

TWO RIVERS PLATINUM MINE (PTY) LTD

TWO RIVERS PLATINUM MINE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

DRAFT SCOPING REPORT

18 OCTOBER 2021

DRAFT





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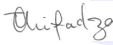


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This Draft Scoping Report (Report) for the Proposed Environmental Impact Assessment Process in the Steelpoort area was prepared by WSP Group Africa (Pty) Ltd (WSP) on behalf Two Rivers Platinum Mine (Pty) Ltd (Client), as part of the application process for Environmental Authorisation.

Unless otherwise agreed by us in writing, we do not accept responsibility or legal liability to any person other than the Client for the contents of, or any omissions from, this Report.

To prepare this Report, we have reviewed only the documents and information provided to us by the Client or any third parties directed to provide information and documents to us by the Client. We have not reviewed any other documents in relation to this Report, except where otherwise indicated in the Report.

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GLOSSARY

ABBREVIATION	MEANING
AIS	Alien and Invasive Species
AQIA	Air Quality Impact Assessment
CA	Competent Authority
CBA	Critical Biodiversity Area
CRR	Comments and Response Report
DFFE	Department of Forestry, Environment and Fisheries
DMRE	Department of Mineral Resources and Energy
DSR	Draft Scoping Report
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMPR	Environmental Management Programme
FSR	Final Scoping Report
GA	General Authorisation
HIA	Heritage Impact Assessment
I&AP	Interested And Affected Party
LEDET	Limpopo Department of Economic Development, Environment and Tourism
LIHRA	Limpopo Heritage Resources Authority
LoM	Life of Mine
MPRDA	Mineral and Petroleum Resources Development Act, 2002

ABBREVIATION	MEANING
MSDS	Material Safety Data Sheets
NEMA	National Environmental Management Act 107 of 1998
NEM:AQA	National Environmental Management: Air Quality Act 39 of 2004
NEMBA	National Environmental Management: Biodiversity Act 10 of 2004
NEM:WA	National Environmental Management: Waste Act 59 of 2008
NFEPA	National Freshwater Ecosystem Priority Areas
NHRA	National Heritage Resources Act 25 of 1999
NIA	Noise Impact Assessment
NWA	National Water Act 36 of 1998
PGM	Platinum Group Metals
POPIA	Protection of Personal Information Act 2013
PPE	Personal Protective Equipment
RLS	Rustenburg Layered Suite
RWD	Return Water Dam
S&EIR	Scoping and Environmental Impact Reporting
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
SANBI	South African National Biodiversity Institute
SCPE	Sekhukhuneland Centre of Plant Endemism
ToPS	Threatened or Protected Species
ToR	Terms of Reference
TRP	Two Rivers Platinum (Pty) Ltd
TSF	Tailings Storage Facility

ABBREVIATION	MEANING
UG	Upper Group
VAC	Visual Absorption Capacity
WML	Waste Management Licence
WRD	Waste Rock Dump
WSP	WSP Group Africa (Pty) Ltd
WUL	Water Use License

TABLE OF CONTENTS

1	INTRODUCTION	1
1.1	Purpose of this Report	1
1.2	Background Information	1
1.3	Environmental Assessment Practitioner	2
1.4	Scoping Terms of Reference.....	3
1.5	Draft Scoping Report Structure	4
1.6	Assumptions and Limitations	6
2	GOVERNANCE FRAMEWORK	9
2.1	Applicable Legislation	9
3	SCOPING METHODOLOGY.....	14
3.1	Application.....	14
3.2	S&EIR Process and Phasing	14
3.3	Baseline Environmental Assessment	16
3.4	Identification and Evaluation of Potentially Significant Impacts.....	16
3.5	Stakeholder Engagement	18
4	PROJECT DESCRIPTION	22
4.1	Location of the Proposed Development	22
4.2	Proposed Project Development Activities.....	23
5	NEED AND JUSTIFICATION	30
6	IDENTIFICATION OF ALTERNATIVES ...	31
6.1	No-Go ALternative	31
6.2	Technology	31
6.3	Location	31
6.4	Type of Activity	32
7	DESCRIPTION OF THE BASELINE ENVIRONMENT	33
7.1	Climate	33

7.2	Topography.....	36
7.3	Geology and Soils.....	37
7.4	Air Quality	38
7.5	Surface Water	45
7.6	Groundwater	48
7.7	Land Use and Capability	50
7.8	Biodiversity	51
7.9	Fauna.....	52
7.10	Heritage and Archaeology.....	53
7.11	Palaeontology	54
7.12	Noise	55
7.13	Visual.....	58
7.14	Socio-Economic Profile.....	59
8	IDENTIFICATION OF POTENTIAL IMPACTS	62
8.1	Climate	62
8.2	Geology	62
8.3	Surface Water	62
8.4	Groundwater	62
8.5	Landuse and Capability.....	63
8.6	Air Quality	63
8.7	Noise	63
8.8	Visual.....	63
8.9	Biodiversity Impacts.....	64
8.10	Heritage	64
8.11	Palaeontology	64
8.12	Socio Economic Profile	64
8.13	Health and Safety.....	65
8.14	Summary of Potential Impacts	66

9	PLAN OF STUDY FOR THE ENVIRONMENTAL IMPACT ASSESSMENT REPORTING PHASE	78
9.1	Terms of Reference	78
9.2	Overview of the EIAR Tasks	78
9.3	Description of Alternatives.....	78
9.4	Specialist Studies to be Undertaken.....	78
9.5	Impact Assessment Methodology.....	82
9.6	Environmental Impact Assessment Report	85
9.7	Stakeholder and Authority Engagement.....	86
9.8	Notification of Environmental Authorisaton.....	87
9.9	Consultation with Authorities	87
10	WAY FORWARD.....	88

TABLES

TABLE 1-1:	DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER.....	2
TABLE 1-2:	LEGISLATION REQUIREMENTS AS DETAILED IN GNR 982, AS AMENDED	4
TABLE 2-1:	APPLICABLE LEGISLATION AND POLICIES.....	9
TABLE 3-1:	SIGNIFICANCE SCREENING TOOL	16
TABLE 3-2:	PROBABILITY SCORES AND DESCRIPTORS.....	17
TABLE 3-3:	SCORE NEGATIVE POSITIVE...	17
TABLE 3-4:	IMPACT SIGNIFICANCE COLOUR REFERENCE SYSTEM TO INDICATE THE NATURE OF THE IMPACT.....	18
TABLE 3-5:	INTERESTED AND AFFECTED PARTIES.....	20
TABLE 4-1:	CADASTRAL INFORMATION OF THE SITE	23
TABLE 4-2:	PROJECT SITE COORDINATES	26
TABLE 4-3:	PROJECT SITE COORDINATES	28
TABLE 4-4:	PROPOSED REROUTED PIPELINE SEGMENT COORDINATES	29
TABLE 7-1:	SENSITIVE RECEPTORS	38
TABLE 7-2:	APPLICABLE AIR POLLUTANTS AND ASSOCIATED HUMAN HEALTH IMPACTS.....	40
TABLE 7-3:	CLASSIFICATIONS FOR EACH MONITORING LOCATION.	42
TABLE 7-4:	CATEGORIES OF COMMUNITY/GROUP RESPONSE (ADAPTED FROM SANS 10103:2008).....	55
TABLE 7-5:	NOISE MONITORING LOCATIONS.....	55
TABLE 7-6:	SOUND LEVEL METER AND CALIBRATOR SPECIFICATIONS	55
TABLE 7-7:	DAY-TIME NOISE MONITORING RESULTS.....	56
TABLE 7-8:	NIGHT-TIME NOISE MONITORING RESULTS	57
TABLE 8-1:	SUMMARY OF POTENTIAL IMPACTS	66
TABLE 8-2:	MITIGATION MEASURES.....	70
TABLE 9-1:	PLAN OF STUDY STRUCTURE.	78
TABLE 9-2:	SPECIALIST STUDIES.....	79

TABLE 9-3:	NATURE OR TYPE OF IMPACT	82
TABLE 9-4:	PHYSICAL EXTENT RATING OF IMPACT	83
TABLE 9-5:	DURATION RATING OF IMPACT	83
TABLE 9-6:	REVERSIBILITY OF THE IMPACT	84
TABLE 9-7:	MAGNITUDE RATING OF IMPACT	84
TABLE 9-8:	PROBABILITY RATING OF IMPACT	84

FIGURES

FIGURE 1-1:	TWO RIVERS PLATINUM MINE'S LOCALITY	2
FIGURE 3-1:	S&EIR PROCESS	16
FIGURE 4-1:	PROJECT LOCALITY	22
FIGURE 4-2:	SITE PROJECT ACTIVITIES	24
FIGURE 4-3:	LOCATION OF THE UG2 AND MERENSKY EXPANSION (GCS, 2013)	25
FIGURE 4-4:	EXISTING MERENSKY MAIN DECLINE ENTRANCE	26
FIGURE 4-5:	EXISTING AND AUTHORISED TSF SITE	27
FIGURE 4-6:	TSF EXPANSION AREA	28
FIGURE 4-7:	APPROVED (RED) AND NEWLY PROPOSED ROUTE OF TSF PIPELINE	29
FIGURE 6-1:	AERIAL IMAGE OF TSF EXPANSION AREA	32
FIGURE 7-1:	STEELPOORT MONTHLY TEMPERATURES, PRECIPITATION AND WIND SPEED (METEOBLUE, 2021)	34
FIGURE 7-2:	STEELPOORT WIND SPEED CHART (METEOBLUE 2021)	34
FIGURE 7-3:	STEELPOORT WIND ROSE (METEOBLUE 2021)	35
FIGURE 7-4:	CATCHMENT DELINEATION	36
FIGURE 7-5:	TOPOGRAPHICAL MAP	37
FIGURE 7-6:	REGIONAL GEOLOGY MAP	38
FIGURE 7-7:	LOCATION OF TRP MINE	39
FIGURE 7-8:	ATMOSPHERIC CIRCULATION OVER SOUTHERN AFRICA (TYSON AND PRESTON-WHYTE, 2000)	41
FIGURE 7-9:	TRP ONSITE DUST FALLOUT RESULTS FOR 2019	43
FIGURE 7-10:	TRP ONSITE DUST FALLOUT RESULTS FOR 2020	44

FIGURE 7-11: TRP ONSITE DUST FALLOUT RESULTS FOR 2021	45
FIGURE 7-12: SURFACE WATER AND WETLANDS	46
FIGURE 7-13: WATER QUALITY LOCATIONS ..	48
FIGURE 7-14: CONTOURED WATER LEVELS (MAMSL) OF THE WATER TABLE AQUIFER AND BOREHOLE LOCATIONS.....	50
FIGURE 7-15: PROJECT SITE ON LIMPOPO CONSERVATION PLAN.....	51
FIGURE 7-16: ACROTILUS SPP. (ACRIDIDAE), LEFT AND SCHISTOCERCA GREGARIA (ACRIDIDAE), RIGHT	53
FIGURE 7-17: EXPECTED MAMMALS	53
FIGURE 7-18: GRAVE LOCATIONS.....	54
FIGURE 7-19: PALAEONTOLOGICAL SENSITIVITY	54
FIGURE 7-20: MONITORING LOCATIONS, TRP01 (LEFT), TRP02 (MIDDLE) AND TRP03 (RIGHT).....	56
FIGURE 7-21: LANDCOVER MAP.....	58

APPENDICES

A	EAP CV
A-1	Tutayi Chifadza
A-2	Anri Scheepers
B	EAP DECLARATION
C	STAKEHOLDER DATABASE
D	PUBLIC PARTICIPATION
D-1	Site Notices
D-2	Advert
D-3	Email Notifications
D-4	SMS Notifications
D-5	Comments and Responses Report
E	LAYOUT MAP
F	DMRE MEETING MINUTES
F-1	Pre-Application Meeting Minutes
F-2	Clarification Meeting Minutes

1 INTRODUCTION

1.1 PURPOSE OF THIS REPORT

This Draft Scoping Report (DSR) documents the process and findings of the scoping phase of the Scoping and Environmental Impact Reporting (S&EIR) process for the proposed developments at the Two Rivers Platinum (Pty) Ltd (TRP), Limpopo Province.

The DSR aims to provide stakeholders with information on the proposed development including all its considered location, layout and technological alternatives, the scope of the environmental assessment, and the consultation process undertaken through the environmental impact assessment (EIA) process.

1.2 BACKGROUND INFORMATION

TRP is an existing mine conducting underground mining activities on the farm Dwarsrivier 372 KT on the southern part of the eastern limb of the Bushveld Complex. The mine is situated approximately 27km south of Steelpoort and 35km south-west of Burgersfort within the Fetakgomo Tubatse Local Municipality, Greater Sekhukhune District Municipality, Limpopo Province. TRP holds an approved consolidated Environmental Management Programme Report (EMPR) (Reference LP 30/5/1/2/3/2/1(0178)EM), approved on 30 July 2015 by the Department of Mineral Resources and Energy (DMRE).

TRP has a New Order Mining Right (LP 178 MC) to explore and mine the Platinum Group Metals (PGM's), other precious metals (gold and silver), and associated base metals (nickel, copper and cobalt) and ores thereof on Portions 1 and 6 of the farm Dwarsrivier 372 KT and Portions 2, 3 and 7 of De Grooteboom 373 KT.

The site comprises of both the Merensky and the underlying Upper Group 2 Reefs (UG2). The UG2 outcrops in the Klein Dwarsrivier valley over a north-south strike length of 7.5km and dips to the west at approximately 7 to 10 degrees. The vertical separation between the Merensky and UG2 Reefs is around 140m to 160m. Due to the extremity of the topography, the Merensky reef outcrops further up the mountain slope and also results in the UG2 occurring at a depth of 935m below surface on the western boundary of the mine.

Prior to 2015, TRP only mined the UG2 ore body. Mining was undertaken through two underground decline systems namely the UG2 Main Decline and the UG2 North Decline, situated approximately 3km apart. TRP applied for and was granted Environmental Authorisation (EA) on 14 July 2014 (REF: 12/1/9/2-GS26) by the Department of Mineral Resources (DMR), now the Department of Mineral Resources and Energy (DMRE), for an expansion of the UG2 mining operation. The EA also authorised TRP to mine the overlying Merensky ore through the Merensky North and Merensky Main Declines, and the related infrastructure. The EA included the establishment and operation of a 90 hectare (ha) Tailings Storage Facility (TSF) that would cater for the additional production output.

