and Lydenburgia – Olea Outcrop Thicket.

Thirty-one (31) plants species are endemic or near-endemic to the Sekhukhuneland Centre of Plant Endemism (27), the Wolkberg Centre of Plant Endemism (1) or Mpumalanga (3). The most range-restricted of these are the new *Gladiolus sp.* described above, *Zantedeschia pentlandii*, *Aloe fouriei* and *Resnova sp.aff. megaphylla*. Forty-three species are protected by legislation, in terms of the Mpumalanga Nature Conservation Act (No.10 of 1998), the Limpopo Environmental Management Act, 2003 (No. 7 of 2003) and the National Forests Act, 1998 (No. 38 of 1998)

Twenty-four (24) plant species with either national or provincial Red Data status, potentially occur within the vicinity. However, most of these have only a Moderate to Low chance of occurring.

9.9. FAUNA (ANIMAL LIFE)

The following baseline information for the existing mining area was extracted from the EMP/EIA (GCS 2015)

9.9.1. MAMMALS

Twenty-eight (28) mammal species were confirmed to occur on Dwarsriver 372 KT during fieldwork in 2008, four of which have Red Data status and seven of which are protected. The highest species diversity was reported in Plains Woodland with 23 species, followed by Closed Woodland on Rocky Mountain Slopes with 22 species. More extensive fieldwork, including more nocturnal surveys, would have produced a slightly longer list. A total of 72 trap nights was achieved during 2008 fieldwork, with only three rodent species being caught.

9.9.2. REPTILES AND FROGS

Twenty-nine (29) reptiles and ten frogs were confirmed to occur during fieldwork. Of these, four are endemic (Van Dam's Girdled Lizard, Transvaal Thick-toed Gecko, Sekhukhune Flat Lizard and Clicking Stream Frog) and five are protected under the National Environmental Management: Biodiversity Act 2004 (No. 10 of 2004): Water and Rock Monitors, Leopard and Lobatse Hinged Tortoises and Van Dam's Girdled Lizard. The highest species diversity for reptiles was reported in Open Woodland on Rocky Mountain Slopes (15 species) and for frogs Riverine Wetland (8 species).

The mining area is in an area classified as being of Low importance for both reptiles and frogs but is home to a moderate diversity of species. A total of 21 conservation-important reptiles and frogs potentially occur. Of the species potentially occurring, one has Red Data status, namely Southern African Python. This large snake favours broken, hilly savannas, particularly if close to water, and therefore has a High likelihood of occurring on the property. It is listed as Vulnerable, mainly due to the traditional medicine trade and direct persecution by landowners.

9.9.3. SELECTED INVERTEBRATES

Pycna sylvia, South Africa's largest endemic cicada species was thought to be extinct until its recent rediscovery during an EIA survey at Der Brochen in 2001. It has been suggested (Malherbe 2002, Malherbe et al. 2004, Harrison 2005) that *Vitex obovata subsp. wilmsii* may be the main food plant for nymphs of *Pycna sylvia*, and that the adult cicadas also preferentially feed on this tree species, albeit with less fidelity. Subsequent observations by our team suggest that the presumption of a close association of *P. sylvia* with *Vitex obovata* may have been over-hasty and based on inadequate data.

9.10. AVIFAUNAL ASSESMENT (BIRDS)

The following baseline information for the existing mining area was extracted from the EMP/EIA (GCS 2015)

As a result of the presence of numerous habitats on the property, including man-made, as well as an elevation varying from 890m to 1 513m, a high diversity of species was recorded. The quarter-degree grid 2430 CC, in which the study area falls, supported 268 bird species during the Southern African Bird Atlas Project, a total reflecting high diversity and but perhaps only moderate observer coverage. The greater Kennedy's Vale area was rated as being of Low conservation importance for birds by the Mpumalanga Tourism & Parks Agency (MTPA).

A total of 221 bird species was recorded during fieldwork, a fairly comprehensive list and a number which more extensive fieldwork would only slightly increase. The highest species diversity was reported in Plains Woodland with 145 species, followed by Closed Woodland on Rocky Mountain Slopes with 120 species.

Seven of the bird species potentially occurring in the vicinity of the mine are protected under the National Environmental Management: Biodiversity Act (No.10 of 2004), namely Southern Ground Hornbill, Martial Eagle, Cape Vulture, White-backed Vulture, Tawny Eagle, Bateleur and Lesser Kestrel.

9.11. AGRICULTURAL AND LAND CAPABILITY

The below section provides an overview of the land type, the soil forms, the land capability and agricultural potential of the Two Rivers Platinum mining area.

Specialist studies were undertaken in 2001 – 2002 and again from the first expansion project in 2013; the following information was extracted from the EMP/EIA (GCS, 2015).

9.12. SOIL, LAND USE AND LAND CAPACITY

In the initial infield studies in 2001-2002, a total of thirteen (13) soil forms were identified in the study area (existing mine infrastructure) including: Hutton (Hu), Avalon (Av), Westleigh (We), Valsrivier (Va), Swartland (Sw), Sterkspruit (Ss), Sepane (Se), Bonheim (Bo), Glenrosa (Gs), Mayo (My), Mispah (Ms), Oakleaf (Oa) and Willowbrook (Wo).

In the study carried out in August 2002 on the Northern Decline Area, a total of four (4) soil forms were identified in the study area including: Hutton (Hu), Valsrivier (Va), Glenrosa (Gs) and Mispah (Ms). The soil forms Oakleaf, Valsrivier and Mispah dominate the existing mine infrastructure areas.

For the specialist study undertaken by TerraAfrica in 2013, three different main soil groups were identified i.e. soil of the Mispah, Oudtshoorn and Rensburg soil forms. The site is dominated by very shallow rocky soils of the Mispah form (47.5% or 75.5 ha of the total study area) as well as soil with a dorbank horizon of the Oudtshoorn form (76.7 ha or 48.3%). The other soil form identified is that of the Rensburg form that consist of a vertical A-horizon overlying a G-horizon.

Soil was chemically analysed at a soil laboratory and was found to range from slightly acidic to mildly alkaline. High levels of calcium and magnesium were tested. Two main land capability classes namely grazing, and wilderness capability were identified for the footprint site and pipeline route. Grazing land capability included all the soil forms except soils from the Mispah soil form. The area has very low potential for irrigated and rainfed crop production due to the soil properties. The area has an average grazing capacity of 6-8 ha per large animal unit, and the entire study area can carry approximately 20 head of cattle without resulting in veld degradation.

9.13. AIR QUALITY

Reference is made to the Air Quality Assessment, Airshed Planning Professionals (December 2012), for description of the baseline conditions.

The information contained in this section has been extracted from this report which was undertaken with focus on the TRP current operations. The sensitive receptors closest to the TRP mine (approximately 3km to the west of the proposed TSF site) are two informal settlements, referred to

as Village 1 and Village 2 in the air quality report and the residential areas of Ga-Mampuru, Kokwaneng, Madimola and Didingwe River Lodge.

Local source contributors to ambient PM₁₀ (airborne particulates) concentrations in the vicinity of the study site are:

- Domestic fuel burning and vehicle activity in residential areas/sensitive receptors close to the mine;
- Surrounding chrome and platinum mining activities;
- Cattle ranching in the Steelpoort Valley;
- Agricultural activities and limited cultivation in fertile areas adjacent to the Steelpoort River.

It can be assumed the surrounding chrome and platinum mining activities is the largest source contributor in the area. The rock dumps, gravel roads, crushing of ore, possible open pit operations and TSFs associated with these mines produce dust which contributes to the overall atmospheric conditions.

9.14. NOISE

Mining and mining activities often emit significant noise levels which can become a nuisance or health risk to mine workers and fauna within the mining area, but also to the surrounding land users and occupiers, and fauna. The most sensitive receptors identified for the project area is the surrounding communities including land users, mine workers, mining communities and permanent farm homesteads and settlements. The region is predominantly occupied by mining, tourism and agricultural land uses.

The main noise generation activities of the proposed development during all phases are:

- Operational phase
 - Transportation of materials, and
 - Offloading of materials
- Closure or care and maintenance phase
 - Limited number of vehicles moving around the site.

Noise generation can therefore be expected on the proposed site due to activities and actions as indicated above. Noise levels may possibly exceed allowed limits for noise as indicated in SANS 10103: 2008. None of these sensitive environments exist in close proximity to the TRP mining area.

As the mine is an existing mine and the waste rock dumps will not produce additional noise, no assessment is required.

The existing noise levels in the vicinity of the TRP site include traffic on the R555 road and mining activities. Environments which are recognized as being noise sensitive include residential areas, offices, educational facilities and health and church buildings.

9.15. VISUAL

Reference is made to the Visual Impact Assessment (2013), for description of the baseline conditions.

The mining area lies in the valley of the Dwars and Groot Dwars Rivers, surrounded by large hills which form part of the Schurinksberg range. The majority of the land use is occupied by thicket / bushland with mining activities forming a major part of the greater precinct. The area has a rural, bushveld atmosphere with mining activity forming a major part of the regional economy.

From the study, it was established that the existing mining area presents a moderately disturbed sense of place. Although it is disturbed, the pleasant scenery and rural atmosphere adds attraction to the region.

9.16. ARCHAEOLOGY AND HERITAGE

In 2002, Anton von Vollenhoven conducted the Heritage Impact Assessment (HIA) for the initial mine application. A further heritage assessment was conducted in 2012 (Shasa, 2012), looking specifically at the UG2 and Merensky expansion project area. No additional Heritage Impact Assessment will be undertaken for this project as the area for the project is within the existing mining right area, assessed in 2002.

The results from the 2012 studies showed that large areas of this proposed project area are already under mining operations. Primary focus was on the area's leading north from the current mining area where surveys took place to determine if any areas would be viable for expansion. The areas covered, from the existing mine, indicated both Iron Age and historical occupation, but no sites of heritage significance. Graves were found in these areas but have since been relocated, in consultation with the affected community, prior to the start of trial mining.

For the 2013 expansion project (NEMA EIA), the South African Heritage Resource Agency requested a desktop palaeontological study for the proposed TSF and Pipeline route. The study was undertaken by Wits University in 2013. No palaeontological resources are expected in the mining area. The figure below is an indication of all the Heritage resources currently present and protected at TRP.