TRP lodged an application with the DMRE to amend their existing EMPR to consolidate the existing EMPRs and to include additional activities that were otherwise not previously authorised. The amended EMPR was approved on 30 July 2015 in terms of Section 39 of the Mineral and Petroleum Resources Development Act, 2002 (MPRDA) (REF: LP30/5/1/2/3/2/1 (0178) EM). The EMPR authorises all underground mining activities and surface mining related activities including the TSF.

To support current operations and sustain its life of mine, TRP proposes to expand and make amendments to the existing EA. The following amendments and developments are proposed:

- The removal of the Merensky North Decline section from the approved EMPR; and addition of a 30m waste decline;
- The expansion of the authorised existing TSF from 90ha to 180ha which is already authorised under water use licence (WUL); and
- The re-routing of a 547m portion of the approved (but not yet constructed) TSF Pipeline route (it is estimated that the new pipeline route will be 4km in length).

The locality of TRP is indicated **Figure 1-1** below.

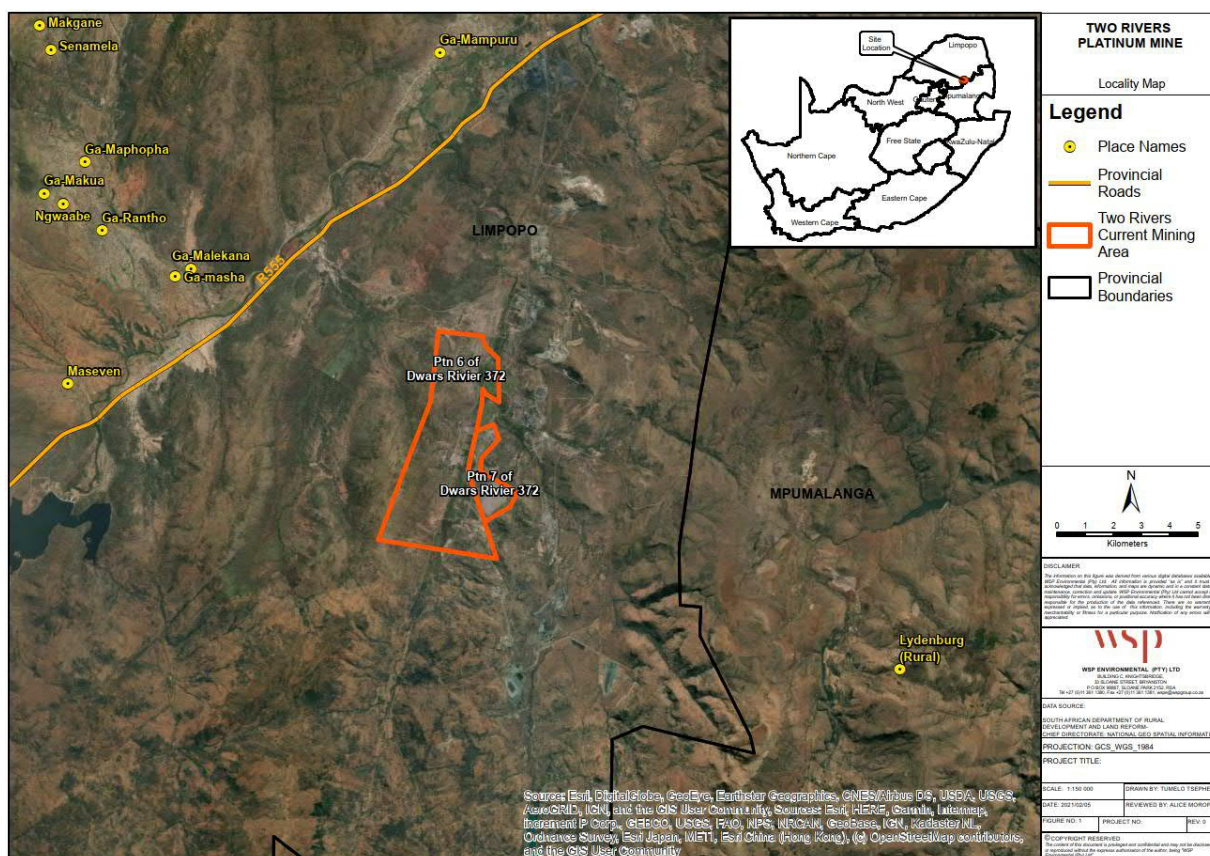


Figure 1-1: Two Rivers Platinum Mine's Locality

1.3 ENVIRONMENTAL ASSESSMENT PRACTITIONER

WSP Group Africa (Pty) Ltd (WSP) has been appointed in the role of Independent Environmental Assessment Practitioner (EAP) to undertake the Scoping and Environmental Impact Report (S&EIR) process for the expansion and amendments at TRP. The CV of the EAP is available in **Appendix A**. The EAP declaration of interest and undertaking is included in **Appendix B**. **Table 1-1** details the relevant contact details of the EAP. To adequately identify and assess potential environmental impacts, a number of specialists will support the EAP.

Table 1-1: Details of the Environmental Assessment Practitioner

ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)	WSP GROUP AFRICA (PTY) LTD
Company Registration:	1995/08790/07
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1.4 SCOPING TERMS OF REFERENCE

A pre-application meeting was held with the DMRE, on 15 March 2021, to present the proposed project. A clarification meeting was subsequently held on 29 April 2021 to clarify the listed activities to be triggered and identify the most suitable process as the project was a combination of proposed amendments and new listed activities. The meeting minutes for these engagements are attached as **Appendix F**. The DMRE advised that an integrated process in terms of the National Environmental Management Act 107 of 1998 (NEMA) must be followed in order to meet the requirements of both the National Environmental Management Act and the National Environmental Management: Waste Act 59 of 2008 (NEM:WA).

Based on the 2014 EIA Regulations, Government Notice Regulation (GNR) 982, as amended, a S&EIR process is applicable due to the applicability of the EIA Listing Notices, GNR 984, as amended. In order for the project to proceed, it will require an integrated EA and Waste Management Licence (WML) from the DMRE.

As defined in Appendix 2 of GNR 982, as amended, the objective of the scoping process is to, through a consultative process:

- Identify the relevant policies and legislation relevant to the activity;
- Motivate the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;
- Identify and confirm the preferred activity and technology alternative through an impact and risk assessment and ranking process;
- 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;
- Identify the key issues to be addressed in the assessment phase;
- 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
- 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.

Public participation is a requirement of scoping; it consists of a series of inclusive and culturally appropriate interactions aimed at providing stakeholders with opportunities to express their views, so that these can be considered and incorporated into the S&EIR decision-making process. Effective public participation requires the prior disclosure of relevant and adequate project information to enable stakeholders to understand the risks, impacts, and opportunities of the Proposed Project. The objectives of the public participation process can be summarised as follows:

- Identify relevant individuals, organisations and communities who may be interested in or affected by the Proposed Project;
- Clearly outline the scope of the Proposed Project, including the scale and nature of the existing and proposed activities;
- Identify viable Proposed Project alternatives that will assist the relevant authorities in making an informed decision;
- Identify shortcomings and gaps in existing information;
- Identify key concerns, raised by Stakeholders that should be addressed in the subsequent specialist studies;

- Highlight the potential for environmental impacts, whether positive or negative; and
- To inform and provide the public with information and an understanding of the Proposed Project, issues and solutions.

1.5 DRAFT SCOPING REPORT STRUCTURE

Table 1-2 cross-references the sections within the DSR with the legislated requirements as per Appendix 2 of GNR 982, as amended.

Table 1-2: Legislation Requirements as detailed in GNR 982, as amended

APPENDIX 2	LEGISLATED REQUIREMENTS AS PER THE NEMA GNR 982, AS AMENDED	RELEVANT REPORT SECTION
(a)	Details of	
	the environmental assessment practitioner (EAP) who compiled the report; and	Section 1.2 and Appendix A
	the expertise of the EAP, including a Curriculum Vitae	Appendix A
(b)	The location of the activity, including-	
	The 21 digit Surveyor code for each cadastral land parcel;	Section 5.1
	Where available, the physical address and farm name	Section 5.1
	Where the required information in terms of (i) and (ii) is not available, the coordinates of the boundary of the property.	Section 5.1
(c)	A plan which locates the proposed activities applied for at an appropriate scale, or, if it is-	
	A linear activity, a description of the corridor in which the proposed activity or activities is to be undertaken; or	N/A
	On land where the property has not been defined, the coordinates within which the activity is to be undertaken.	Section 1.2
(d)	A description of the proposed activity, including-	
	All listed and specified activities triggered;	Section 2 Table 2.1
	A description of the activities to be undertaken, including associated structures and infrastructure;	Section 5
(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 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 4
(h)	A full description of the process followed to reach the proposed preferred activity, site and location within the site, including-	
	Details of all the alternatives considered;	Section 6
	Details of the public participation undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;	Section 3.5

APPENDIX 2 LEGISLATED REQUIREMENTS AS PER THE NEMA GNR 982, AS AMENDED RELEVANT REPORT SECTION

	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;	In Final Scoping Report (FSR)
	the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Section 7
	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 - (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated;	Section 8
	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;	Section 3.3
	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;	Section 8
	the possible mitigation measures that could be applied and level of residual risk;	Section 8
	the outcome of the site selection matrix;	Section 6
	if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such and	Section 6
	a concluding statement indicating the preferred alternatives, including preferred location of the activity;	Chapter 6
(i)	A plan of study for undertaking the environmental impact assessment process to be undertaken, including-	
	a description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity;	Section 6
	a description of the aspects to be assessed as part of the environmental impact assessment process;	Section 8
	aspects to be assessed by specialists;	Section 9.4
	a description of the proposed method of assessing the environmental aspects, including a description of the proposed method of assessing the environmental aspects including aspects to be assessed by specialists;	Section 9.5
	a description of the proposed method of assessing duration and significance;	Section 9.5
	an indication of the stages at which the competent authority will be consulted;	Section 9.7

APPENDIX 2	LEGISLATED REQUIREMENTS AS PER THE NEMA GNR 982, AS AMENDED	RELEVANT REPORT SECTION
	particulars of the public participation process that be conducted during the environmental impact assessment process; and	Section 9.7
	a description of the tasks that will be undertaken as part of the environmental impact assessment process;	Section 9
	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.	Section 9.6
(j)	An undertaking under oath or affirmation by the EAP in relation to-	
	the correctness of the information provided in the report;	Appendix B
	the inclusion of comments and inputs from stakeholders and interested and affected parties; and	Appendix B
	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;	N/A
(k)	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;	Appendix B
(l)	Where applicable, any specific information required by the competent authority; and	N/A
(m)	Any other matter required in terms of section 24(4)(a) and (b) of the Act.	N/A

1.6 ASSUMPTIONS AND LIMITATIONS

General assumptions and limitations relating to the scoping study and the DSR are listed below:

- The EAP hereby confirms that they have undertaken to obtain project information from the client that is deemed to be accurate and representative of the project;
- Site visits have been undertaken to better understand the project and ensure that the information provided by the client is correct, based on site conditions observed;
- The EAP hereby confirms their independence and understands the responsibility they hold in ensuring all comments received are accurately replicated and responded to within the EIA documentation;
- The comments received in response to the public participation process, are representative of comments from the broader community; and
- The competent authority (CA) would not require additional specialist input, as per the proposals made in this report, in order to make a decision regarding the application.

General assumptions and limitations relating to the proposed biodiversity baseline and impact assessment to be conducted in the EIA phase are listed below:

- The terrestrial ecology assessment will be conducted to the best of the specialist's ability using scientifically sound surveying methods given time constraints. The site visit will be a single season targeted field assessment carried out during the dry season;
- No intensive faunal survey will be conducted but merely a preliminary habitat assessment. All animals (mammals (larger), birds, reptiles and amphibians) seen or heard; will be recorded. Indirect evidence such as

nests, feathers and animal tracks (footprints, droppings) will be used to identify animals. Birds will be identified with the use of binoculars and calls;

- Whilst every effort will be made to cover as much of the site as possible, representative sampling will be completed and by its nature, it is possible that some plant and animal species that are present on site will not be recorded during the field investigations; and
- The GPS to be used in the assessment has an accuracy of 5m and consequently, any spatial features may be offset by 5m.

General assumptions and limitations relating to the ecological impact assessment to be conducted in the EIA phase are listed below:

- The vegetation assessment will be undertaken in summer, i.e. between September and May or preferably as soon as the first rains are received.
- The ecological assessment will be confined to the study area and will not include the neighbouring and adjacent lands or areas; however, these will be considered as part of the desktop assessment.
- With ecology being dynamic and complex, some aspects (some of which may be important) may be overlooked. It is, however, expected that most floral communities will be accurately assessed and considered.
- Sampling by its nature, means that not all individuals are assessed and identified. Some species and taxa on the study area may therefore be missed during the assessment.
- It is important to note that the absence of species onsite does not conclude that the species is not present at the site.

General assumptions and limitations relating to the visual impact assessment (VIA) to be conducted in the EIA phase are listed below:

- This assessment will be undertaken during the conceptual stage of the project and is based on information available at the time.
- This level of assessment excludes surveys to establish viewer preference and thereby their sensitivity. Viewer sensitivity will be determined by means of a commonly used rating system.
- The site visit will be conducted and the photographs used in the report will illustrate the character of the landscape in the winter season.

General assumptions and limitations relating to the hydrogeochemical modelling to be conducted in the EIA phase are listed below:

- The modelling will be done within the limitations of the scope of work of this study and the amount of data available. Although all efforts will be made to base the model on sound assumptions and calibration done to observed data, the results obtained from this exercise will be considered in accordance with the assumptions made. Especially the assumption that a fractured aquifer will behave as a homogeneous porous medium can lead to error. However, on a large enough scale (bigger than the REV, Representative Elemental Volume) this assumption should hold reasonably well.

General assumptions and limitations relating to the heritage impact assessment (HIA) to be conducted in the EIA phase are listed below:

- The investigation will be influenced by the unpredictability of buried natural and cultural heritage remains (absence of evidence does not mean evidence of absence) and the difficulty in establishing intangible heritage values. It should be remembered that heritage deposits (including graves and traces of mining heritage) usually occur below the ground level. Should artefacts or skeletal material be revealed at the site during construction, such activities should be halted immediately, and South African Heritage Resources Agency (SAHRA) or Limpopo Heritage Resources Authority (LIHRA) must be notified for an investigation and evaluation of the find(s) to take place (cf. tissues act (Act No. 25 of 1999), Section 36 (6)).
- Recommendations contained in this document do not exempt the developer from complying with any national, provincial, and municipal legislation or other regulatory requirements, including any protection or management or general provision in terms of the NHRA. Vhufa Hashu Heritage Consultants assumes no responsibility for compliance with conditions that may be required by SAHRA in terms of this report.

General assumptions and limitations relating to the AQIA to be conducted in the EIA phase are listed below:

- Baseline ambient air quality and meteorological monitoring will be obtained from the current TRP monitoring program.

- The quantification and modelling of surrounding land use activities will be excluded.
- The quantification of greenhouse gases and the assessment of climate change impacts will be excluded.
- Level 3 dispersion modelling will be excluded. Based on WSP's expertise, a Level 2 (AERMOD) model is the most appropriate for a project of this nature. Should the relevant authority require a more complex dispersion model (CALPUFF), this will be considered following the comment period.
- The quantification and modelling of emissions will be limited to the construction and operational phase (emissions will not be quantified for any decommissioning or rehabilitation phases) of underground and surface mining related activities, including the TSF, only.

General assumptions and limitations relating to the noise impact assessment (NIA) to be conducted in the EIA phase are listed below:

- The information provided regarding the proposed operational activities will be assumed to be representative of what will occur in reality;
- TRP01 is an on-site location by the dam entrance that will be utilised for baseline purposes only (i.e. does not represent a sensitive receptor) and has thus, will be excluded from the NIA; and
- In order to represent a worst-case scenario, it will be assumed that one of each piece of construction equipment will be operational simultaneously at a location on the TSF expansion in closest proximity to each sensitive receptor.

General assumptions and limitations relating to the social impact assessment (SIA) to be conducted in the EIA phase are listed below:

- It is assumed that existing labour would, in most cases be used as the project will only entail the expansion of an existing mine and its infrastructure.

Notwithstanding these assumptions, it is the view of WSP that this DSR provides a good description of the issues associated with the project, and a reasonable plan of study for the EIA phase.

2 GOVERNANCE FRAMEWORK

2.1 APPLICABLE LEGISLATION

The South African regulatory framework establishes well-defined requirements and standards for environmental and social management of industrial and civil infrastructure developments. Different authorities at both national and regional levels carry out environmental protection functions. The applicable legislation and policies are shown in **Table 2-1** below.

Table 2-1: Applicable Legislation and Policies

APPLICABLE LEGISLATION AND POLICY	DESCRIPTION OF LEGISLATION
<p>The Constitution of South Africa (No. 108 of 1996)</p>	<p>The Constitution cannot manage environmental resources as a stand-alone piece of legislation hence additional legislation has been promulgated in order to manage the various spheres of both the social and natural environment. Each promulgated Act and associated Regulations are designed to focus on various industries or components of the environment to ensure that the objectives of the Constitution are effectively implemented and upheld in an on-going basis throughout the country. In terms of Section 7, a positive obligation is placed on the State to give effect to the environmental rights.</p>
<p>National Environmental Management Act (No. 107 of 1998)</p>	<p>In terms of Section 24(2) of the NEMA, the Minister may identify activities which may not commence without prior authorisation. The Minister thus published GNR 983 (Listing Notice 1), 984 (Listing Notice 2) and 985 (Listing Notice 3), as amended, listing activities that may not commence prior to authorisation, 4 December 2014.</p> <p>The regulations outlining the procedures required for authorisation are published in GNR 982, [EIA] (4 December 2014), as amended. Listing Notice 1 identifies activities that require a Basic Assessment (BA) process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity. Listing Notice 2 identifies activities that require a S&EIR process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity. Listing Notice 3 identifies activities within specific areas that require a BA process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity.</p> <p>WSP undertook a legal review of the listed activities according to the proposed project description and concluded that the activities listed in the below section are considered applicable to the development. As such, a S&EIR process must be followed. An EA is required and will be applied for with the DMRE.</p>
<p>Listing Notice 1: GNR 983, as amended</p>	<p>Activity 12 - The development of –</p> <p><i>(i) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs—</i></p> <p><i>(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;</i></p> <p>Description:</p> <p>Expansion of the TSF from 90ha to 180ha, to an area within 32m of the Sprinkaanspruit River. This will be in line with the footprint stipulated and approved on the water use licence (WUL) of 2017 Licence No:06/B41H/AJIGC/6098.</p> <p>Activity 19 - The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse.</p>

**APPLICABLE LEGISLATION
AND POLICY**

DESCRIPTION OF LEGISLATION

	<p>Description:</p> <p>The expansion of the TSF from 90ha to 180ha, to an area within 32m of the Sprinkaanspruit River includes the infilling or depositing of material of more than 10 cubic metres from a watercourse.</p> <p>Activity 48 - <i>The expansion of—</i></p> <p>(i) <i>infrastructure or structures where the physical footprint is expanded by 100 square metres or more;</i></p> <p><i>where such expansion [or expansion and related operation] occurs—</i></p> <p>(c) <i>if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;</i></p> <p>Description:</p> <p>Expansion of the TSF from 90ha to 180ha, to an area within 32m of the Sprinkaanspruit River.</p>
<p>Listing Notice 2: GNR 984, as amended</p>	<p>Activity 15 - <i>The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for—</i></p> <p>(i) <i>the undertaking of a linear activity; or</i></p> <p>(ii) <i>maintenance purposes undertaken in accordance with a maintenance management plan.</i></p> <p>Description:</p> <p>The expansion of the TSF by an additional 90ha will entail the clearance of more than 20 ha of the vegetation.</p>
<p>Listing Notice 3: GNR 985, as amended</p>	<p>Activity 12 - <i>The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</i></p> <p><i>e. Limpopo</i></p> <p><i>i. Within any critically endangered or endangered ecosystem listed in terms of section of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;</i></p> <p><i>ii. Within critical biodiversity areas identified in bioregional plans; or</i></p> <p>Description:</p> <p>The site is classified as a CBA and is listed as an endangered ecosystem (Threatened ecosystem code: MP 9). Approximately 90ha of the CBA vegetation will be cleared for the purpose of expanding the TSF.</p>
<p>National Environmental Management: Waste Act (No. 59 of 2008) (NEM:WA)</p>	<p>In terms of section 19 of the NEM:WA, a list of waste management activities that have, or are likely to have a detrimental effect on the environment were published in GNR 921 (November 2013), as amended. A person who wishes to commence, undertake or conduct a waste management activity listed under Category A, must conduct a basic assessment process, while a person who wishes to undertake a Category B activity must conduct a S&EIR process as set out in the EIA Regulations made under section 24(5) of the NEMA as part of a WML application contemplated in section 45 read with section 20(b) of this Act. A person who wishes to commence, undertake or conduct a waste management activity listed under Category C, must comply with the relevant norms or standards as listed in GNR 921, as amended.</p>

APPLICABLE LEGISLATION AND POLICY

DESCRIPTION OF LEGISLATION

	<p>WSP undertook a review of the listed activities according to the proposed project description and concluded that Listed Activity 13 under Category A and Listed Activity 11 under Category B are considered applicable.</p> <p>A WML is required and will be applied for with the DMRE. The currently approved TSF does not have a WML as the approval was prior to the current legislation.</p>
<p>GNR 921: Category A</p>	<p>Activity 13 - <i>The expansion of a waste management activity listed in Category A or B of this Schedule which does not trigger an additional waste management activity in terms of this Schedule.</i></p> <p>Description:</p> <p>TRP proposes to expand the existing 90ha TSF by 90ha to align with the current footprint approved in the WUL. As such a BA process is applicable, however, the activity triggers a Category B activity, therefore, a S&EIR process will be followed. The existing TSF does not have a WML as it was initially approved prior to the requirement of a WML for such facilities.</p>
<p>GNR 921: Category B</p>	<p>Activity 11 - <i>The establishment or reclamation of a residue stockpile or residue deposit resulting from activities which require a mining right, exploration right or production right in terms of the MPRDA.</i></p> <p>Description:</p> <p>TRP proposes to expand the existing 90ha of the TSF by 90ha by 90ha to align with the current footprint approved in the WUL. As such, a S&EIR process will be followed. The existing TSF does not have a WML as it was initially approved prior to the requirement of a WML for such facilities.</p>
<p>National Environmental Management: Biodiversity Act, 2004 (No. 10 of 2004) (NEM:BA)</p>	<p>The NEMBA was promulgated in June 2004 within the framework of NEMA to provide for the management and conservation of national biodiversity. The NEMBA’s primary aims are for the protection of species and ecosystems that warrant national protection, the sustainable use of indigenous biological resources, the fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resources. In addition, the NEMBA provides for the establishment and functions of a South African National Biodiversity Institute (SANBI).</p> <p>SANBI was established by the NEMBA with the primary purpose of reporting on the status of the country’s biodiversity and conservation status of all listed threatened or protected species and ecosystems.</p> <p>The biodiversity assessment identified critical biodiversity areas (CBAs) which represent biodiversity priority areas which should be maintained in a natural to near natural state. The CBA maps indicate the most efficient selection and classification of land portions requiring safeguarding in order to meet national biodiversity objectives. As such, an Ecological Assessment will be undertaken as part of the EIA process.</p> <p>The Conservation of Agricultural Resources Act (No. 43 of 1983) (CARA) Regulations with regards to alien and invasive species have been superseded by the NEMBA – Alien and Invasive Species (AIS) Regulations which came into act on 1 October 2014.</p> <p>Specific management measures for the control of alien and invasive plants will be included in the Environmental Management Programme (EMPR).</p>
<p>The National Water Act (No. 36 of 1998)</p>	<p>The NWA provides the framework to protect water resources against over exploitation and to ensure that there is water for social and economic development, human needs and to meet the needs of the aquatic environment.</p> <p>The Act defines water source to include watercourses, surface water, estuary or aquifer. A watercourse is defined in the Act as a river or spring, a natural channel in which water</p>

APPLICABLE LEGISLATION AND POLICY

DESCRIPTION OF LEGISLATION

	<p>flows regularly or intermittently, a wetland, lake or dam into which or from which water flows, and any collection of water that the Minister may declare a watercourse.</p> <p>Section 21 of the Act outlines a number of categories that require a water user to apply for a Water Use License (WUL) and Section 22 requires water users to apply for a General Authorisation (GA) with the Department of Water and Sanitation (DWS) if they are under certain thresholds or meet certain criteria. The list of water uses that require a WUL under section 21 are presented below:</p> <ol style="list-style-type: none"> a) Taking water from a water resource; b) Storage of water; c) Impeding or diverting the flow of water in a watercourse; d) Engaging in a stream flow reduction activity; e) Engaging in a controlled activity; f) Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit; g) Disposing of waste in a manner which may detrimentally impact on a water resource; h) Disposing in any manner of water which contains waste from, or which has been heated in. any industrial or power generation process; i) Altering the bed, banks, course or characteristics of a watercourse; j) Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people; and k) Using water for recreational purposes. <p>Section 21 (c) and (i) as well as 21 (g) are anticipated for the proposed project due to proximity of the proposed TSF to a river, therefore, a WUL will be required. However, a WUL is already in place for the full 180ha as it was applied for after the initial 90ha EA was issued.</p> <p>Although the TSF (existing and proposed 90ha expansion extent) is currently approved in a WUL, however, the proposed pipeline re-routing is not authorised. A WUL amendment will be required to incorporate this activity.</p>
<p>The National Heritage Resources Act (No. 25 Of 1999) (NHRA)</p>	<p>The NHRA serves to protect national and provincial heritage resources across South Africa. The NHRA provides for the protection of all archaeological and palaeontological sites, the conservation and care of cemeteries and graves by the South African Heritage Resources Agency (SAHRA), and lists activities that require any person who intends to undertake to notify the responsible heritage resources agency and furnish details regarding the location, nature, and extent of the proposed development.</p> <p>In terms of the Section 38 of NHRA, any person who intends to undertake a linear development exceeding 300m in length or a development that exceeds 5000m² must notify the heritage resources authority and undertake the necessary assessment requested by that authority.</p> <p>A Heritage Impact Assessment (HIA) will be undertaken looking at Archaeology and Heritage as the proposed activities exceed the threshold. The proposed project will be brought to the attention of SAHRA and LIHRA, who will provide comment, and provide the required approval.</p>
<p>The National Environmental Management: Air Quality Act (Act 39 of 2004) (NEM:AQA)</p>	<p>According to Section 22 of the NEM:AQA, no person may, without a provisional atmospheric emission licence or an AEL, conduct an activity that is -</p> <ul style="list-style-type: none"> – Listed on the national list anywhere in the Republic; or – Listed on the list applicable in a province anywhere in that province.

**APPLICABLE LEGISLATION
AND POLICY**

DESCRIPTION OF LEGISLATION

	<p>Listed activities and associated minimum emission standards (MES) were published in Government Notice 248 of 2010, Government Gazette 33064 in-line with Section 21 of NEM:AQA. An amended list of activities was published in Government Notice 893 of 2013, Government Gazette 37054, in Government Notice 551 of 2015, Government Gazette 38863 and further in Government Notice 1207 of 2018, Government Gazette 42013.</p> <p>Dust emissions standards will be applicable as per the 2013 National Dust Control Regulations (GNR 827) in terms of Section 32 of NEM:AQA and an air quality impact assessment (AQIA) will be conducted as part of the EIA process.</p>
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3 SCOPING METHODOLOGY

The scoping process was initiated in accordance with Appendix 2 of GNR 982, as amended, pertaining to applications subject to a S&EIR process.

3.1 APPLICATION

The application phase will consist of the completion of the appropriate application form by the EAP and the Proponent as well as the subsequent submission and registration of the application for EA with the DMRE.

A reference number will be allocated for the EA application by the DMRE. The reference numbers will appear in all subsequent official S&EIR related correspondence with the authorities and the public.