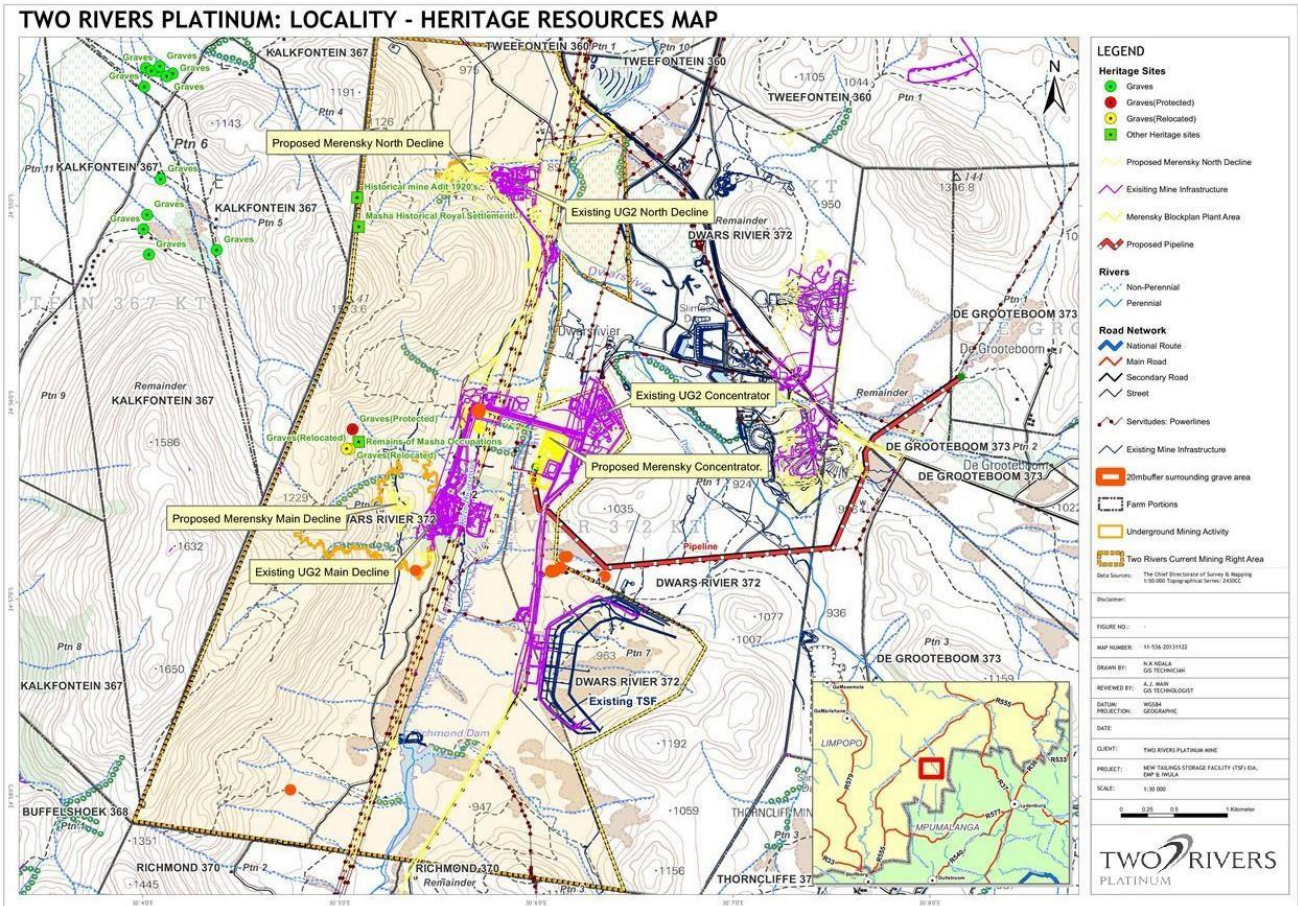


Figure 9: Heritage Resources at TRP (GCS, EMP 2015)

9.17. SOCIO – ECONOMIC ENVIRONMENT

The information in the following section was extracted from the Environmental Management Programme Report (EMPR) realignment document (GCS, 2015) and the Social Impact Assessment (SIA) report compiled by GCS, 2012.

This section provides a delineation of the study area and a brief economic status quo pertaining to employment and the labour profile.

Limpopo Province has the fourth largest population in the country. In 2001, the province’s population was estimated at 5 273 637 people, consisting of several ethnic groups distinguished by culture, language and race. The Northern Sotho (Sepedi) people make up the largest number, being nearly 57%. The Tsonga (Shangaan) speakers comprise 23%, while the Venda people make up 12%. Afrikaans speakers comprise 2.6%, while English-speaking whites are less than half a percent. Approximately 97% of the population is Black, 2% is White, and less than a percentage is Coloured or Asian.

Within the Greater Tubatse Local Municipality (GTLM), the Integrated Development Plan (IDP) reports that the northern section of the LM has the most marginalised economy of the region, and has no economic base. However, with the development of mines in the LM, the area has started to benefit economically from mines in many ways (2012/3). The IDP, however, also highlights that although there are several mines in the area, the existing resources remain unexploited. GTLM views investment in this sector as important, as it brings investment in infrastructure, resulting in creation of job opportunities, etc.

According to the Greater Tubatse LM IDP (2012/3), the region's main economic drivers and future development thrusts are the following:

- Mining cluster development
- Horticulture development
- Meat cluster development
- Tourism cluster development
- Nodal development, and
- Informal sector development

The main challenges facing economic development within the Greater Tubatse LM are (IDP, 2012/3):

- Brain drain
- High level of illiteracy
- Lack of infrastructure for agriculture and tourism development
- Migration and immigration, and
- High level of HIV/Aids

Below is an indication of the main economic indicators for the region as a whole.

9.17.1. EMPLOYMENT AND LABOUR PROFILE

The employment status of the population has a variety of important implications. Economically active and employed persons can contribute to the overall welfare of a specific community by paying their taxes, looking after the youth and aged and by stimulating the economy.

The figure below, illustrates that the GTLM unemployment increased dramatically between 1995 and 2010, increasing by 31.17%. This is considerable when comparing the slight increase of 2.49% for Limpopo Province and the significant decrease of 15.31% for the Sekhukhune DM (SDM).

The province has, however, seen a decrease of 21.41% in the number of employed persons, with this number increasing for both the Sekhukhune DM (15.86%) and Greater Tubatse LM (44.67%).

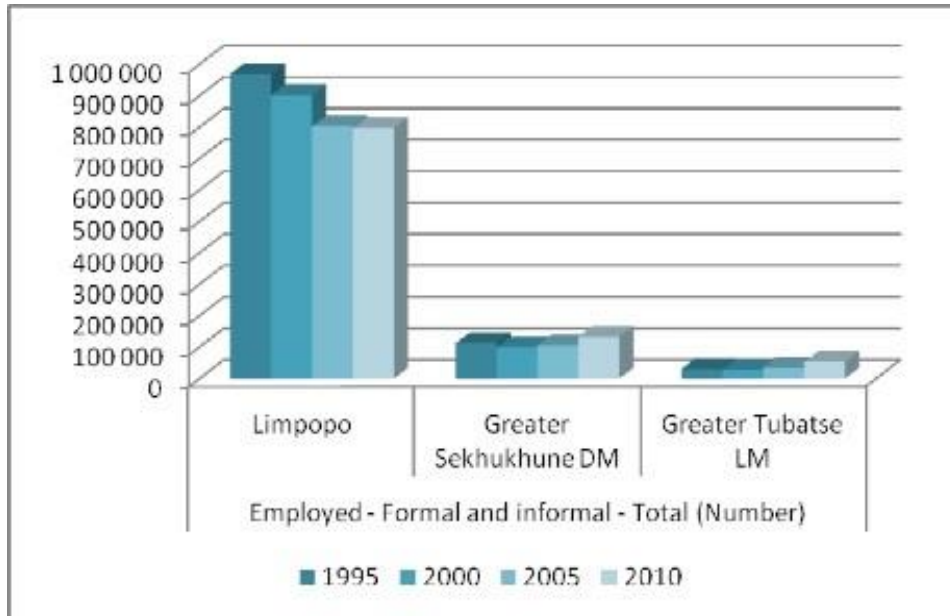


Figure 10: Economic Status (1995 – 2010) – (Source: GCS, 2015 EMP)

Source: South African Community Survey 2007

The major employment within the DM is created by the community, social, and personal services industry as indicated in the figure below. The mining and quarrying industry has been the strongest industry within the LM over the same period.

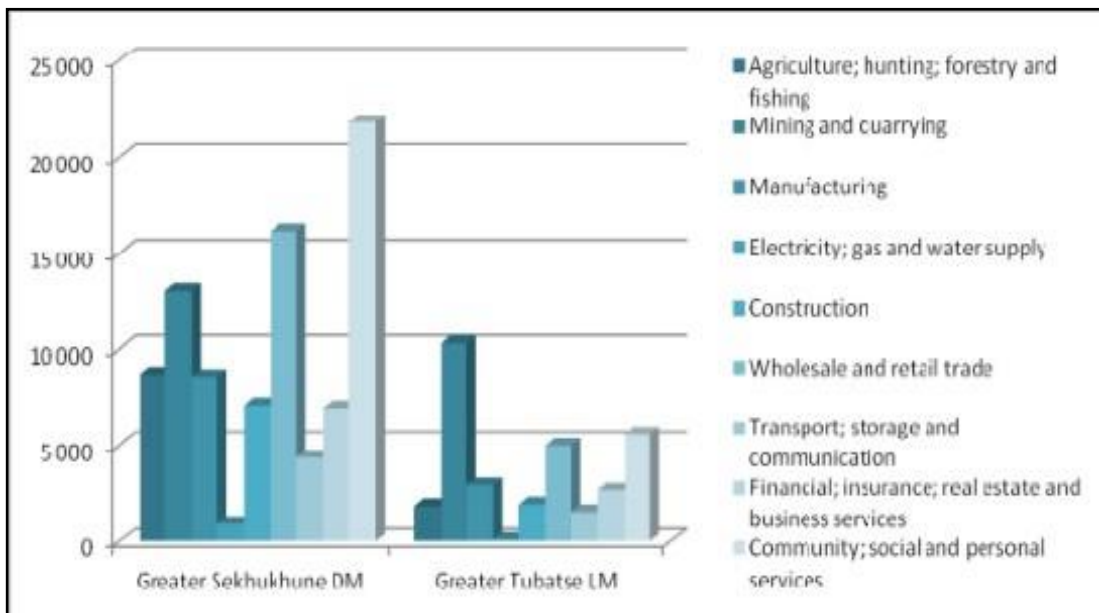


Figure 11: Industry (2007)

Source: South African Community Survey 2007

9.17.2. SERVICES AND INFRASTRUCTURE PROFILE

Social service delivery centres on the provision of health, education and community development facilities and services. The concept of service delivery also comprises various elements such as affordability, quality, efficiency and access.