The DSR will be submitted to the DMRE along with the application.

3.2 S&EIR PROCESS AND PHASING

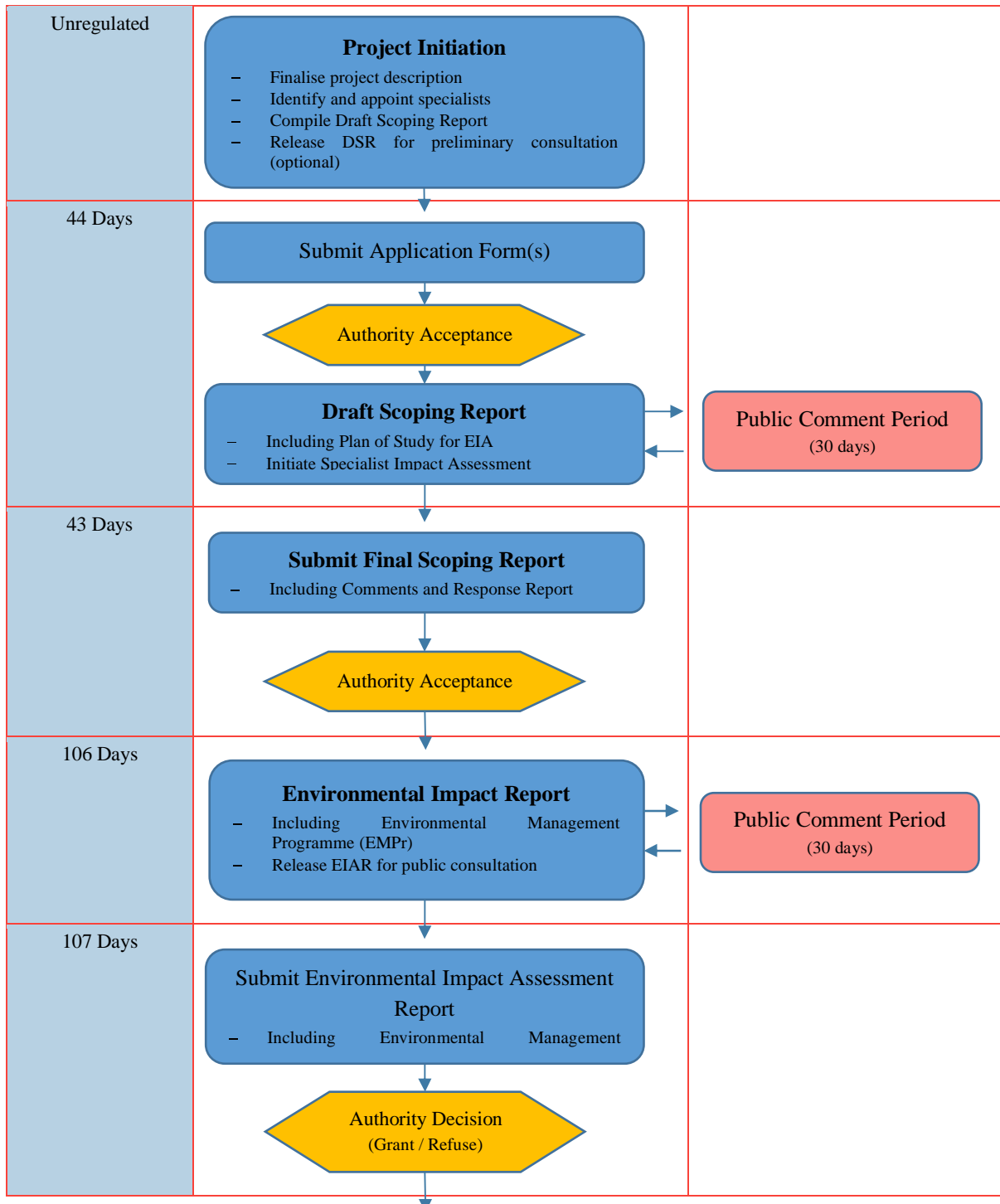
The S&EIR process consists of various phases with associated timelines as defined in GNR 982, as amended. The process can generally be divided into four main phases, namely; (i) an unregulated Pre application Phase, (ii) an Application and Scoping Phase (**current phase**), (iii) an Impact Assessment Phase and (iv) Authorisation and Appeal Phase, as indicated in. The S&EIR process is shown in **Figure 3-1**.

The main objectives of the phases can be described as follows:

- Pre-Application Phase:
 - Undertake consultation meetings with the relevant authorities to confirm the required process and general approach to be undertaken;
 - Identify stakeholders, including neighbouring landowners/residents and relevant authorities;
 - Compile a DSR describing the affected environment and present an analysis of the potential environmental issues and benefits arising from the proposed project that may require further investigation in the Impact Assessment Phase;
 - Develop draft terms of reference for the specialist studies to be undertaken in the Impact Assessment Phase; and
 - Inform stakeholders of the proposed project, feasible alternatives and the S&EIR process and afford them the opportunity to register and participate in the process and identify any issues and concerns associated with the proposed project.
- Application and Scoping Phase:
 - Compile and submit application forms to the competent authority and pay the relevant application fees;
 - Incorporate comments received from stakeholders during the pre-application phase into the DSR;
 - Should significant amendments be required, release the updated DSR for a 30 day comment period to provide stakeholders with the opportunity to review the amendments as well as provide additional input if required; and
 - Submit the finalised final scoping report (FSR), following the consultation period, to the relevant authorities, in this case the DMRE, for acceptance/rejection.
- Impact Assessment Phase:
 - Continue to inform and obtain contributions from stakeholders, including relevant authorities, stakeholders, and the public and address their relevant issues and concerns;
 - Assess in detail the potential environmental and socio-economic impacts of the project as defined in the DSR;
 - Identify environmental and social mitigation measures to avoid and/or address the identified impacts;
 - Develop and/or amend environmental and social management plans based on the mitigation measures developed in the Environmental Impact Assessment Report (EIAR);

- Submit the Draft EIAR and associated EMPr to the CA, commenting authorities and I&APs for comment;
- Submit the Final EIAR and the associated EMPr to the competent authority to undertake the decision making process;
- Authorisation and Appeal Phase;
- The DMRE to provide written notification of the decision to either grant or refuse the EA and WML for the proposed project; and
- Notify all registered I&APs of the decision and right to appeal.

SCOPING & EIA PROCESS



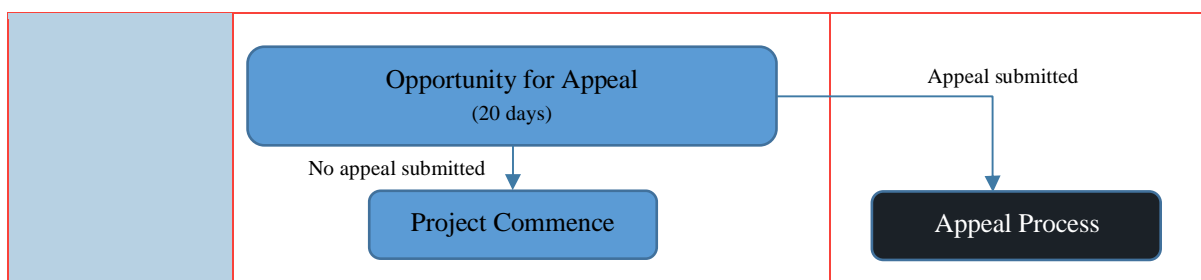


Figure 3-1: S&EIR Process

3.3 BASELINE ENVIRONMENTAL ASSESSMENT

The property where the developments will occur is owned by TRP. The site has been the subject of a number of specialist assessments in support of a parallel planning and statutory approval processes being undertaken at TRP. The specialist studies from this process and further research have been utilised to support the proposed developments statutory application process. Therefore, the description of the baseline environment has been compiled through a combination of site investigations, desktop reviews and information obtained from the existing and new specialist assessments. Desktop reviews made use of available information including existing reports, aerial imagery and mapping.

3.4 IDENTIFICATION AND EVALUATION OF POTENTIALLY SIGNIFICANT IMPACTS

The potential impacts associated with the proposed development were determined at both a desktop level based on existing information, as well as field assessments. The following methodology was used:

- Identify potential sensitive environments and receptors that may be impacted on by the proposed development;
- Identify the type of impacts that are most likely to occur (including cumulative impacts);
- Determine the nature and extent of the potential impacts during the various developmental phases, including, construction, operation and decommissioning;
- Identify potential No-Go areas (if applicable); and
- Summarise the potential impacts that will be considered further in the EIA phase through detailed specialist studies.

Appendix 2 of GNR 982, as amended, requires the identification of the significance of potential impacts during scoping. To this end, an impact screening tool has been used in the scoping phase. The screening tool is based on two criteria, namely probability; and, consequence, where the latter is based on general consideration to the intensity, extent, and duration.

The scales and descriptors used for scoring probability and severity are detailed in **Table 3-2** and **Table 3-3** respectively.

Table 3-1: Significance Screening Tool

		CONSEQUENCE SCALE			
PROBABILITY SCALE		1	2	3	4
	1	Very Low	Very Low	Low	Medium
	2	Very Low	Low	Medium	Medium
	3	Low	Medium	Medium	High

	4	Medium	Medium	High	High
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Table 3-2: Probability Scores and Descriptors

SCORE	DESCRIPTOR
4	Definite: The impact will occur regardless of any prevention measures
3	Highly Probable: It is most likely that the impact will occur
2	Probable: There is a good possibility that the impact will occur
1	Improbable: The possibility of the impact occurring is very low

Table 3-3: Score Negative Positive

SCORE	NEGATIVE	POSITIVE
4	Very severe: An irreversible and permanent change to the affected system(s) or party(ies) which cannot be mitigated.	Very beneficial: A permanent and very substantial benefit to the affected system(s) or party(ies), with no real alternative to achieving this benefit.
3	Severe: A long term impacts on the affected system(s) or party(ies) that could be mitigated. However, this mitigation would be difficult, expensive or time consuming or some combination of these.	Beneficial: A long term impact and substantial benefit to the affected system(s) or party(ies). Alternative ways of achieving this benefit would be difficult, expensive or time consuming, or some combination of these.
2	Moderately severe: A medium to long term impacts on the affected system(s) or party (ies) that could be mitigated.	Moderately beneficial: A medium to long term impact of real benefit to the affected system(s) or party(ies). Other ways of optimising the beneficial effects are equally difficult, expensive and time consuming (or some combination of these), as achieving them in this way.
1	Negligible: A short to medium term impacts on the affected system(s) or party(ies). Mitigation is very easy, cheap, less time consuming or not necessary.	Negligible: A short to medium term impact and negligible benefit to the affected system(s) or party(ies). Other ways of optimising the beneficial effects are easier, cheaper and quicker, or some combination of these.

The nature of the impact must be characterised as to whether the impact is deemed to be positive (+ve) (i.e. beneficial) or negative (-ve) (i.e. harmful) to the receiving environment/receptor. For ease of reference, a colour reference system (**Table 3-4**) has been applied according to the nature and significance of the identified impacts.

Table 3-4: Impact Significance Colour Reference System to Indicate the Nature of the Impact

Negative Impacts (-ve)	Positive Impacts (+ve)
Negligible	Negligible
Very Low	Very Low
Low	Low
Medium	Medium
High	High

3.5 STAKEHOLDER ENGAGEMENT

3.5.1 PURPOSE OF STAKEHOLDER ENGAGEMENT

Stakeholder engagement comprises a series of inclusive and culturally appropriate interactions aimed at providing stakeholders with opportunities to express their views, so that these can be considered and incorporated into the S&EIR process. Effective stakeholder engagement requires the prior disclosure of relevant and adequate project information to enable stakeholders to understand the risks, impacts, and opportunities of the proposed project.

The objectives of the stakeholder engagement process can be summarised as follows:

- Identify relevant individuals, organisations and communities who may be interested in or affected by the Proposed Project;
- Clearly outline the scope of the proposed project, including the scale and nature of the existing and proposed activities;
- Identify viable proposed project alternatives that will assist the relevant authorities in making an informed decision;
- Identify shortcomings and gaps in existing information;
- Identify key concerns, raised by stakeholders that should be addressed in the subsequent specialist studies;
- Highlight the potential for environmental impacts, whether positive or negative; and
- To inform and provide the public with information and an understanding of the proposed project, issues and solutions.

In accordance with the NEMA, GNR 982, as amended, Chapter 6, the following activities have taken place or are proposed to take place within the DSR review period or beyond.

3.5.2 WHAT IS AN INTERESTED AND AFFECTED PARTY?

An interested and affected party (I&AP) is defined as any person, group of persons or organisations interested in or affected by an activity, and any organ of state that may have jurisdiction over any aspect of the activity.

- The difference between an I&AP and a registered I&AP:
 - An I&AP can be directly or indirectly impacted on by a proposed activity.
 - A registered I&AP is a person whose name has been placed on the register of registered I&APs. According to the PPP Guidance document, 2017, only registered I&APs will be notified:

- Of the availability of reports and other written submissions made to the Competent Authority (CA) by the Applicant; and
- Of the outcome of the application, the reasons for the decision, and that an appeal may be lodged against a decision.

For the purpose of this report, registered I&APs will be referred to as Stakeholders.

3.5.3 RIGHTS, ROLES AND RESPONSIBILITIES OF THE STAKEHOLDER

In terms of Chapter 6, specifically Section 43(1) of the NEMA EIA Regulations 2014, as amended, registered stakeholders have the right to bring to the attention of the CA any issues that they believe may be of significance to the consideration of the application. The rights of stakeholders are qualified by certain obligations, namely:

- Stakeholders must ensure that their comments are submitted within the timeframes that have been approved by the DMRE, or within any extension of a timeframe agreed by the proponent, EAP or CA;
- Disclose to the EAP any direct business, financial, personal or other interest that they might have in the approval or refusal of the application;

The roles of stakeholders in a public participation process usually include one or more of the following:

- Assisting in the identification and prioritisation of issues that need to be investigated;
- Making suggestions on alternatives and means of preventing, minimising and managing negative impacts and enhancing proposed project benefits;
- Assisting in or commenting on the development of mutually acceptable criteria for the evaluation of decision options;
- Contributing information on public needs, values and expectations;
- Contributing local and traditional knowledge; and
- Verifying that their issues have been considered.

In order to participate effectively, stakeholders should:

- Become involved in the process as early as possible;
- Register as a stakeholder;
- Advise the EAP of other stakeholders who should be consulted;
- Contribute towards the design of the public participation process (including timeframes) to ensure that it is acceptable to all stakeholders;
- Follow the process once it has been concluded;
- Read the material provided and actively seek to understand the issues involved;
- Give timely responses to correspondence;
- Be respectful and courteous towards other stakeholders;
- Refrain from making subjective, unfounded or ill-informed statements; and
- Recognise that the process is confined to issues that are directly relevant to the application.

3.5.4 STAKEHOLDER IDENTIFICATION

Section 41 of the 2017 EIA Regulations states that written notices must be given to identified stakeholders as outlined in **Table 3-5**.

Relevant authorities (Organs of State) have been automatically registered as I&APs. In accordance with the EIA Regulations, 2014, as amended, all other persons must request in writing to be placed on the register, submit written comments or attend meetings in order to be registered as stakeholders and included in future communication regarding the project.

Table 3-5: Interested and Affected Parties

NEMA REQUIREMENT	DISCUSSION
<i>(i) the owner or person in control of that land if the applicant is not the owner or person in control of the land</i>	The landowner/s within the project area will be notified of the S&EIR process via email and/or sms.
<i>(ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken</i>	The landowner/s landowners will be notified of the proposed development.
<i>(iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken</i>	Adjacent landowners and occupier details will be collected and the landowners notified via a project notification letter sent via email and/or sms notification.
<i>(iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area</i>	The Ward Councillor from Ward 2 of Fetakgomo Tubatse Local Municipality (Clr. Makine P) has been included on the stakeholder database.
<i>(v) the municipality which has jurisdiction in the area</i>	The Greater Sekhukhune District Municipality (Municipal Manager, Ms Maureen Ntshudisane) and Fetakgomo Tubatse Local Municipality has been included on the stakeholder database.
<i>(vi) any organ of state having jurisdiction in respect of any aspect of the activity</i>	The DMRE has been consulted as the CA regarding the integrated EA and WML application.
<i>(vii) any other party as required by the competent authority.</i>	All tiers of government, namely, national, provincial, local government and parastatals have been included on the stakeholder database. Inclusive of: <ul style="list-style-type: none"> — Limpopo Department of Economic Development, Environment and Tourism (LEDET); — Department of Water and Sanitation (DWS); — Department of Forestry, Fisheries and Environment (DFFE): Biodiversity Conservation Unit Directorate; — SAHRA; and — LIHRA.

3.5.5 NOTIFICATION OF POTENTIAL I&APS

In accordance with GNR 982, as amended, Section 41(2)(a-b) site notices were developed (see **Appendix D-1**) and placed at the following strategic places:

- TRP Health Centre Security Area;
- Fetakgomo Tubatse Local Municipality;
- Burgersfurt Public Library; and
- Mapodile Public Library.

Proof of placement of site notices will be included in the FSR.

The site notice serves to inform the occupiers of the land along with the newspaper advert and existing stakeholder database.

In accordance with GNR 982, as amended, 41(2)(c) of Chapter 6 an advert will be placed in a local newspaper, Steelburger on 14 October 2021. There are many local languages spoken in the area with English being considered

a universal language; therefore, the newspaper advert will be published in English only. A copy of the advert will be included **Appendix D-2**. Proof of the advert publication will be included in the FSR.

Should the EAP identify an affected stakeholder, and be made aware of his/her existence by the ward councillor, efforts will be made to ensure his/her participation in the stakeholder engagement process [as required by Section 41(2) (e) of Chapter 6].

The Protection of Personal Information Act 2013 (POPIA or POPI Act) was implemented on 01 July 2021. WSP, offers the following information:

- WSP is an independent consulting company conducting Public Participation in support of EA and WML Processes. These processes require us to keep stakeholder databases per project as a regulatory requirement.
- Stakeholders registered with WSP to participate in this project process are based on previous projects undertaken by TRP in the area.
- If I&APs wish to be deregistered, an email can be sent to the EAP requesting to be removed from the database and instructing WSP to remove personal information from the project database. If WSP do not receive any such notification or request, it will be deemed that all notified I&APs have consented to their use of personal information for the sole purpose of this project.

In addition to the minimum requirements outlined in GNR 982, as amended, the EAP will undertake the following:

- Distribution of notification letters to the stakeholders via email and bulk sms (where contact data was available). Proof / evidence of notifications will only be included in the FSR version submitted to the CA so as not to infringe on personal information rights as per the POPIA.

Any stakeholder who submits a comment during the course of the process will automatically be registered on the project specific stakeholder database. Comments received during the DSR review period will be included in the FSR as part of the comments and responses report (CRR) in **Appendix D-5** and submitted to the competent authority.

3.5.6 PUBLIC REVIEW OF THE DRAFT SCOPING REPORT

The DSR will be placed on public review for a period of 30 days from **19 October 2021** to **19 November 2021**, at the following locations:

- TRP Health Centre Security Area;
- Burgersfurt Public Library;
- Mapodile Public Library; and
- WSP website (<https://www.wsp.com/en-ZA/services/public-documents>).

All registered stakeholders and authorising/commenting state departments will be notified of the public review period as well as the locations of the DSRs via email and bulk sms. The abovementioned plan, for notification and provision of reports, will also be utilised for the review of the FSR as well as the EIAR once the EIAR Phase has commenced.

3.5.7 COMMENT AND RESPONSE REPORT

All concerns, comments, viewpoints and questions (collectively referred to as 'issues' will be documented and responded to adequately in a CRR, which will be attached as **Appendix D-5** of the FSR. The CRR will record the following:

- List of all issues raised;
- Record of who raised the issues;
- Record of where the issues were raised;
- Record of the date on which the issue was raised; and
- Response to the issues.

4 PROJECT DESCRIPTION

4.1 LOCATION OF THE PROPOSED DEVELOPMENT

TRP is an existing mine conducting underground mining activities on the farm Dwarsrivier 373 KT on the southern part of the eastern limb of the Bushveld Complex. The mine is situated approximately 27km south of Steelpoort and 35km south-west of Burgersfort within the Fetakgomo Tubatse Local Municipality, Greater Sekhukhune District Municipality, Limpopo Province. The locality of the site is depicted in **Figure 4-1** below.

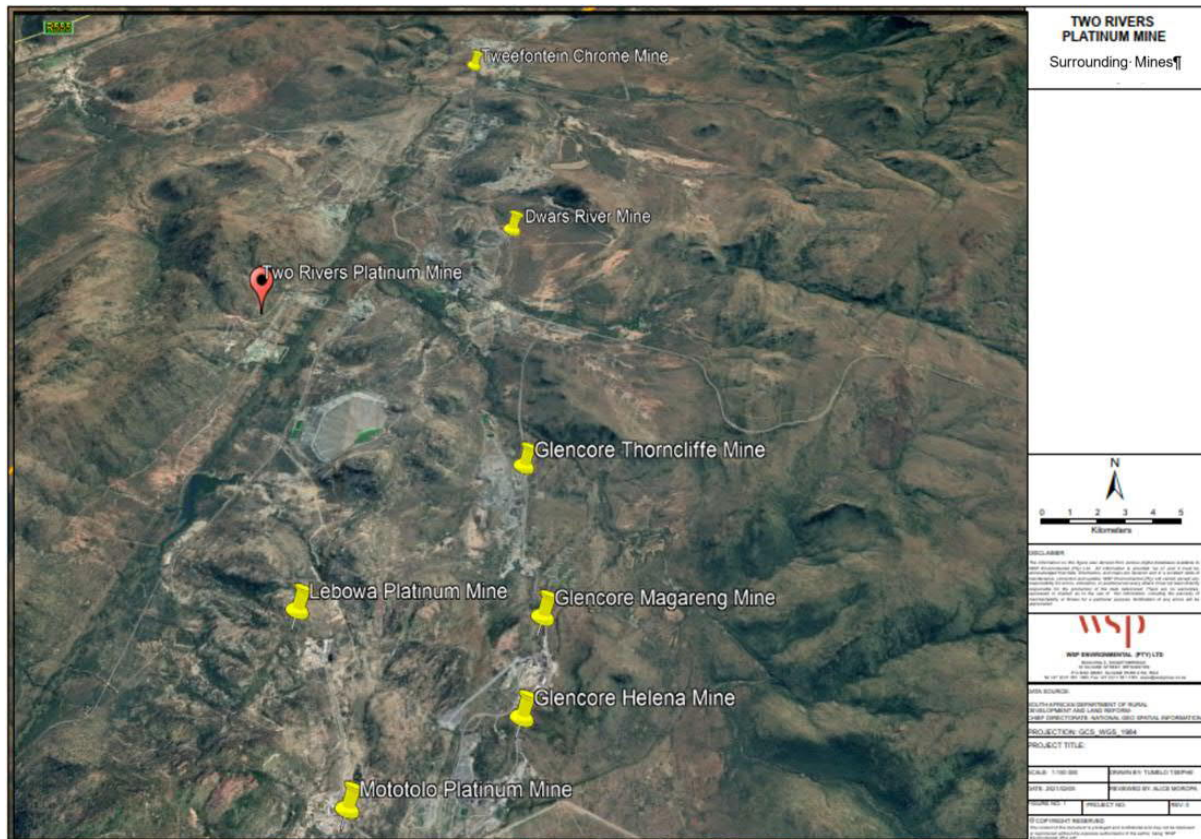


Figure 4-1: Project Locality

The site is located in a mining area and surrounded by several mines with the nearest residential communities approximately 10km to the north west of the site. TRP is surrounded by various other mining operations, including:

- Dwars River Chrome Mine, located immediately adjacent to TRP;
- Glencore Chrome Mines (Thorncliffe Mine, Helena Mine and Magareng Mine), located south-east of TRP;
- Lebowa Platinum Mine, located South of TRP; and
- Mototolo Platinum Mine (De Brochen Complex), located south of TRP.

Based on the desktop assessment of the regional area, other landuses around the area include:

- Rural settlements;
- Urban nodes (Steelpoort, Burgersfort and Mecklenburg);
- Agricultural holdings; and
- Conservation Areas and Tourism Areas.

The project site information is indicated in **Table 4-1** below.

Table 4-1: Cadastral Information of the Site

**DETAILS REQUIRED AS PER GN.R 326
ANNEX 1 (3)**

	DETAIL
21 Digit Surveyor General Code of each Cadastral Land Parcel	<ul style="list-style-type: none"> – T 0KT 0000 00000372 00001 – T 0KT 0000 00000372 00006 – T 0KT 0000 00000373 00002 – T 0KT 0000 00000373 00003 – T 0KT 0000 00000373 00007
Physical Address and Farm Name	<ul style="list-style-type: none"> – Portion 1 of Dwarsrivier, 372/KT – Portion 6 of Dwarsrivier, 372/KT – Portion 2 of De Grooteboom, 373/KT – Portion 3 of De Grooteboom, 373/KT – Portion 7 of De Grooteboom, 373/KT

4.2 PROPOSED PROJECT DEVELOPMENT ACTIVITIES

It was noted during the site assessment that all of the proposed developments as listed below will be undertaken within TRP’s existing mine right:

- The removal of the Merensky North Decline section from the approved EMPr; and addition of a 30m waste decline; a new conveyor will be constructed to move waste rock from underground to the existing waste rock dump (WRD);
- The amendment of the authorised new TSF from 90ha to 180ha;
- The amendment of a portion of the approved (but not yet constructed) TSF pipeline route. A section / portion of the TSF pipeline will be re-routed by 547m; and
- The construction of a new access road within the mine premises to run parallel to the re-routed section of the TSF pipeline.

The section below details the proposed development in relation to the existing authorisations. The location of the proposed project activities is indicated in **Figure 4-2** below.



Figure 4-2: Site Project Activities

4.2.1 AMENDMENT OF THE MERENSKY AND UG2 REEF AUTHORISATION

TRP holds an existing authorisation for the expansion of its operations (REF: 12/1/9/2-GS28, dated 13 July 2014) for the Merensky Main and North Declines on Portion 6 of the Farm Dwarsrivier 372 KT. The authorisation authorises the expansion of the current underground mining operations to mine additional areas of the UG2 reef, the development of declines (the Main and North declines) to extract ore from the overlying Merensky reefs, as well as the establishment of a new concentrator plant (**Figure 4-3**). Currently, only the Merensky Main decline has been established (**Figure 4-4**). TRP wishes to amend the existing authorisation to no longer establish the Merensky North Decline or the associated infrastructure. TRP intends to use the Main Decline to access the entire Merensky reef. In addition, TRP intends to add a waste decline at the Main Decline. It is proposed that waste rock will be transferred from the underground workings to the surface and then collected by haul trucks to the existing WRD.