This indicator therefore examines the level of service provision in the study area. Services assessed include sanitation, water, housing and electrification. There are three (3) priority services (water, sanitation and electricity) for the promotion of health, convenience and quality of life.

9.17.3. HOUSING

According to the figure below, the Greater Tubatse LM has a similar housing profile as that of the SDM. A house or brick structure on a separate stand or yard is most frequently noted, while informal dwellings/shacks (not in a backyard), are found most frequently when compared to any other type of housing, excluding a house or brick structure on a separate stand or yard.

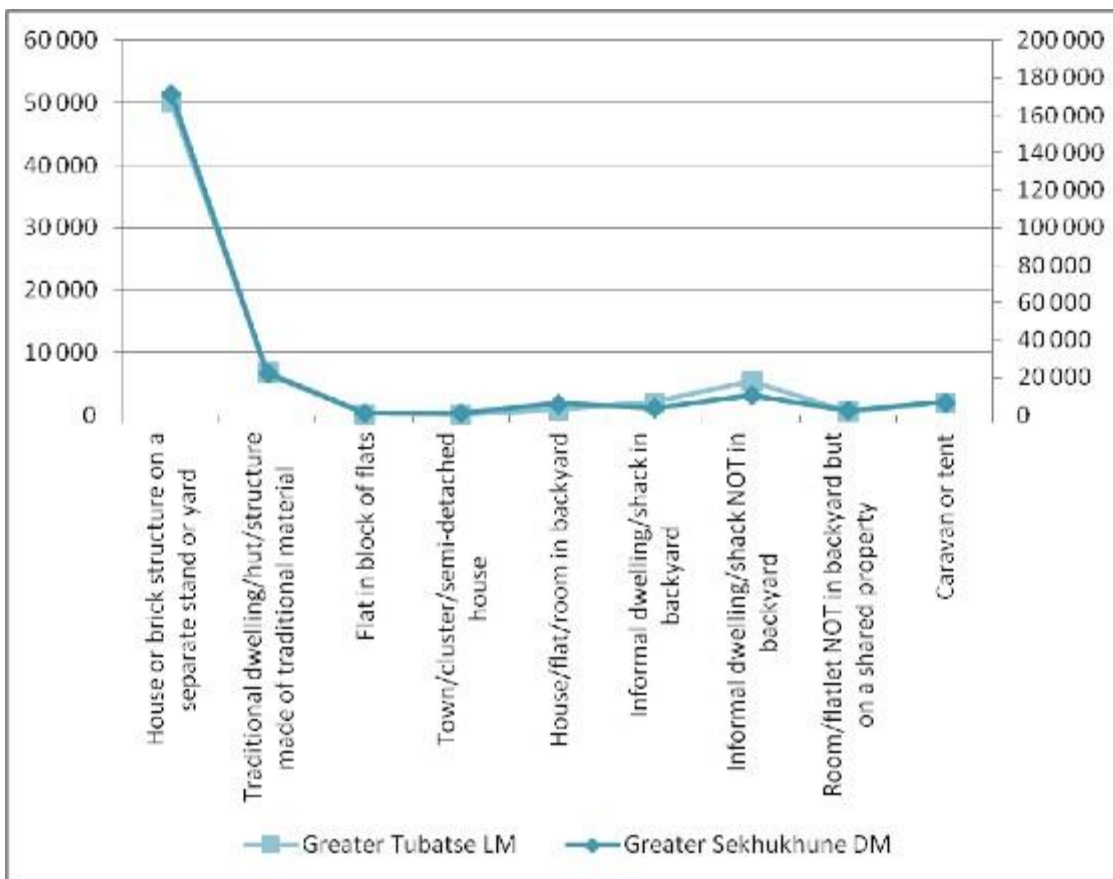


Figure 12: Type of dwelling (1995 / 2010)

According to the Greater Tubatse LM IDP (2020/2021), approximately 60% of the land in Greater Tubatse LM area is currently under land claims. The claims are almost exclusively in rural areas that were part of the former Lebowa territory. The only land claim that was lodged near an urban area was in Steelpoort, with none in Burgersfort and Ohrigstad.

9.18. ENERGY USE

As indicated in the table below, the use of electricity for lighting in the LM has increased between 1995 and 2010 by 76.50%. With the increase in electrification, the Limpopo Province and the DM has shown a decrease in all other methods of creating light. The use of solar/other/unspecified sources has increased by 5.70% and the use of gas has increased with 12.61% for the LM between 1995 and 2010.

Table 14: Percentage Change in use of energy from 1995 to 2010

| | Limpopo Province | Greater Sekhukhune DM | Greater Tubatse LM |
|--------------------------------|------------------|-----------------------|--------------------|
| Solar/other/unspecified | -0.03% | -122.01% | 5.70% |
| Electricity | 62.86% | 59.99% | 76.50% |
| Gas | -82.25% | -23.15% | 12.61% |
| Paraffin | -508.99% | -330.20% | -162.23% |
| Candles | -90.56% | -118.06% | -50.18% |

Source: Quantec Research (Pty) Ltd

9.19. WATER

As indicated in Table 15, the Greater Tubatse LM has incrementally increased the level of water supply to households, with the main improvement being piped water inside a yard. Households with access to piped water inside their dwellings have increased at a slightly slower rate. The LM has shown the best improvement within these categories, as compared to the Limpopo Province and the DM. The use of water from a dam, river, stream or spring has reduced across all three regions over the 1995 – 2010 time period.

Table 15: Percentage Change in form of water supply from 1995 to 2010

| | Limpopo Province | Greater Sekhukhune DM | Greater Tubatse LM |
|---|-------------------------|------------------------------|---------------------------|
| Piped water inside dwelling | 26.81% | 25.82% | 55.38% |
| Piped water inside yard | 43.92% | 37.21% | 64.03% |
| Piped water on community stand: <200m from dwelling | 33.08% | 42.69% | 52.93% |
| Piped water on community stand: 200m> from dwelling | 26.89% | 25.09% | 36.19% |
| Borehole/rain-water tank/well | 3.77% | 13.58% | 8.41% |
| Dam/river/stream/spring | -24.85% | -23.20% | -20.84% |
| Water-carrier/tanker/Water vendor | 57.75% | 69.67% | 81.62% |

Source: Quantec Research (Pty) Ltd

9.20. HEALTHCARE

HIV/AIDS in South Africa has increased rapidly over the past decade. The social and economic consequences of the disease are far reaching and affect every facet of life in South Africa. Despite South Africa creating a progressive and far-sighted policy and legislative environment for dealing with HIV/AIDS, the prevalence of HIV/AIDS continues to increase. This indicates that policies and laws have not been adequately implemented and have not impacted significantly on the ground. The figure below is an indication of the number of HIV positive persons living within the Greater Tubatse LM in 2010 has increased by 90.80% since 1995. The number of HIV related deaths has increased by 96.53% over the same period, with the number of other deaths increasing slightly by 27.55%. These numbers in each case are higher than that of the Limpopo Province or the DM.

According to the Greater Tubatse LM IDP (2012/3), there are 11 medical facilities in the LM, which mainly constitute regional clinics, and can be found in areas such as Burgersfort, Bothashoek, Praktiseer, Ga-Makofane, Motshana, Ga-Mashabela, Ga-Motodi, Ga-Rantho GaRiba, Leboeng, Malokela, Mampuru, Montwaneng, Mophalema, Phiring, Taung, Motlolo and Ga-Selala.

Clinics previously operated by the National Health Department can be found in Steelpoort, Ohrigstad and Burgersfort. These clinics offer improved service to the previously mentioned as they are equipped with better infrastructure. Specialist treatment is exclusively available at the major hospitals outside of the municipal area.

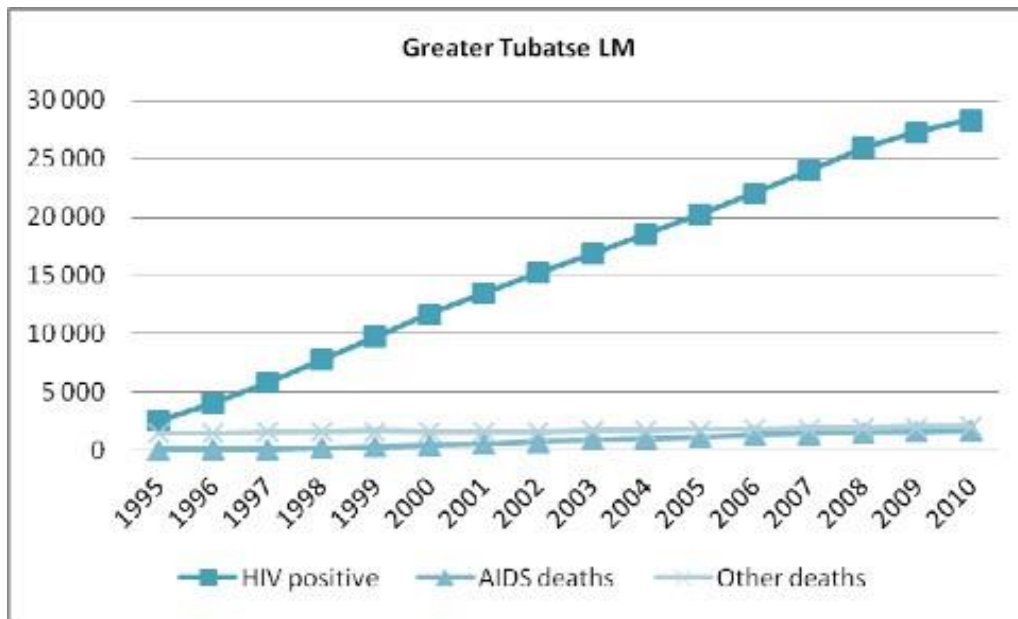


Figure 13: HIV/AIDS status (1995 – 2010)

Source: Quantec Research (Pty) Ltd

9.21. ROADS

The Greater Tubatse LM has four (4) major transportation corridors along which major spatial activities are taking place, these are (IDP, 2012/3):

- Dilokong and Burgersfort (R37) Corridor
- Stoffberg (R555) Corridor
- Ngwaabe Corridor to Jane Furse, and
- The Hoedspruit (R36) Corridor

The major roads allow for the development of nodes or settlements at certain appropriate points along the corridor which become an anchor of spatial development agglomeration, such as Burgersfort, Ohrigstad and Steelpoort.

10. DESCRIPTION OF SPECIFIC ENVIRONMENTAL FEATURES AND INFRASTRUCTURE ON THE SITE

10.1. ENVIRONMENTAL FEATURES

From the description of the baseline environment above, it is clear that some significant sensitive environmental features occur on the study area. The Klein Dwars River runs through the existing mining area and a number of river crossings have been constructed as approved in the Water Use License (Licence No. 06/B41H/AJIGC/6098). The confluence of the Klein and Groot Dwars River is 3.5km to the west of the project area.

The flow from these rivers contributes to the Steelpoort River, which is a tributary of the Olifants River.

Some fifteen Red Data plants were confirmed to occur on the site. Three of these are significantly threatened and are in urgent need of conservation attention. The vegetation, on a regional scale, is however classified as 'Least Threatened' implying that the habitat types encountered in the study site is highly likely well represented in the general region. Based on various ecological and biodiversity considerations, the following faunal sensitivities are estimated for the terrestrial faunal habitats of the study area:

- Kirkia – Triaspis Woodland: medium-high faunal sensitivity;
- Lydenburgia – Vitex Open Woodland: medium-high faunal sensitivity; and
- Tristachya – Loudetia Grassland Slopes: medium-high faunal sensitivity.

The areas covered, from the existing mine, indicated both Iron Age and historical occupation, but no sites of heritage significance. Graves were found in these areas, but have since been relocated prior to the start of trial mining, in consultation with the affected community.

10.2. EXISTING INFRASTRUCTURE IN THE PROJECT AREA AND IN CLOSE PROXIMITY

The mine infrastructure presently consists of, *inter alia*, the following structures and infrastructure – approved in the 2015 (GCS) EMP/EIA.

The mine is a fully operational mine with two declines and associated processing infrastructure.

- Storm water dams, Drying Beds, Settling Dams and a treatment facility
- Dirty Water Handling Infrastructure – RWD, Cut-off Trenches
- Overland ore conveyance
- Waste material stockpiles

- High mast lighting. 10-15 high mast lights at each new shaft, in high traffic and security critical areas.
- Ore silo to provide surge capacity for the overland conveyor system.
- Office blocks
- Change houses – change facilities, ablution and storage lockers for 350 – 400 people at each shaft.
- Lamp and crush facility at each shaft
- Roads
- Haul Roads
- Bus stop and parking for personnel and visitors.
- Security and access control.
- Cable storage and salvage yard
- Sewage (treatment plants included as vendor supplied units, sized according to personnel complement.
- Firefighting and prevention (fire hydrants and hose reels, electric and diesel pumps to operate the deluge systems in the main substations of both shafts).
- Storm Water Management (cut off drains and berms at the Main and North shafts).
- General stores at each shaft for rock drills, rotary equipment, batteries and gas cylinders.
- Explosive stores (a local explosives magazine to cater for daily usage, filled daily from the primary storage).
- Bulk fuel and lubricant storage (to receive store and dispense a week's consumption of each product).
- Miscellaneous facilities: portal rainwater sump and drain, dirty water sump and drain, covered walkways, brake test ramp, refuse disposal facilities, electrified fencing around the perimeter of the infrastructure.
- Processing plants (UG 2 and Merensky)
- RoM Circuits, Silo's and Stockpiles
- Primary processing plant
- Secondary processing plant
- Underground infrastructure (refuge bays, workshops, offices and diesel and lubricant storage)
- Existing Tailing Storage and Waste Rock Disposal Facilities, and
- New Tailings Storage Facility and associated pipeline

10.2.1. ROADS

The R577 provincial road, approximately 1km north of the site and the R555 provincial road, is approximately 5km to the west of the site. Access to the site is obtained from the R577 onto a tared road leading to the processing plant and mining area. There are also haul roads within the mining area.

10.2.2. RAILWAY LINE

No railway lines occur in close proximity to the study area.

10.2.3. POWERLINES

A number of Eskom servitudes are located on the mining area. The mine is supplied by Eskom from the two 30MVA, 33/11kV transformers.

10.2.4. WATER

TRP water is supplied from the Klein and Groot Dwars Rivers, and the Inyoni dam located within the Klein Dwars river catchment.

10.2.5. SEWAGE

Both shafts have existing sewage treatment plants and are used as-built without any additions or extensions.

11. IMPACTS IDENTIFIED

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

Potential impacts that may be caused by the proposed development will be identified using input from the following:

- Views of I&APs
- Existing information
- Specialist investigations
- Site visit with the project team, and
- Legislation

The following potential major direct, indirect and cumulative impacts were identified:

- Land degradation
- Potential to alter the topography
- Loss of soil characteristics - erosion and compaction
- Potential for alien invasive establishment
- Reduced flow to downstream water catchment
- Potential pollution to water resources (surface and groundwater)
- Drawdown cone from dewatering activities (groundwater quantity)
- Increased dust and emissions
- Increased noise levels
- Damage to property/infrastructure from blast events
- Potential damage to heritage sites (grave and/or archaeological artefacts)
- Influx of job seekers to the area
- Potential increased traffic – haulage
- Health and safety impacts
- Potential injury and loss of health and life of humans, and
- Altered Socio-Economic Environment (Positive or negative)

Table 16: Impacts during the Construction Phase – General and Activity-Specific Impacts

| ACTIVITY | ENVIRONMENTAL ASPECT | DESCRIPTION OF IMPACT | SIGNIFICANCE PRE-MITIGATION | PROBABILITY | DURATION |
|--|--|--|-----------------------------|-------------|-------------|
| IMPACTS DURING THE CONSTRUCTION PHASE | | | | | |
| GENERAL IMPACTS | | | | | |
| Construction of Waste Rock Dumps | Geological and Soils | Soil erosion and soil compaction by heavy duty vehicles on site. | Medium (-) | Possible | Medium term |
| | | Contamination of soils through: <ul style="list-style-type: none"> - Indiscriminate disposal of waste; and - Accidental spillage of chemicals such as hydrocarbon-based fuels and oils or lubricants spilled from vehicles and other chemicals from operational and maintenance activities e.g. paints. | Medium (-) | Possible | Medium term |
| | Hydrological – Surface Water and Groundwater | Stormwater, erosion and siltation impacts due to a lack of implementing measures to manage stormwater run-off quantity and quality. | Medium (-) | Possible | Long term |
| | | Contamination of stormwater runoff and ground water, caused by: <ul style="list-style-type: none"> - Sediment release; - Chemicals such as hydrocarbon-based fuels and oils or lubricants spilled from construction vehicles; - Effluent discharges, due to a lack of stormwater management and system maintenance. | Medium (-) | Possible | Long term |
| | | Impacts on wetlands/pan if identified by specialist investigations during the EIA | High (-) | Definite | Permanent |
| | Biological, Fauna, Avifauna and Flora | Disturbance and loss of fauna through noise, light and dust pollution and hunting, trapping and killing of fauna. | Low (-) | Unlikely | Medium Term |

| ACTIVITY | ENVIRONMENTAL ASPECT | DESCRIPTION OF IMPACT | SIGNIFICANCE PRE-MITIGATION | PROBABILITY | DURATION |
|--|-----------------------------------|---|-----------------------------|-------------|-------------|
| IMPACTS DURING THE CONSTRUCTION PHASE | | | | | |
| GENERAL IMPACTS | | | | | |
| | | Spreading of alien invasive species and bush encroachment of indigenous species. | Medium (-) | Possible | Long term |
| | | Loss of biodiversity as a result of vegetation clearing for infrastructure (including haul and access roads). | Medium (-) | Possible | Long term |
| | Existing Land Use | Change in land use as a result of the waste rock dump activities. | High (-) | Definite | Long term |
| | Visual | Visibility from sensitive receptors / visual scarring of the landscape and impact on 'Sense of Place' as a result of the visibility of the waste management facilities. | Medium (-) | Definite | Medium term |
| | | Visibility of solid domestic and operational waste. | Low (-) | Possible | Medium term |
| | Paleontological | Disturbance and/or impact to paleontological and/or heritage sites | Low (-) | Possible | Long term |
| | Noise, Vibration and Lighting | Nuisance and health risks caused by an increase in the ambient noise level as a result of noise impacts associated with construction | Low (-) | Definite | Medium term |
| | | Disturbance due to vibrations caused by vehicles. | Low (-) | Definite | Medium term |
| | | Impact of security lighting on surrounding landowners and animals. | Low (-) | Definite | Long term |
| | Air Quality | Increased dust pollution (soil and ore fines), vehicles on gravel roads and waste rock. | Medium (-) | Definite | Long term |
| | | Increased windborne dust (soil and ore fines), vehicle fumes and particulate matter PM10, altering air quality. | Medium (-) | Definite | Medium term |
| | Waste (including Hazardous Waste) | Generation and disposal of general waste, litter and hazardous material during the construction phase and operational waste i.e. waste rock. | Medium (-) | Definite | Medium term |

| ACTIVITY | ENVIRONMENTAL ASPECT | DESCRIPTION OF IMPACT | SIGNIFICANCE PRE-MITIGATION | PROBABILITY | DURATION |
|--|----------------------|---|-----------------------------|-------------|---------------------|
| IMPACTS DURING THE CONSTRUCTION PHASE | | | | | |
| GENERAL IMPACTS | | | | | |
| | Services | Need for services e.g. water, electricity and sewerage systems, causing additional strain on natural resources and service infrastructure. | Low (-) | Unlikely | Long term |
| | Traffic | The change in the traffic patterns as a result of increased traffic entering and exiting the operations on the surrounding road infrastructure and existing traffic. | Medium (-) | Definite | Long term |
| | | Nuisance, health and safety risks caused by increased traffic on area adjacent to the study area including cars and heavy vehicles. | Medium (-) | Possible | Long term |
| | Health and Safety | Increased risk to public health and safety: dangerous areas including the waste management activities posing health risks and possible loss of life to mine workers and visitors to the site. | Medium (-) | Possible | Long term |
| | Socio-Economic | Socio-economic impact on farmers, labourers and surrounding landowners and residents due to negative impacts on groundwater, dust pollution, noise pollution etc. | Medium (-) | Definite | Long term |
| | | Extended employment provision due to the implementation of the extension of the mining activities, allowing mining activities to continue for additional years. | High (+) | Definite | Medium to Long term |
| | | Sourcing supplies from local residents and businesses boosting the local economy for an extended period of time. | Medium (+) | Possible | Long term |