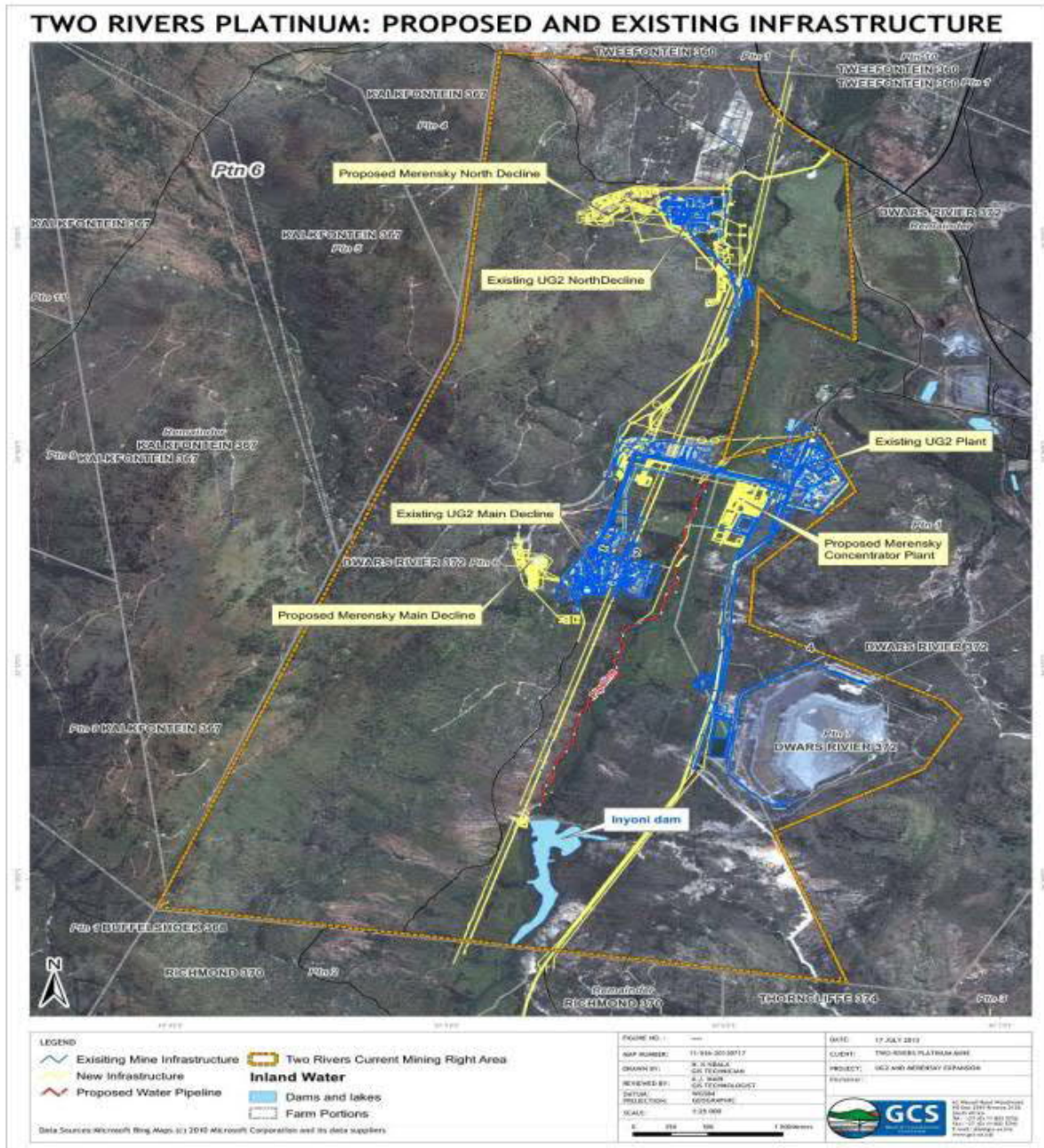


Figure 4-3: Location of the UG2 and Merensky Expansion (GCS, 2013)

TRP is authorised to expand the UG2 underground section and mine the overlying Merensky ore through the Merensky North and Merensky Main Declines. Referred to as the Merensky and UG2 Reef Environmental Authorisation (EA) (REF: 12/1/9/2-GS28).

TRP wishes to make the following amendments to its Merensky and UG2 Reef EMPR:

- Remove the Merensky North Decline section from the approved EMPR;
- The Merensky Main decline will be used to access the Merensky ore body; and
- Add a 30m waste decline at the Merensky Main decline for transferring of waste rock to the surface before it is collected by haul trucks to the existing WRD.



Figure 4-4: Existing Merensky Main Decline Entrance

The project site coordinates for the proposed changes are indicated **Table 4-2** below.

Table 4-2: Project Site Coordinates

POINT	LATITUDE	LONGITUDE
Merensky Main Decline Point	24°56'31.85"S	30°05'18.11"E
Waste Decline Point	24°56'32.18"S	30° 5'26.31"E

4.2.2 TSF EXPANSION

TRP were granted an EA (REF: 12/1/9/2-GS22) in 2014 and a Water Use Licence (WUL) (Licence No: 06/B41H/AJIGC/6098) for the construction of a new TSF (and the associated infrastructure) in 2017. They were also authorised to construct a 90ha TSF in the EA, however, 180ha was approved in the WUL. TRP proposes that the currently approved 90ha footprint in the EA be expanded to cover a footprint of 180ha as authorised in the WUL. The facility will be expanded further east to north- east, to a vacant area that is partially disturbed by the existing mining operations and partially covered by vegetation (classified as CBA).

The existing and authorised TSF site is located in **Figure 4-5** below.

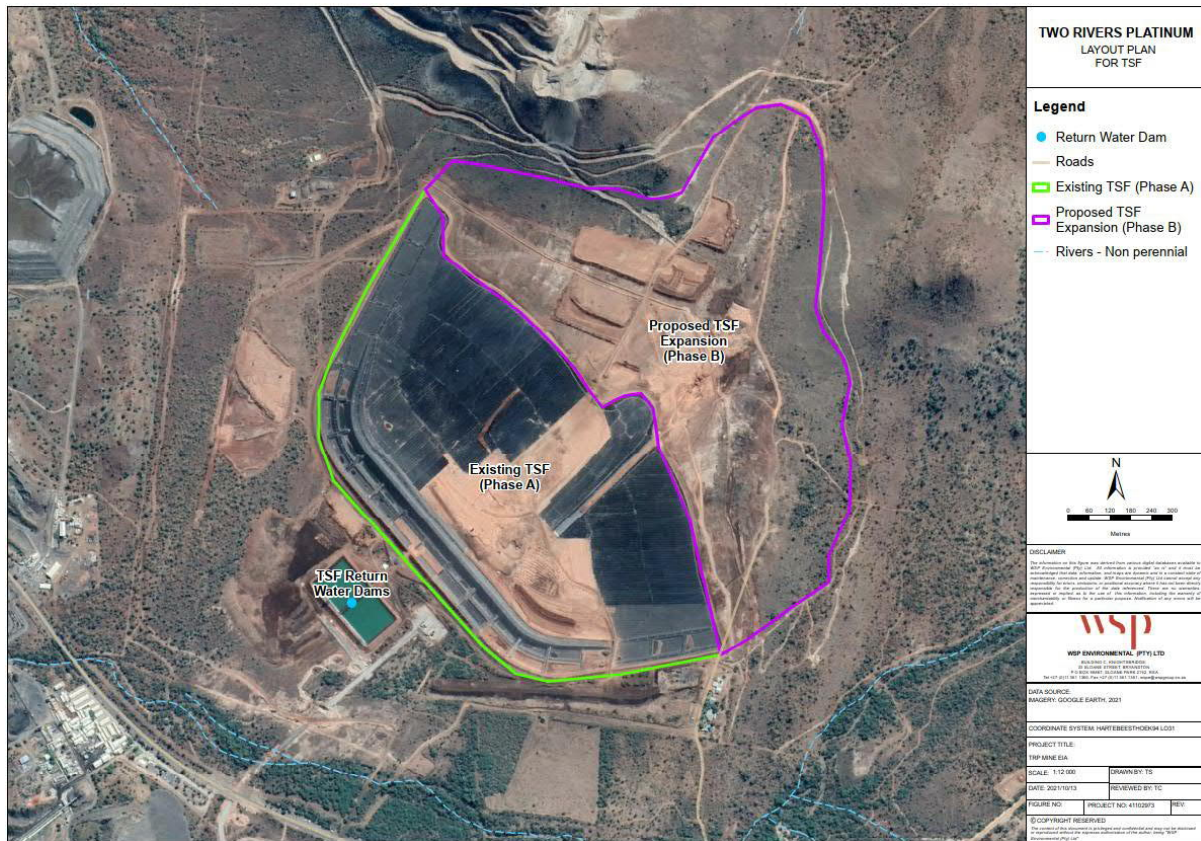


Figure 4-5: Existing and Authorised TSF Site

The infrastructures and structures included in the approved TSF EA:

- Water and slurry pipelines;
- Power lines;
- A medium-security boundary fence to prevent people and livestock from entering the TSF area;
- An unpaved gravel road to provide access to all areas of the site;
- A temporary storm water diversion trench to divert non-contaminated run-off from the upstream external catchment area;
- A topsoil stockpile;
- Catchment paddocks, along the downstream toe line of the started embankment, to collect surface runoff and silt load from the outer slopes;
- A return water dam (RWD);
- Floating barges and walkways;
- Contractor’s Camp and
- Fuel and diesel storage tanks.



Figure 4-6: TSF Expansion Area

The project site coordinates for the proposed changes are indicated **Table 4-3** below.

Table 4-3: Project Site Coordinates

SITE CORNER	LATITUDE	LONGITUDE
Centre Point	24°55'29.90"S	30°08'30.07"E

4.2.3 TSF PIPELINE RE-ROUTING

The EA issued for the new TSF (REF: 12/1/9/2-GS22) also authorised the construction of a slurry pipeline (and a steel gravity return water pipeline):

- 6km length;
- 0.24m internal diameter; and
- of 8 500 L/s peak throughput capacity.

TRP proposes to re-route a 547m portion of the pipeline to avoid a gravesite that has been identified on the approved route (**Figure 4-7**). The pipeline will be deviated by approximately 40m buffer from the gravesite, therefore, the new portion will be within the same study area.

Part of the originally approved area has been cleared in preparation for the construction of the pipeline, however, the area of interest for the proposed re-routing has been further studied to support this application.

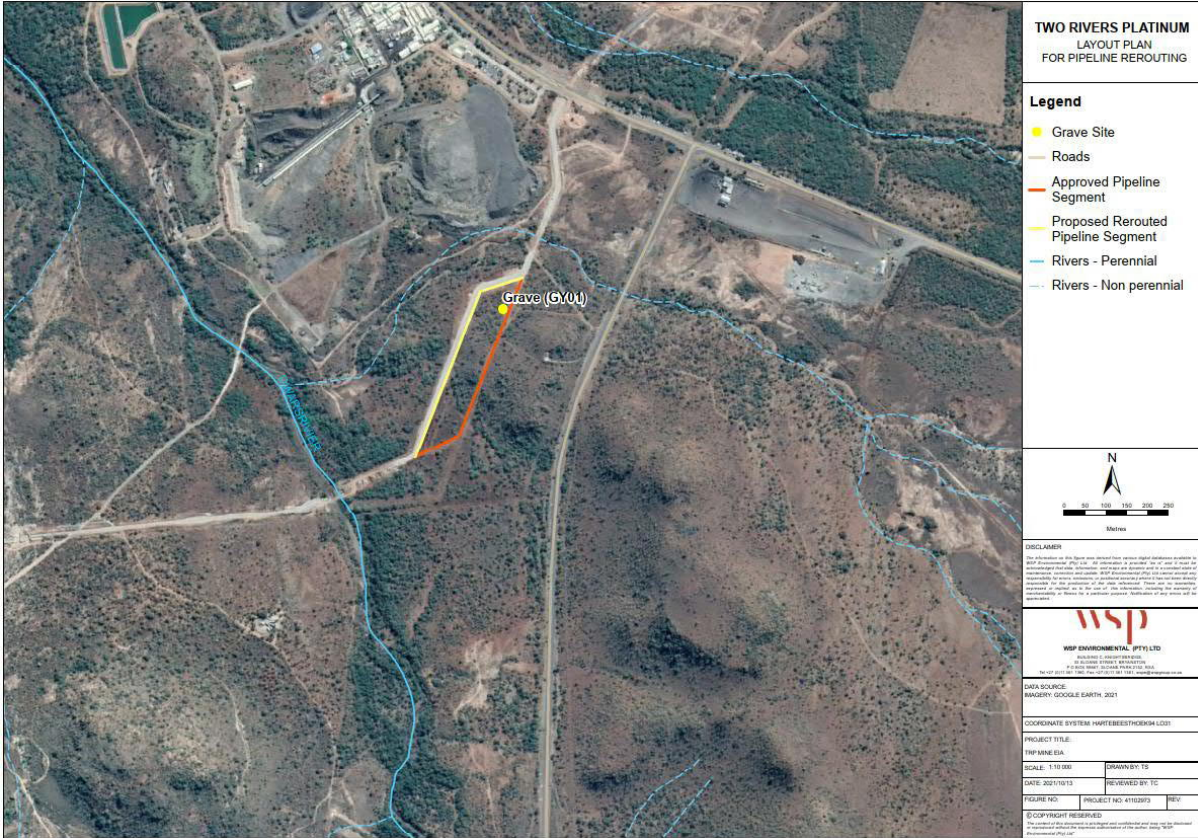


Figure 4-7: Approved (Red) and Newly Proposed Route of TSF Pipeline

The project site coordinates for the proposed rerouted pipeline segment are indicated in **Table 4-4** below.

Table 4-4: Proposed Rerouted Pipeline Segment Coordinates

SITE CORNER	LATITUDE	LONGITUDE
Starting Point	24°56'27.27"S	30° 7'38.06"E
Turning Point	24°56'28.32"S	30°07'34.11"E
End Point	24°56'41.14"S	30°07'28.48"E

5 NEED AND JUSTIFICATION

The proposed developments are to support TRP's plans for increasing the life of mine. The currently authorised plans for continued mining require the relevant support infrastructure in order to sustain the output from the mining. As such, the TSF expansion is necessary to ensure that all generated waste from mining is stored appropriately.

The proposed amendment to remove the authorisation of the currently approved Merensky North Decline is required as it is no longer necessary to develop this shaft since the entire Merensky reef can be accessed using the existing Main Decline. This allows for cost savings on the development and thus use the capital on other projects that can help extend the life of mine.

The rerouting of the pipeline is proposed as it ensures TRP avoids the identified gravesite but also allows the pumping of material from the TSF as per the currently approved pipeline route.

Local benefits of the proposed development include benefits to the local economy through possible job creation and local supplier procurement during the construction phase as well as during the operational phase of the development. Furthermore, the rerouting of the pipeline helps preserve heritage resources.

6 IDENTIFICATION OF ALTERNATIVES

6.1 NO-GO ALTERNATIVE

The no-go alternative is the option of not undertaking the proposed development and the continuation of the status quo. The following negative impacts would result:

- The approved mining operations will run out of sufficient space to store the generated tailings;
- There will be no economic boost in the region which would have fed into the industrial sector; and
- The anticipated job and skills development opportunities and employment the project presents will not be generated.

Although the no-go alternative sees the continuation of the status quo and leads to missed opportunities, there are positive impacts it provides. These include:

- All negative impacts discussed in Section 8 of this report are avoided;
 - The air quality of the area will not be further affected; and
 - There will be a potential to preserve any heritage and palaeontological resources in the area as the site is flagged as a high-risk area for palaeontological resources.
-

6.2 TECHNOLOGY

No alternative technology is considered for the project as the TSF technology being used on the existing TSF will be used for the expansion portion. There are no alternatives regarding the pipeline reroute as this is the best mode of transport for material from the TSF. The proposed waste decline at the Merensky Main Decline is required since the Merensky North Decline will no longer be developed.

6.3 LOCATION

No alternative site locations were identified for the proposed developments. Since TRP no longer wish to establish the Merensky North Decline or the associated infrastructure it intends to use the Main Decline to access the entire Merensky reef. In addition, the addition of a waste decline at the Main Decline allows for continued mining since the Merensky North Decline will not be developed. This will allow the waste rock to be transferred from the underground workings to the surface, via conveyor belt.

The most viable location for the proposed TSF expansion was considered to be to the north east of the existing TSF, thus enlarging the already disturbed footprints. This limits the amount of new area to be cleared for the new TSF as expansion of the existing footprint means the new TSF will be within the existing supporting infrastructure, and thus, will not require more clearance of new areas for support infrastructure. The existing TSF is currently surrounded by other infrastructure to the north, north west and the west, while there is a stream flowing to the south of the existing TSF. As such the area to the north east was considered viable as it avoids existing infrastructure and avoids the stream to the south.



Figure 6-1: Aerial Image of TSF Expansion Area

The proposed pipeline re-routing is only proposed for the area close to the gravesite, therefore, the proposed new route shifts slightly away from the approved route to be further away from the gravesite. The access road has to be next to the pipeline as it will be used by the maintenance team to manage the infrastructure.

6.4 TYPE OF ACTIVITY

TRP is a mining operation and the proposed activities support its current mining activities to increase the life of mine. As such, the activities cannot be substituted for other ones.

The pipeline re-routing is required to avoid the identified grave, as such, it is required to avoid impacting heritage sites.

The expansion of the TSF is required since TRP are extending the life of mine by accessing more ore bodies, as such, a bigger TSF footprint is required to contain the generated tailings overtime.

Lastly, TRP wish to amend the currently approved authorisation and remove the need to develop the Merensky North Decline, however, this is an administrative requirement. TRP intends to use the Main Decline to access the entire Merensky reef. In addition, TRP intends to add a waste decline at the Main Decline. It is proposed that waste rock will be transferred from the underground workings to the surface and then collected by haul trucks to the existing WRD.

7 DESCRIPTION OF THE BASELINE ENVIRONMENT

This section provides a description of the baseline environment of the project area. The descriptions encompass the geographical, physical, biological, social, economic, heritage and cultural aspects in accordance with Appendix 1 of GNR 982, as amended. The information in this section was obtained from the following sources:

- Visual Impact Assessment Report for Two Rivers Platinum Mine in Steelpoort, compiled by Outline Landscape Architects, dated June 2021.
- Phase 1 Archaeological and Cultural Heritage Impact Assessment Scan for Additional Activities Located Within the Approved Mining Right Area and Authorised, Two Rivers Platinum (Pty) Ltd on Portion 6 of Dwarsrivier Farm 372KT, Steelpoort, compiled by Outline Landscape Architects, dated June 2021.
- Ecological Assessment Report for Two Rivers Platinum Mine in Steelpoort, compiled by DEM Environmental Services & Projects, dated July 2021.
- Dwarsrivier 373KT TSF Pipeline Re-routing Biodiversity Assessment for Two Rivers Platinum Mine in Steelpoort, compiled by The Biodiversity Company, dated July 2021.
- Hydrogeochemical Model for the Two Rivers Platinum Mine, Mpumalanga, compiled by Aquatox Consulting, dated March 2021.
- Baseline Hydrology & Impact Assessment for the Two Rivers Platinum Mine, Mpumalanga, compiled by iLanda Water Services, dated June 2020.
- Air Quality Impact Assessment for the Two Rivers Platinum Mine Tailings Facility Expansion, Mpumalanga, compiled by WSP Group Africa, dated August 2021.
- Acoustic Environmental Impact Assessment for the Two Rivers Platinum Mine Tailings Facility Expansion, Mpumalanga, compiled by WSP Group Africa, dated August 2021.
- Hydrogeological Assessment for the Two Rivers Platinum Mine Tailings Facility Expansion, Mpumalanga, compiled by GCS Water & Environmental Consultants, dated August 2021.
- Social Impact Assessment Report for the Two Rivers Platinum Mine, Mpumalanga, compiled by Geo-Environmental and Technical Services.

7.1 CLIMATE

According to the Köppen-Geiger classification of climate zones (Köppen 1936) the project area falls within the climate classified as Bsh = Hot semi-arid climates, this climate is characterised by relatively hot summers, mild winters and relatively low precipitation levels. The area is characteristically warm with erratic and extremely variable rainfall. The area receives summer rainfall and experiences extremely dry winters, with infrequent frost. Rainfall in the area of the Steelpoort valleys is low, around 500 mm per year. The average daily temperature ranges from a minimum of -0.9°C to a maximum of 37.3°C in the Steelpoort area (Mucina & Rutherford 2006), with an average of approximately 21°C.

Figure 7-1 below shows the monthly temperatures, precipitation and wind speeds in Steelpoort.

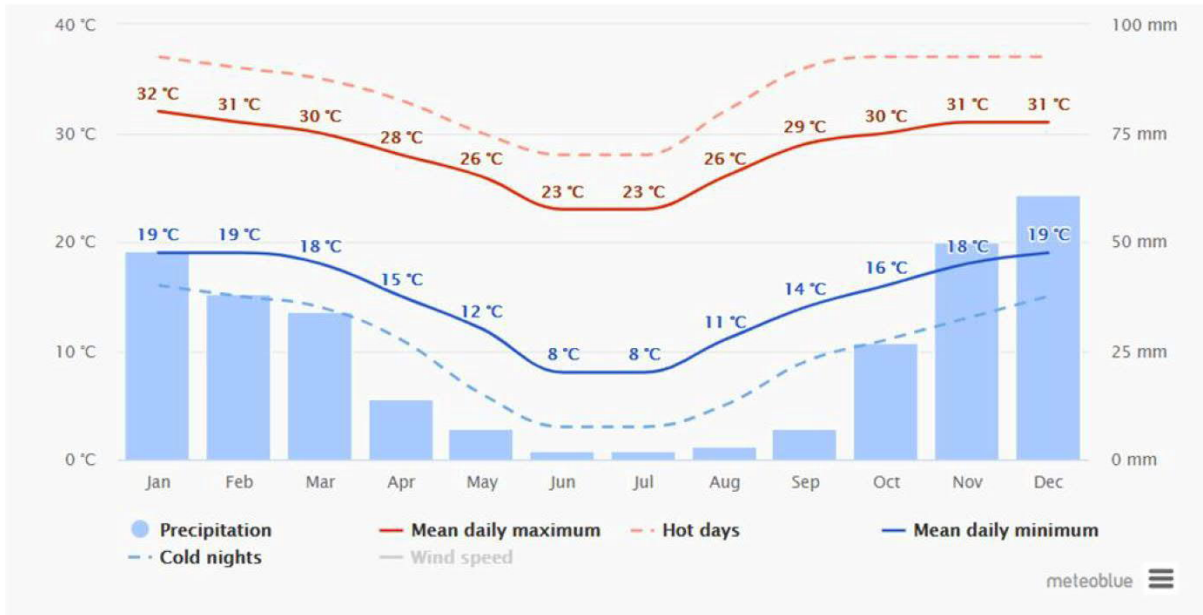


Figure 7-1: Steelpoort Monthly Temperatures, Precipitation and Wind speed (Meteoblue, 2021)

7.1.1 LOCAL WIND FIELD

Based on the available meteorological data, winds originate predominantly from the north east. Wind speeds are generally slow to moderate. Calm conditions, which are defined as wind speeds less than 1 m/s, occur infrequently. Monsoons create steady strong winds on the Tibetan Plateau from December to April, but calm winds from June to October. The chart in **Figure 7-2** below shows the days per month for wind speed around the Steelpoort area.

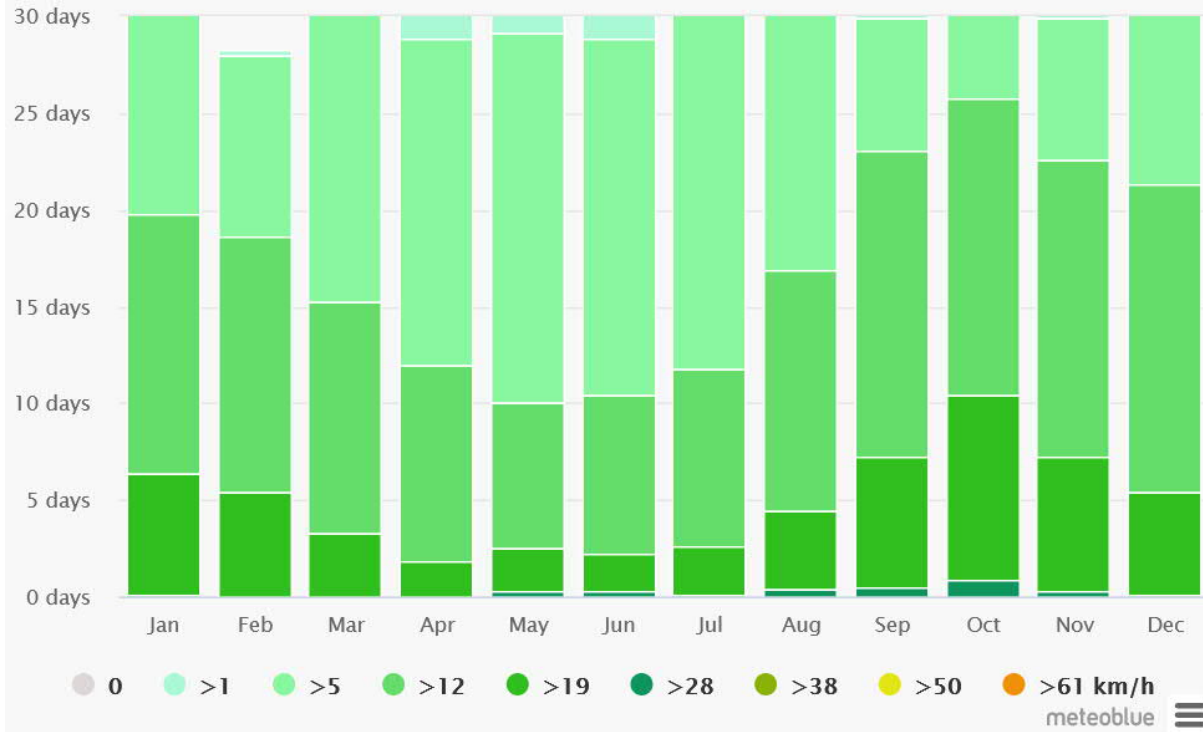


Figure 7-2: Steelpoort Wind Speed Chart (Meteoblue 2021)

The wind rose in **Figure 7-3** below shows how many hours per year the wind blows from a particular direction around the Steelpoort area.

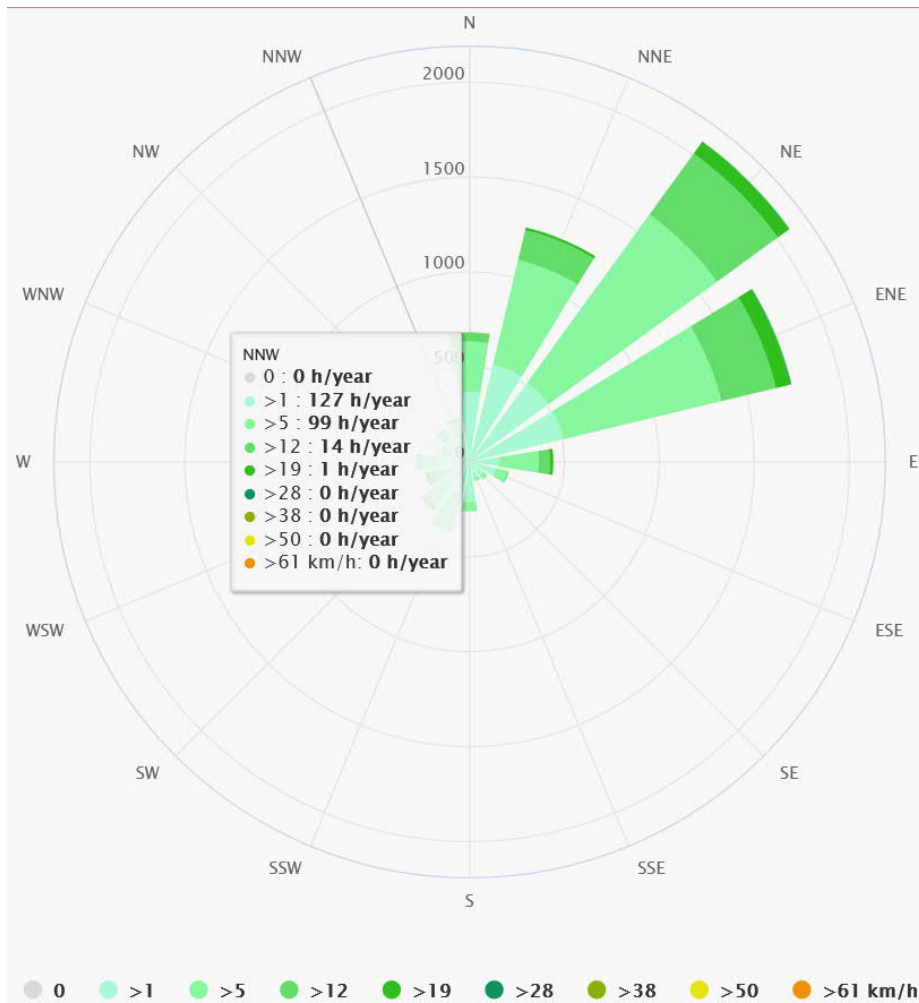


Figure 7-3: Steelpoort Wind Rose (Meteoblue 2021)

7.1.2 BASELINE RAINFALL AND EVAPORATION

The mean annual precipitation of the mine lease area is 683 mm. The mean annual evaporation of the mine lease area is 1 500 mm (S-Pan). The monthly average rainfall, rainfall days, and evaporation rates are presented in Table 1. The mine lease area has distinct wet and dry seasons. 92% of the proposed mine's mean annual rainfall falls between October and April inclusively. 68% of the area's mean annual evaporation occurs during this period (Midgley et al., 1990). November to April is wetter than May to October in the study area.