Table 17: Impacts during the Operational Phase – Activity-Specific Impacts

| ACTIVITY | ENVIRONMENTAL ASPECT | DESCRIPTION OF IMPACT | SIGNIFICANCE PRE-MITIGATION | PROBABILITY | DURATION |
|---|---|---|-----------------------------|-------------|-----------|
| IMPACTS DURING THE OPERATIONAL PHASE | | | | | |
| ACTIVITY SPECIFIC IMPACTS | | | | | |
| Deposition of waste rock and tailings onto waste rock dumps and tailings storage. | Hydrological, Surface Water and Groundwater | Seepage from waste management activities e.g. waste rock dumps, could cause a contamination plume affecting the underground water resources. | Medium (-) | Probable | Long term |
| | | Discharge from waste rock dumps and associated water handling infrastructure can cause contamination of surface water resources. | Medium (-) | Probable | Long term |
| | | Impact on surface and groundwater quality as a result of oxidation of sulphates from the waste rock placed back in pit as part of rehabilitation | Medium (-) | Definite | Long term |
| Operation and maintenance of the waste rock dumps. | Waste | Generation and disposal of additional hazardous operational waste i.e. waste rock | Medium (-) | Definite | Long term |
| | Air Quality | Increased windborne dust (soil and ore fines), vehicle fumes and particulate matter PM ₁₀ , altering air quality. | Medium (-) | Definite | Long term |
| | Health and Safety | Increased risk to public and worker health and safety. | Medium (-) | Possible | Permanent |
| | Socio - Economic | Economic impact should there be an incident of public health and safety. | Medium (-) | Possible | Long term |
| GENERAL IMPACTS | | | | | |
| Operation and maintenance of the waste rock dumps. | Socio - Economic | Socio-economic impact on farmers, labourers and surrounding landowners and residents due to negative impacts on groundwater, dust pollution, noise pollution etc. | Medium (-) | Definite | Long term |
| | | Extended employment provision due to the implementation of the extension of the mining activities, allowing mining activities to continue for additional years. | High (+) | Definite | Long term |

| ACTIVITY | ENVIRONMENTAL ASPECT | DESCRIPTION OF IMPACT | SIGNIFICANCE PRE-MITIGATION | PROBABILITY | DURATION |
|---|----------------------|--|-----------------------------|-------------|-----------|
| IMPACTS DURING THE OPERATIONAL PHASE | | | | | |
| ACTIVITY SPECIFIC IMPACTS | | | | | |
| | | Sourcing supplies from local residents and businesses boosting the local economy for an extended period of time. | Medium (+) | Possible | Long term |

Table 18: Closure and Post-Closure Specific Impacts

| ACTIVITY | ENVIRONMENTAL ASPECT | DESCRIPTION OF IMPACT | SIGNIFICANCE PRE-MITIGATION | PROBABILITY | DURATION |
|---|---|--|-----------------------------|-------------|-----------|
| IMPACTS DURING THE CLOSURE AND POST-CLOSURE PHASES | | | | | |
| PHASE SPECIFIC IMPACTS | | | | | |
| Rehabilitation of site, removal of infrastructure, re-seeding of rehabilitated areas. | Geological and Soils | Soil erosion, loss of grazing potential | Medium (-) | Definite | Long term |
| | Hydrological, Surface Water and Groundwater | Seepage from waste rock could cause a contamination plume affecting the groundwater resources. | Medium (-) | Probable | Long term |
| | | Ground water pollution | Medium (-) | Probable | Long term |
| | Waste | Generation and disposal of additional hazardous operational waste i.e. waste rock | Medium (-) | Definite | Long term |
| | Biological, Fauna and Flora | Rehabilitation of area with natural vegetation and re-establishment of local biodiversity | Medium (+) | Definite | Long term |
| | | Loss of ecological function in wetland, pans and stream | Medium (-) | Possible | Long term |

Table 19: Impacts as a result of not implementing the proposed development

| ACTIVITY | ENVIRONMENTAL ASPECT | DESCRIPTION OF IMPACT | SIGNIFICANCE PRE-MITIGATION | PROBABILITY | DURATION |
|--------------------------|---|--|-----------------------------|-------------|-----------|
| NO-GO ALTERNATIVE | | | | | |
| N/A | Socio – Economic | Reduced period of providing employment for local residents and skills transfer to unskilled and semi-skilled unemployed individuals. | Very high (-) | Definite | Permanent |
| | | Reduced period of development and upliftment of the surrounding communities and infrastructure. | Very high (-) | Definite | Permanent |
| | | Reduced period of development of the economic environment, by job provision and sourcing supplies for and from local residents and businesses. | Very high (-) | Definite | Permanent |
| | | Retrenchment as a result of closure of the mine | Very high (-) | Definite | Permanent |
| | | Positive: No additional negative impacts on the environment | Medium (+) | Definite | Permanent |
| | Geological | Sterilisation of mineral resource | Very high (-) | Definite | Permanent |
| | Hydrological, Surface Water and Groundwater | No additional pollution to surface and groundwater. | Medium (+) | Definite | Permanent |
| | | Un-rehabilitated area will still cause surface and groundwater pollution | Medium (-) | Definite | Permanent |
| | Waste | No waste generated as a result of the activities | Medium (+) | Definite | Permanent |
| | Biological, Fauna and Flora | No impact on wetlands, pans or streams. No reduction in ecological function | Low (+) | Definite | Permanent |

11.1. METHODOLOGY USED IN DETERMINING THE SIGNIFICANCE OF ENVIRONMENTAL IMPACTS

A “significant impact” is defined as it is defined in the EIA Regulations (2014): “an impact that may have a notable effect on one or more aspects of the environment or may result in non-compliance with accepted environmental quality standards, thresholds or targets and is determined through rating the positive and negative effects of an impact on the environment based on criteria such as duration, magnitude, intensity and probability of occurrence”. The objective of this EIA methodology is to serve as framework for accurately evaluating impacts associated with current or proposed activities in the biophysical, social and socio-economical spheres. It aims to ensure that all legal requirements and environmental considerations are met in order to have a complete and integrated environmental framework for impact evaluations.

11.2. ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REGULATIONS 2017 [AS AMENDED] REQUIREMENTS

The Environmental Impact Assessment (EIA) 2014 Regulations [as amended] promulgated in terms of Sections 24 (5), 24M and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) [as amended] (NEMA), requires that all identified potential impacts associated with the proposed project be assessed in terms of their overall potential significance on the natural, social and economic environments. The criteria identified in the EIA Regulations (2014) include the following:

- Nature of the impact
- Extent of the impact
- Duration of the impact
- Probability of the impact occurring
- Degree to which impact can be reversed
- Degree to which impact may cause irreplaceable loss of resources
- Degree to which the impact can be mitigated, and
- Cumulative impacts

Elemental Sustainability has developed an impact assessment methodology (as defined below) whereby the Significance of a potential impact is determined through the assessment of the relevant temporal and spatial scales determined of the Extent, Magnitude and Duration criteria associated with a particular impact. This method does not explicitly define each of the criteria but rather combines them and results in an indication of the overall significance.

11.3. ELEMENTAL SUSTAINABILITY IMPACT ASSESSMENT METHODOLOGY

The impact assessment methodology used to determine the significance of impacts prior to, and after mitigation is presented below.

Extent of the Impact

The EXTENT of an impact is the physical extent/area of impact or influence.

| Score | Extent | Description |
|-------|-----------|--|
| 1 | Footprint | The impacted area extends only as far as the actual footprint of the activity. |
| 2 | Site | The impact will affect the entire or substantial portion of the site/property. |
| 3 | Local | The impact could affect the area including neighbouring properties and transport routes. |
| 4 | Region | Impact could be widespread with regional implication. |
| 5 | National | Impact could have a widespread national level implication. |

Duration of the Impact

The DURATION of an impact is the expected period of time the impact will have an effect.

| Score | Extent | Description |
|-------|----------------------|--|
| 1 | Short term | The impact is quickly reversible within a period of less than 2 years, or limited to the construction phase, or immediate upon the commencement of floods. |
| 2 | Short to medium term | The impact will have a short term lifespan (2–5 years). |
| 3 | Medium term | The impact will have a medium term lifespan (6 – 10 years) |
| 4 | Long term | The impact will have a medium term lifespan (10 – 25 years) |
| 5 | Permanent | The impact will be permanent beyond the lifespan of the development |

Intensity of the Impact

The INTENSITY of an impact is the expected amplitude of the impact.

| Score | Extent | Description |
|-------|-----------|--|
| 1 | Minor | The activity will only have a minor impact on the affected environment in such a way that the natural processes or functions are not affected. |
| 2 | Low | The activity will have a low impact on the affected environment. |
| 3 | Medium | The activity will have a medium impact on the affected environment, but function and process continue, albeit in a modified way. |
| 4 | High | The activity will have a high impact on the affected environment which may be disturbed to the extent where it temporarily or permanently ceases. |
| 5 | Very High | The activity will have a very high impact on the affected environment which may be disturbed to the extent where it temporarily or permanently ceases. |

Reversibility of the Impact

The REVERSIBILITY of an impact is the severity of the impact on the ecosystem structure

| Score | Extent | Description |
|-------|------------------------------|---|
| 1 | Completely reversible | The impact is reversible without any mitigation measures and management measures. |
| 2 | Nearly completely reversible | The impact is reversible without any significant mitigation and management measures. Some time and resources required. |
| 3 | Partly reversible | The impact is only reversible with the implantation of mitigation and management measures. Substantial time and resources required. |

| | | |
|---|---------------------|---|
| 4 | Nearly irreversible | The impact is can only marginally be reversed with the implantation of significant mitigation and management measures. Significant time and resources required to ensure impact is on a controllable level. |
| 5 | Irreversible | The impact is irreversible. |

Probability of the Impact

The PROBABILITY of an impact is likelihood of the impact






| Score | Extent | Description |
|-------|------------|---|
| 1 | Improbable | The possibility of the impact occurring is highly improbable (less than 5% of impact occurring). |
| 2 | Low | The possibility of the impact occurring is very low, due either to the circumstances, design or experience (5% to 30% of impact occurring). |
| 3 | Medium | There is a possibility that the impact will occur to the extent that provision must be made therefore (30% to 60% of impact occurring). |
| 4 | High | There is a high possibility that the impact will occur to the extent that provision must be made therefore (60% to 90% of impact occurring). |
| 5 | Definite | The impact will definitely take place regardless of any prevention plans, and there can only be relied on migratory actions or contingency plans to contain the effect (90% to 100% of impact occurring). |

Calculation of Impacts – Significance Rating of Impact

Significance is determined through a synthesis of the various impact characteristics and represents the combined effect of the Irreplaceability (Magnitude, Extent, Duration, and Intensity) multiplied by the Probability of the impact. The significance of an impact is rated according the scores a presented below:

Equation 1:

$$\text{Significance} = \text{Irreplaceability (Reversibility + Intensity + Duration + Extent)} \times \text{Probability}$$

| Significance Rating | | |
|---------------------|--------------|--|
| Score | Significance | Colour Code |
| 1 to 20 | Very low |  |
| 21 to 40 | Low |  |
| 41 to 60 | Medium |  |
| 61 to 80 | High |  |
| 81 to 100 | Very high |  |

Degree to which the impact can be mitigated: *The effect of mitigation measures on the impact and its degree of effectiveness:*

Equation 2:
Significance Rating (WM) = Significance Rating (WOM) x Mitigation Efficiency

| Mitigation Efficiency (ME) | |
|----------------------------|-----|
| High | 0,2 |
| Medium to High | 0,4 |
| Medium | 0,6 |
| Low to Medium | 0,8 |
| Low | 1,0 |

Confidence rating: *Level of certainty of the impact occurring.*

- Certain
- Sure
- Unsure

Cumulative impacts: *The effect the combination of past, present and “reasonably foreseeable” future actions have on aspects.*

- Very Low cumulative impact
- Low cumulative impact
- Medium cumulative impact
- High cumulative impact

12. THE POSITIVE AND NEGATIVE IMPACTS AND ALTERNATIVES

Potential impacts identified during the scoping process, discussed under environmental component headings in this section. These discussions should be read with the corresponding descriptions of the baseline environment.

The potential impacts associated with the project phases (construction, operations, decommissioning and closure) have been identified and described and reference has been made to the studies/investigations that are required to inform the impact assessment. In the absence of site-specific studies, the assessment conclusions are conservative. It follows that the assessment provided below is a preliminary assessment which will, after having obtained specialist input, be refined/amended as necessary in the EIA, as appropriate.

TOPOGRAPHY

The topography of the project area would be altered by the project related activities. The topography of the site could be altered through:

- alteration of drainage patterns
- establishment of waste rock dumps

BIODIVERSITY

In the broadest sense, biodiversity provides value for ecosystem functionality, aesthetic, spiritual, cultural, and recreational reasons. The known ecosystem related value is listed as follows:

- Soil formation and fertility maintenance
- Primary production through photosynthesis, as the supportive foundation for life
- Provision of food and fuel
- Provision of shelter and building materials
- Regulation of water flows and water quality
- Regulation and purification of atmospheric gases
- Moderation of climate and weather
- Control of pests and diseases, and
- Maintenance of genetic resources (key for medicines, crop and livestock breeding)

The discussions below consider terrestrial and aquatic ecosystems.

Issue: Physical Loss and/or general disturbance of terrestrial biodiversity

The existing habitat units of the project area have been impacted and degraded to some extent as a result of past and current mining and anthropogenic activities. However, the project area still contains habitat units which are considered to be ecologically sensitive. The proposed additional waste rock dumps will impact on terrestrial biodiversity where this surface infrastructure will be constructed.

The significance of this impact is low in the unmitigated scenario. Existing mitigation measures will be maintained to ensure that the impact on biodiversity is kept low.

WATER RESOURCES – SURFACE WATER

The discussion below considers surface water, and focuses on possible impacts associated with the proposed project.

Issue: Reduction in surface water quantity and quality

The proposed additional surface infrastructure (waste rock dumps) has the potential to negatively impact on water resources. Surface water impacts are associated with the processing of ore and disposal of waste onto waste storage facilities. Impact associated with processing and disposal will be assessed and mitigation and management measures will be included in the EIA phase. In the absence of mitigation measures, the direct impact on surface resources will be medium and the indirect impact high. With mitigation measures implemented, the significance of the potential impacts can be reduced. The impact on wetland and pans will be assessed in the EIA phase. The impact on wetland and pans is expected to be mitigated.

WATER RESOURCES - GROUNDWATER

The discussion below considers groundwater, and focuses on possible impacts associated with the proposed project.

Issue: Reduction in groundwater quantity and quality

Mining related projects have the potential to negatively impact on water resources through abstraction for water supply and dewatering activities, regardless of the alternatives that are selected. This project also presents a number of emission sources that can have a negative impact on water quality. Contaminants from the project are expected to include operation related silt, fuels, hydrocarbons, residues, sulphate pollution and hazardous wastes. Sulphate pollution is associated with the oxidation of sulphate minerals and the leaching, and oxidation of these minerals.

In the absence of mitigation, given the importance of the groundwater system, the severity of unmitigated impacts could be medium due to the small size of the waste rock dumps. Important to note is that the use or potential contamination of water resources is regulated through water use licensing requirements of the DHSWS as the custodian of water resources in South Africa. Where the project plan takes into account the findings of specialist studies, applies the necessary mitigation to avoid, minimise or remedy impacts in line with the mitigation hierarchy, and operates under a water use license, the significance of potential impacts can be reduced.

SOCIO – ECONOMIC

Issue: Positive and negative socio-economic impacts

Mining projects have the potential to have positive and/or negative impacts on the following, regardless of the alternatives that are selected:

- employment for local communities
- the local and national economy
- social structures within communities
- increased pressure on basic services
- quality of life and health related issues, and
- livelihoods of businesses

Socio-economic impacts would occur during all project phases. In the absence of mitigation that focuses on enhancing positive impacts and reducing negative impacts, the severity of unmitigated impacts would be medium for negative impacts and medium (positive) for positive impacts. The related unmitigated significance could be medium. Where the project planning takes into account and applies the necessary mitigation to avoid, minimises or remedy impacts in line with the mitigation

hierarchy, the significance of potential negative impacts can be reduced, and potential positive impacts can be increased.

HERITAGE / CULTURAL RESOURCES

Issue: Loss of or damage to heritage

The placement of the proposed surface infrastructure (waste rock dumps), in all phases prior to closure, has the potential to remove, damage or destroy heritage/cultural and palaeontological resources, either directly or indirectly, and may result in the loss of the resource for future generations. In the absence of mitigation measures, if the resources are considered to be of high heritage significance, the unmitigated severity could be high. The related unmitigated significance would be high. Where the project planning takes into account the findings of the specialist studies and either avoids resources of high significance or alternatively documents and/or relocates resources in line with a permit and/or the necessary approvals, the significance of potential impacts can be reduced.

SOIL AND LAND CAPABILITY

Issue: Loss of soil and land capability through removal, erosion and compaction

Topsoil is generally a resource of high value containing a gene bank of vegetation seeds and other organisms. Soil resources can be lost through removal, erosion and compaction which can result in a loss of soil functionality as an ecological driver. The conservation of topsoil, soil management practises and the related rehabilitation strategy and initiatives become highly important in achieving the post-closure land use. The proposed surface infrastructure (waste rock dumps) has the potential to result in the loss of soils and related land capability.

In the absence of soil conservation, management measures and a rehabilitation plan that supports the post closure land use, the severity of potential impacts is expected to be high due to the impacted nature of the project area. Given the extent of the planned project, the area of disturbance could be significant if rehabilitation is not followed. Without mitigation, the loss of soil and related land capability would definitely occur. This impact significance could be reduced to medium/low with the implementation of mitigation measures focused on minimising impacts during the operational phase, and remedying any negative impacts at closure.

12.1. THE POSSIBLE MITIGATION MEASURES THAT COULD BE APPLIED AND THE LEVEL OF RISK

Table 20 provides possible mitigation measures that should be implemented to reduce the potential impacts. This section will be updated with the results and recommendation methods provided by the specialist studies during the EIAr phase.

Table 20: Mitigation measures (Construction, Operational and Closure Phase)

| Activity | Potential Impact | Possible mitigation | Potential for residual risk |
|--|--|--|-----------------------------|
| Surface infrastructure (waste rock dumps). | Reduction in surface water quantity and quality. | <ul style="list-style-type: none"> • Design and implement contamination measures. • Mine infrastructure will be constructed and operated so as to comply with the National Water Act No. 36 of 1998 and Regulation 704 (4 June 1999): <ul style="list-style-type: none"> ○ Clean and dirty water system will be separate. ○ Clean run-off will be diverted away from the site. ○ Dirty water will be contained. ○ The necessary exemptions and approvals will be obtained for activities and infrastructure located within 100 m or within the 1:100-year floodline of the water courses. • Conduct surface water monitoring and implement remedial actions as required. • Conduct biomonitoring and implement remedial actions as required. • Effective equipment and vehicle maintenance. • Fast and effective clean-up of spills. • Effective waste management. • Education and training of workers. • Implement WUL requirements and mitigation measures • Effective rehabilitation to achieve post closure land use. | Medium |
| | Reduction in groundwater quantity and quality. | <ul style="list-style-type: none"> • Groundwater pollution will be identified and included into a groundwater management plan which will be implemented as part of the operational and closure phase • Implement WUL requirements and mitigation measures. • Continue with groundwater monitoring and implement remedial actions as required. • Effective equipment and vehicle maintenance. • Fast and effective clean-up of spills. | Medium |

| Activity | Potential Impact | Possible mitigation | Potential for residual risk |
|----------|---|---|-----------------------------|
| | Positive and negative socio-economic impacts | <ul style="list-style-type: none"> • Continue implementing procedures for recruiting, training and procurement that align with good industry practise (SLP). • Employ local people and procure goods and services locally as far as practically possible. • Effective communication to manage expectations with regard to employment and other opportunities. • Ensure that closure planning considerations address the re-skilling of employees for the downscaling, early closure and long-term closure scenarios. • Work together with communities to manage issues such as security. | Medium |
| | Negative visual impacts | <ul style="list-style-type: none"> • Limit the extent of disturbed areas. • Suppress dust to prevent a visual dust cloud. • Effective waste management. • Effective rehabilitation to achieve post closure land use. | Low |
| | Loss of soil and land capability through removal, erosion and compaction | <ul style="list-style-type: none"> • Limit site clearance to what is absolutely necessary for the waste rock dumps and associated infrastructure. • Strip, handle, stockpile and re-use soil resources in line with site-specific soil conservation and management plan. | Medium |
| | Physical loss and/or general disturbance of terrestrial biodiversity and aquatic ecosystems | <ul style="list-style-type: none"> • Undertake pre-construction surveys of the development footprints for species suitable for search and rescue operations. • Avoid sensitive areas as far as practically possible. • Obtain relevant permits prior to removal of protected species. • Limit emissions (dust, noise). • Training of employees on the value of biodiversity. • Zero tolerance for harming and harvesting fauna and flora. • Effective waste management and pollution prevention. • Implementation of a biodiversity action plan to ensure that the undeveloped/disturbed areas within the property are properly conserved and maintained. • Effective rehabilitation to achieve post closure land use. | Medium |
| | Increase in air pollution | <ul style="list-style-type: none"> • Limit disturbed areas. • Suppress dust effectively. • Maintain equipment and vehicles in good working order. • Monitor pollutants of concern and implement additional mitigation as required. • Effective rehabilitation to achieve post closure land use. | Medium/Low |

12.2. THE OUTCOME OF THE SITE SELECTION MATRIX. FINAL SITE LAYOUT PLAN

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

The final site layout plan will be described in the EIAr / EMPr, once all specialist studies have been completed and comments from I&APs have been received. In the absence of site-specific specialist studies, it is not possible to complete a final site selection matrix at this stage. Please refer to Appendix C for a preliminary layout of the proposed project area.

The positioning of the proposed surface infrastructure (waste rock dumps) was informed by assessing the feasibility of the different options available (discussed under 7.1.4 above). Therefore, no locational alternatives are considered in this Scoping Report. However, in terms of the location of the infrastructure, alternative sites have been considered as discussed in Section 7 above.

12.2.1. MOTIVATION WHERE NO ALTERNATIVE SITES WERE CONSIDERED

Refer to Section 7, which refers to the various alternatives that have been considered for the Two Rivers Platinum – Waste Rock Dumps project.

12.2.2. STATEMENT MOTIVATING THE PREFERRED SITE

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

The final site layout plan will be described in the EIR / EMPR, once all specialist and engineering designs have been completed and comments from I&APs have been received. Please refer to Appendix C for a preliminary layout of the proposed project area.

13. PLAN OF STUDY FOR THE ENVIRONMENTAL IMPACT ASSESMENT PROCESS

The section below outlines the proposed plan of study that will be conducted for the various environmental aspects during the EIA Phase. It is important to note that the plan of study will also be guided by comment obtained from I&AP's and other stakeholders during the PPP.

The alternatives considered and discussed in Section 7 **Error! Reference source not found.**, including location, have culminated into the identification of potentially feasible development alternatives. The feasible development alternatives are discussed below.

13.1. DESCRIPTION OF ALTERNATIVES TO BE CONSIDERED INCLUDING THE OPTION OF NOT GOING AHEAD WITH THE ACTIVITY.

13.1.1. LAND USE ALTERNATIVES

Two Rivers Platinum is an existing, operational underground mine. The proposed waste rock dumps will be located within the existing, approved mining right area. As such, no options pertaining to land use alternatives are discussed in this report.

13.1.2. MINING METHOD (TECHNOLOGY ALTERNATIVES)

Two Rivers Platinum is an existing, operational underground mine. As such, no process alternatives to the current mining method are discussed in this report.

13.1.3. ACTIVITY ALTERNATIVES

The no-go option refers to the alternative of the proposed project not going ahead at all. This alternative will avoid potentially positive and negative impacts on the environment and the status quo of the area will remain, which is the conditions of the current environment (existing, operational mine), without any deviations or expansions.

The implications of the no-go option will be evaluated as part of the EIA, focusing on comparing potential impacts from the proposed project with the status quo, and will be particularly relevant should it be found, that potential detrimental impacts cannot be managed to an acceptable level. The no-go option will impact on the mine continuing to operate.

The additional waste rock dump facilities will be required to accommodate the projected tonnage, based on the current Life of Mine plan. No alternatives to this surface infrastructure can be assessed for the purposes required.

13.1.4. LOCATION/LAYOUT/DESIGN ALTERNATIVES

Two Rivers Platinum is located on the Remaining extent (Re) and portions 1, 2, 3, 4, 5, 6, 8, 9, 10 and 11 of Kalkfontein 367 KT; Portions 1, 3, Re of 4, Re of 5, 6, 9, 10, 11, 12, 13 and 14 of Tweefontein 360 KT; Portions 6 and 7 of Dwarsrivier 372 KT; and the farm Buffelshoek 368 KT.

Waste Rock Dump 1, 2 and 3 are located on Portion 6 of Dwarsrivier 372 KT.

The following four options considered for the additional waste rock dump facilities in terms of location, layout or design alternatives will be taken forward for consideration in the EIA phase:

Option 1:

This scenario entails the natural extension of the current facility towards the South. The main advantage of this option is the reduced hauling distance of waste on surface when compared to option 2. A disadvantage is that this option will extend over a water course that diverts surface water from the Main Decline infrastructure. This water course will be required to be diverted around the footprint of the proposed extension.

Option 2:

For this option, the North Decline “Open Pit” area is considered. Access haul roads are established to this area as it was previously used to stockpile ore from North Decline. The main disadvantage of this option is the distance to haul the waste which will be mainly generated from Main Decline and the Merensky project.

Option 3:

For this option, the open area adjacent to the South Shaft will be utilized for the Merensky development. The main disadvantage of this option is the distance to haul the waste which will be mainly generated from Main Decline and the Merensky project.

Option 4:

Option 4 evaluates a combination of Option 1, 2 and 3 discussed above. The main advantage is that the current facility can be extended to a position so as to not affect the existing water course, whereafter waste will be hauled to the North “Open Pit “area. The advantage is that the hauling distance of Main Decline and Merensky waste will be significantly reduced for an extended period compared to Option 2. A further advantage is that the hauling distance of waste generated from North Decline will also significantly reduce if hauling as per Option 2 are introduced. This must be seen in the context that waste hauling from North Decline capital projects will be come to an end by 2025.

13.2. DESCRIPTION OF THE ASPECTS TO BE ASSESSED AS PART OF THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

This section lists the aspects to be subjected to specialist investigation in the EIA phase, in line with the terms of reference outlined in Table 21 below. These include:

- Geotechnical Investigation
- Geohydrological Impact Assessment
- Surface Water (Hydrology) Assessment and Aquatic Assessment
- Wetland Assessment
- Fauna and Flora Assessment

- Archaeological and Cultural Heritage Impact Assessment Scan
- Palaeontological Assessment
- Visual Impact Assessment
- Closure and Rehabilitation Plans (including Financial Provisioning)

This section describes the nature and extent of the investigations required. In particular, it describes the scope of work for the specialist investigations. The impact assessments and detailed management measures for each aspect will be included in the EIA. Copies of the specialist reports will be attached as appendices to the EIA.

13.3. DESCRIPTION OF ASPECTS TO BE ASSESSED BY SPECIALISTS

Table 21 provides a description of the aspects to be assessed by the various specialists for the proposed Two Rivers Platinum Amendment Project.

Table 21: Description of aspects to be assessed by specialists

| Aspect | Specialist Study | Specialist | Terms of Reference |
|-------------------------------|-----------------------------------|---|---|
| Geotechnical | Geotechnical investigation | Luhlaza Advisory and Consulting (Pty) Ltd | The scope of the geotechnical assessment is to conduct a site reconnaissance survey of the proposed project area to assess ground conditions, material classification and identify any areas of geotechnical concerns, to provide recommendations. |
| Groundwater | Geohydrological Impact Assessment | Aquatox Consulting | <p>Existing Specialist Study will be updated.</p> <p>The following scope of work, as per the requirements for an EIA assessment, is to review available groundwater information from the previous studies and to compile a supporting specialist groundwater report for the additional surface infrastructure (waste rock dumps), including:</p> <ul style="list-style-type: none"> • Detailed site inspection for the mapping of relevant geo-hydrological features • Data collection of existing information from topographical maps, ortho-photos, geological maps, hydrological information, meteorological information, previous groundwater studies in the area • Meetings with relevant mine personnel • Borehole/spring census in the area to assess groundwater utilisation by neighbours and their background water quality • Evaluation of groundwater potential (quality & quantity) • Groundwater flow to predict the long-term impacts on the receiving environment • Assessment of the potential impacts associated with the proposed waste rock dumps on the receiving environment, and to conceptualise mitigation measures • Recommendation for potential amendment to the approved groundwater monitoring network, and • Geohydrological Report |
| Hydrology and Aquatic Ecology | Surface Water (Hydrology) | Enviridi Environmental Consultants | <p>The scope of the surface water baseline and impact assessment study will be to:</p> <ul style="list-style-type: none"> • Undertake a field visit to survey the affected watercourses; |

| Aspect | Specialist Study | Specialist | Terms of Reference |
|--------------|-----------------------------------|------------------------------------|---|
| | Assessment and Aquatic Assessment | | <ul style="list-style-type: none"> • Description of riparian vegetation composition • Developing a sensitivity map based on field visits and supported by appropriate regional information to inform the impact assessment • Recommendation of site-specific mitigation measures • Compilation of a specialist assessment report detailing the methodology, and findings of the assessment, including the PES of the watercourses on site <p>The overall purpose of the surface water assessment report is to evaluate the potential impacts that the proposed infrastructure, or activities, might have on the surface water on the property. The objectives and Scope of Work for the aquatic ecology component of the assessment are as follows:</p> <ul style="list-style-type: none"> • Assess the ecological state of aquatic ecosystems • Assess the spatial and temporal trends in ecological state • Assess emerging problems • Set objectives for rivers • Assess the impact of developments • Predict changes in the ecosystem due to developments, and • Contribute to the determination of the Ecological Reserve <p>The main long-term objective and goal of the biological assessment is to measure, assess and report on the health, status and possible trends related to the receiving environmental indicators representing the aquatic ecosystem associated with the project area.</p> |
| Wetlands | Wetland Assessment | Elemental Sustainability (Pty) Ltd | <p>The main objectives of wetland study will be as follows:</p> <ul style="list-style-type: none"> • Delineate and classify wetlands within 500m of the project area • Discuss drivers of wetlands • Ground-truthing of desktop data • Assessment of the PES or EIS scores and Recommended Ecological Category • To identify anticipated impacts of the proposed development on wetlands, and • To provide mitigation measures to limit and/or eliminate the anticipated impacts. |
| Biodiversity | Terrestrial Fauna and Flora | Enviridi Environmental Consultants | The scope of the Biodiversity Assessment is to assess the impact of the proposed waste rock dumps on terrestrial fauna and flora. |

| Aspect | Specialist Study | Specialist | Terms of Reference |
|--------------------------------------|---|------------------------------------|---|
| | (Biodiversity) Assessment (Plant and Animal Assessment) | | |
| Archaeological and Cultural Heritage | Archaeological and Cultural Heritage Impact Assessment Scan | Agri Civils | Update of exiting Heritage Impact Assessment |
| Palaeontological Heritage | Palaeontological Assessment | Marion Bamford Consulting | <p>The main objectives of palaeontology study will be as follows:</p> <ul style="list-style-type: none"> • To identify exposed and potential paleontological heritage on the site of the proposed development • To assess the impact the development may have on this resource, and • To make recommendations as to how this impact might be mitigated |
| Visual Impact | Visual Impact Assessment | Elemental Sustainability (Pty) Ltd | The scope of the Visual Impact Assessment is to assess the possible visual impact of the proposed waste rock dumps on the surrounding land users and the natural environment. |
| Closure Cost Assessment | Closure and Rehabilitation Plans (including Financial Provisioning) | Elemental Sustainability (Pty) Ltd | Update of current Closure Cost and Rehabilitation Plans |

14. PARTICULARS OF THE PUBLIC PARTICIPATION PROCESS WITH REGARDS TO THE IMPACT ASSESSMENT PROCESS THAT WILL BE CONDUCTED

14.1. STEPS TO BE TAKEN TO NOTIFY INTERESTED AND AFFECTED PARTIES

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

During the Environmental Impact Assessment Phase, the following will be applicable:

- The draft EIAR will be made available for public review for 30 days. Registered I&APs will be notified of the availability of the draft EIAR. The report will be made available electronically via a downloadable link and a hard copy of the report will be made available at the security (entrance) gate to the Two Rivers Platinum mine (together with a hand sanitiser, if permitted).
- Copies of the EIAR will be submitted to stakeholders (Greater Tubatse Local Municipality), and government departments (DMRE and DHSWS) for review.
- All comments received during the environmental impact assessment phase will be included as an Appendix in the Final EIAR to be submitted to the DMRE.

14.2. NEXT PHASES OF THE PUBLIC PARTICIPATION PROCESS

14.2.1. DETAILS OF THE ENGAGEMENT PROCESS TO BE FOLLOWED

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

An advertisement, in English, will be placed in the local newspaper to advise I&APs of the availability of the Environmental Impact Assessment Report for review. Information in the advert will include a short project background (including project and applicant name), project location, nature of the activity, information regarding the availability of the report for review and contact details for the relevant EAP, where I&APs can send comments/concerns. Copies of all adverts will be included as Appendices in the Scoping Report, as well as the Environmental Impact Assessment Report.

Written notices will be provided to all landowners in and around the adjacent mining right area and to all registered I&APs. Written notices will also be sent to the municipality that has jurisdiction in the area, and all organs of state as preidentified and that have registered for the project. The written

notice will advise where the EIAr can be accessed for review and contact details for the relevant EAP, and where I&APs can send comments/concerns.

SMS's will be sent to I&APs that have only provided a cellphone number. The SMS will advise where the report can be accessed and the contact details of the EAP.

Posters containing information about the project will be made available for I&APs to view, BIDs will be distributed and questions with regards to the project can be directed to the EAP.

Zoom or Skype, and/or phone calls with landowners and other I&AP's will be undertaken.

All issues raised and / or comments received will be included in the Public Participation Report, which will be updated for the EIAr to be submitted to the Competent Authority.

14.2.2. DESCRIPTION OF THE INFORMATION TO BE PROVIDED TO INTERESTED AND AFFECTED PARTIES

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

- The Environmental Impact Assessment Report will include the project description with the layout, a discussion of alternatives, and the findings of specialist studies and full assessment of all impacts of the alternatives, including cumulative impacts, and
- The Environmental Management Programme will also be made available and include, *inter alia*, mitigation, management and monitoring measures to prevent and mitigate negative impacts and enhance positive impacts that have been identified in the EIA; roles and responsibilities and an environmental awareness plan.

15. DESCRIPTION OF THE TASKS THAT WILL BE UNDERTAKEND DURING THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

A description of the tasks that would be undertaken during the EIA phase is provided below in Table 22. A preliminary schedule for the EIA phase that aligns with regulatory timeframes is included below.

Table 12: EIA Tasks and Timing

| Phase | EAP activity | Opportunities for Consultation and Participation | | Schedule * |
|--|--|---|---|-------------------------|
| | | Competent Authorities | I&APs | |
| Scoping Phase | Compile Scoping Report | - | | April 2021 |
| | Distribute Scoping Report for review | DHSWS | Review of Scoping Report (30 days), Comments to EAP | 29 April to 31 May 2021 |
| | I&AP consultations | - | - | April – May 2021 |
| | Collate and respond to comments and finalise Scoping report | Provide final to DMRE | - | May 2021 |
| Specialist studies | EAP to manage specialist activities and receive inputs for EIA. | - | - | April – May 2021 |
| EIA Phase | Compile EIA report | - | - | May – June 2021 |
| | Distribute EIA for review | Provide copy to DMRE for records | Review of EIA (30 days), Comments to EAP | July – August 2021 |
| | I&AP consultations | - | Consultation with I&APs | |
| | Collate and respond to comments and finalise EIA report | - | - | August 2021 |
| Competent authority review and decision making | EIA report to DMRE (106 days from acceptance of Scoping report). | DMRE Acknowledge Receipt of EIA (10 days). | Notify I&APs of final report submission | August 2021 |
| | | DMRE Review (107 days) | | |
| | | Environmental Authorisation Granted / Refused | | December 2021 |
| Decision | Notify registered I&APs of decision (within 14 days of date of decision) | - | - | December 2021 |
| Appeal Phase | EAP to provide information on appeal process as and when required. | Consultation during processing of appeal if relevant. | Submit appeal in terms of National Appeal Regulations, 2014 | 90-day process |

- **Approach to the EIA**

An Environmental Impact Assessment (EIA) is a good planning tool. It identifies the environmental impacts of a proposed development and assists in ensuring that a project will be environmentally acceptable and integrated into the surrounding environment in a sustainable way.

The EIA for this project will comply with the National Environmental Management Act (1998) (as amended), and the NEMA EIA Regulations (2014) [as amended] of the Department of Environmental Affairs and Forestry (DEAF). The guiding principles of an EIA are provided below.

- **Guiding principles for an EIA**

The EIA must take an open participatory approach throughout. This means that there should be no hidden agendas, no restrictions on the information collected during the process and an open-door policy by the proponent. Technical information must be communicated to stakeholders in a way that is understood by them and that enables them to meaningfully comment on the project.

There should be ongoing consultation with interested and affected parties representing all walks of life. Sufficient time for comment must be allowed. The opportunity for comment should be announced on an on-going basis. There should be opportunities for input by specialists and members of the public. Their contributions and issues should be considered when technical specialist studies are conducted and when decisions are made.

- **Information gathering**

With this project being an amendment, existing information (from previous documented specialist studies in the area and previous EIA Reports) is being utilised.

- **Specialist Assessments**

Based on the impacts identified during the Scoping Phase, specialist studies have been identified to be completed and form part of the EIA. The main objective of the specialist studies is to provide independent, scientifically sound information on issues of concern relating to the project proposal. The findings of the various specialist studies undertaken will be incorporated into the EIA Report. Any impacts that have not been identified during the scoping phase, and that have been identified and assessed by specialists will also be included in the environmental impact assessment.

- **Legislative Framework**

The legal requirements will be described and assessed in more detail.

- **Alternatives**

Process alternatives to the proposed waste rock dumps include sale of waste rock, and improved mining methods, the feasibility of which will be assessed during the EIA. Alternate layouts of the proposed waste rock dumps will also be investigated during the EIA.

- **Description and assessment of impacts identified during the scoping phase**

A comprehensive list of all impacts as identified by the EAP and the specialists, will be provided within the EIA report and assessed as per the methodology described in this report and plan of study.

- **Stakeholder engagement**

Registered I&APs, including relevant organs of state, will be consulted with during the EIA phase. All their comments will be formally responded to and incorporated into the EIA, and the EIA report, that will be submitted to the competent authority.

16. 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

Refer to Table 20 for the mitigation measures. It should be noted that this table has been compiled with the information on hand and would be refined during the EIA phase. Mitigation and management measures identified by all specialists during the EIA phase will be included in the EIA and EMPr.

17. OTHER 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:

17.1. IMPACT ON THE SOCIO-ECONOMIC CONDITIONS OF ANY DIRECTLY AFFECTED PERSON

(Provide the results of investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any directly affected person including the landowner, lawful occupier, or, where applicable, potential beneficiaries of any land restitution claim)

Two Rivers Platinum has an approved Social and Labour Plan (SLP) that has been developed for the mine and implemented.

The proposed waste rock dumps are required to continue with the existing mining operation, which will ensure the continued employment of current personnel and continued implementation of the SLP programmes.

17.2. IMPACT ON ANY NATIONAL ESTATE REFERRED TO IN SECTION 3(2) OF THE NATIONAL HERITAGE RESOURCES ACT

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

A heritage study has been conducted for the Two Rivers Platinum mine. This study will be updated, the results and recommendations of which will be included in the EIAr and EMPr.

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

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

No other matters are required in terms of Section 24(4)(A) and (B) of the act.

19. UNDERTAKINGS BY THE EAP

I, Sonja van de Giessen, the Environmental Assessment Practitioner responsible for compiling this report, undertake that:

- the information provided herein is correct;
- the comments and inputs from stakeholders and I&APs have been correctly recorded, although due to the volume of comments and objections received from I&APs, it's possible that not all the information has been included;
- information and responses provided to stakeholders and I&APs by the EAP is correct to the best of Elemental Sustainability's knowledge at the time of compiling the report; and
- the level of agreement with I&APs and stakeholders has been correctly recorded and reported.

Signature of the EAP

Date: _____

-END-

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