7.1.3 MEAN ANNUAL RAINFALL

The mean annual runoff (mar) for the quaternary catchments B41G and B41H is 24.48 Mm³ and 6.32 Mm³ respectively (Middleton and Bailey, 2009). The mean annual runoff values for the Klein Dwarsrivier were scaled from the quaternary catchment B41G runoff, based on relative catchment size. The mean annual runoff values for the Dwarsrivier were scaled from the weighted average quaternary catchment B41G and B41H runoff, based on relative catchment size. The catchment boundaries and sizes are shown in **Figure 7-4**.

Precipitation occurs mainly in the summer months peaking in January. Most of the rainfall results from thunderstorms and short duration bursts can be expected. Most of the thunderstorms occur in the late afternoons and evenings. The lower 95th percentiles, representing a 1:20 year drought is 236 mm/a and the upper 95th percentile, representing a 1:20 year flood is 901 mm/a.

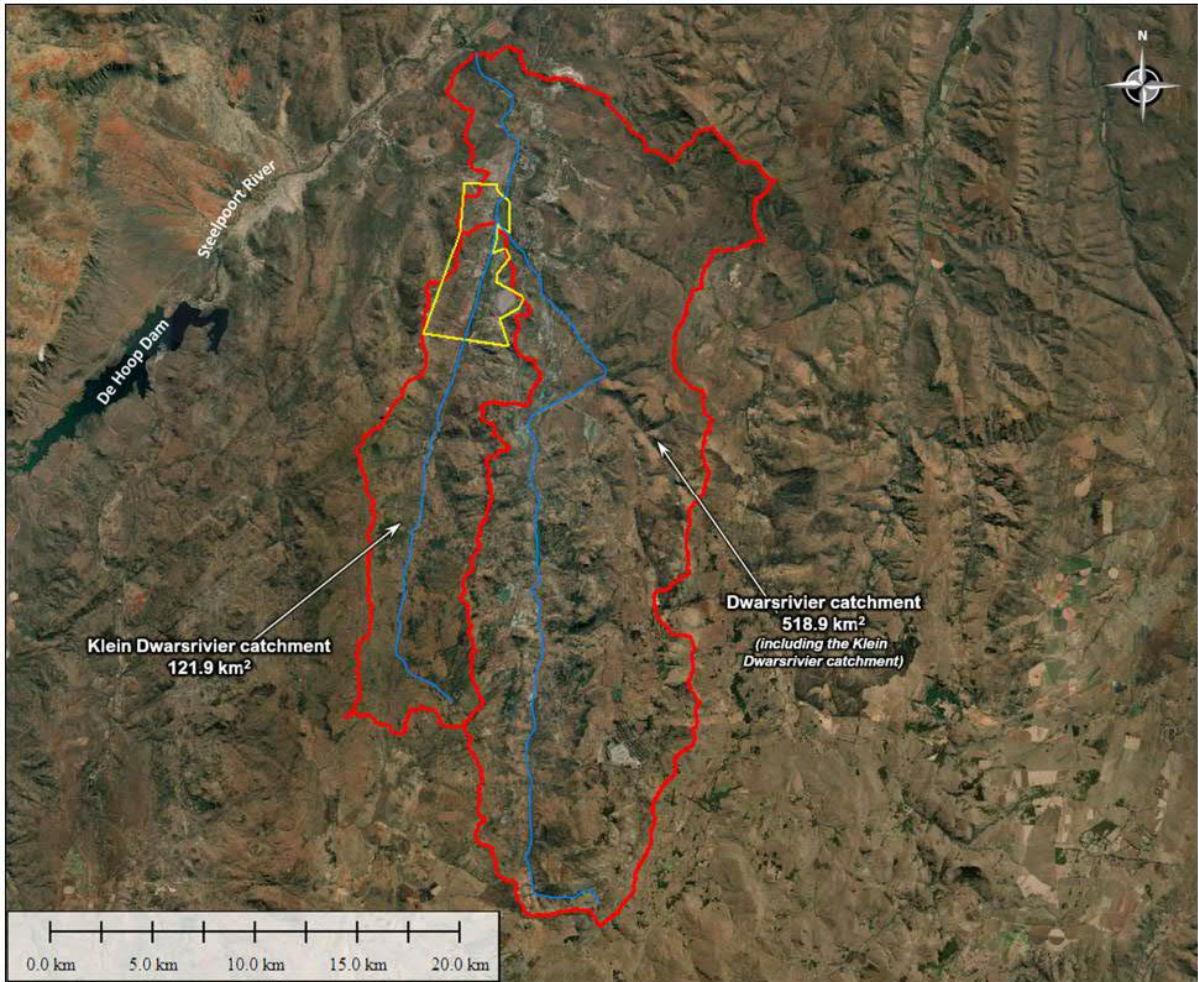


Figure 7-4: Catchment Delineation

7.2 TOPOGRAPHY

The study area is generally characterised by steep slopes of the hills in the project area, as such, there is limited settlement and land development has occurred in the study area.

The topography of the site is illustrated in **Figure 7-5** below.

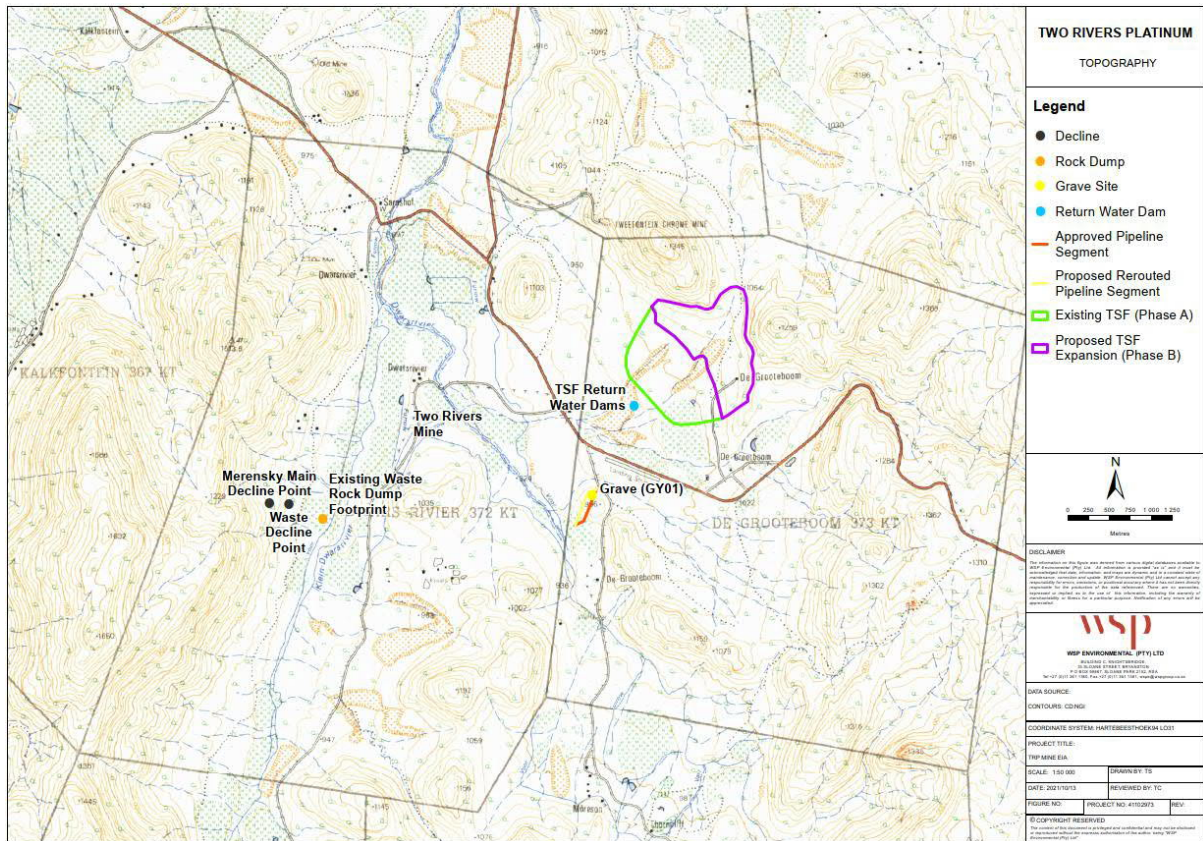


Figure 7-5: Topographical Map

7.3 GEOLOGY AND SOILS

The area mostly overlies the mafic intrusive rocks of the upper and Main zones of the Rustenburg layered suite (RLS), which is economically the most important part of the Bushveld Igneous Complex (Vaalian Erathem). The west of this area is dominated by diorite and gabbro (often magnetite-rich) of the Roossenekal Suite, whereas the east is dominated by gabbro and norite of the Dsjate Subsuite. In the extreme north-east of the area are metasediments of the Pretoria Group (also Vaalian Erathem) that were metamorphosed by the intrusion of the Bushveld Igneous Complex. Substrates of the undulating hills are generally heterogeneous rocky areas with miscellaneous soil types and those of the southern plains have diagnostic horizons that are vertic, melanic or red-structured. Dominant soil forms have high clay content and include Arcadia, Mayo, Milkwood, Mispah, Shortlands and Steendal. Ea land type covers 40% of the area, with minor occurrences of Ib and Ab (Mucina and Rutherford, 2006).

The regional geology is illustrated in Figure 7-6 below.

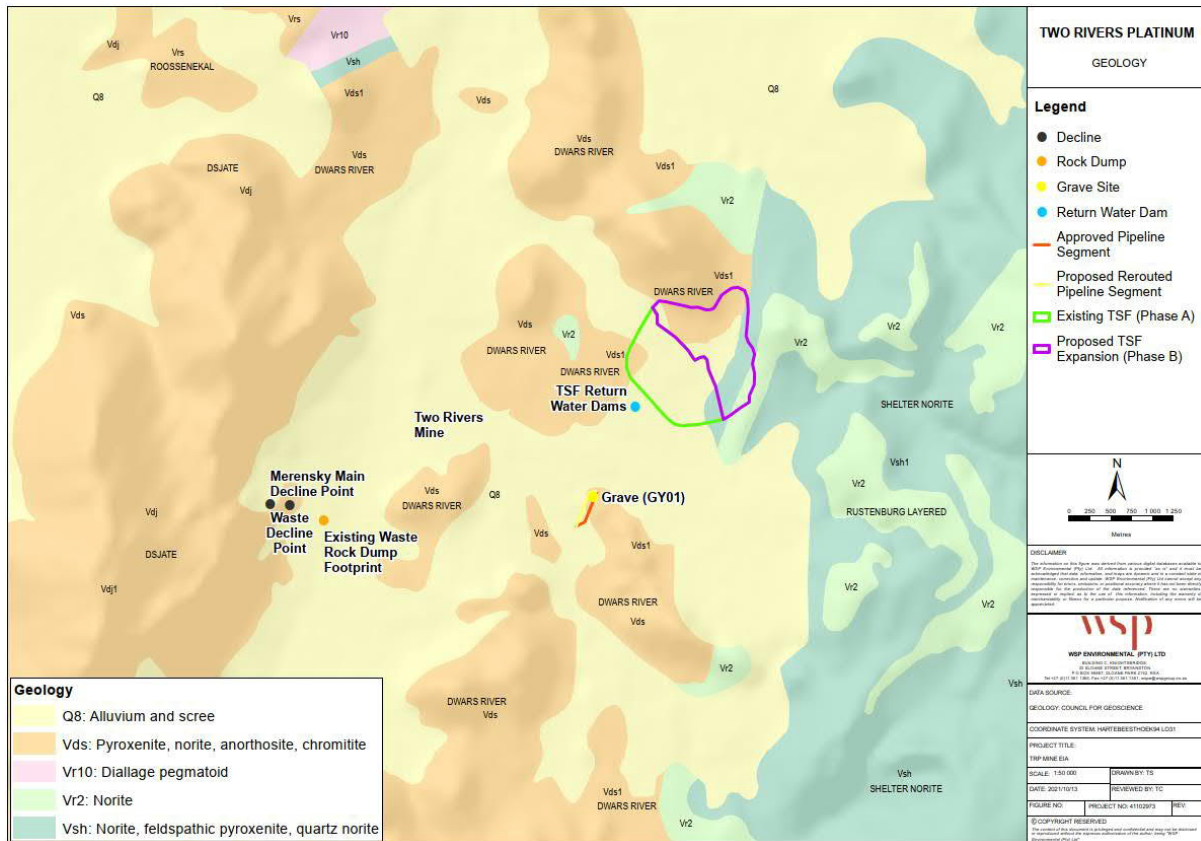


Figure 7-6: Regional Geology Map

7.4 AIR QUALITY

7.4.1 LOCALITY AND STUDY SITE

TRP is located on the farm Dwarsrivier 373 KT on the southern part of the eastern limb of the Bushveld Complex. The mine is situated approximately 27km south of Steelpoort and 35km south-west of Burgersfort within the Fetakgomo Tubatse Local Municipality, Limpopo Province (**Figure 7-7**). The municipality contains an abundance of precious mineral deposits with mining activity being predominant in the area. The mining related developments follow the eastern limb of the bushveld complex (which contains some of the world’s largest Platinum Group Metals (PGM) reserves) from the Der Brochen in the south to Twickenham mines in the north and beyond the local authority boundary.

TRP is surrounded by various other mining operations on the eastern bushveld complex including:

- Dwars River Chrome Mine, located immediately adjacent to the TRP;
- Glencore Chrome Mines (Thorncliffe Mine, Helena Mine and Magareng Mine), located south-east of TRP;
- Lebowa Platinum Mine, located South of TRP; and
- Mototolo Platinum Mine (De Brochen Complex), located south of TRP.

Sensitive receptors (i.e. places where sensitive individuals may be impacted, such as residences, schools and medical facilities) within a 10 km radius of the study site that have been selected for evaluation in this impact assessment are listed in **Table 7-1** below.

Table 7-1: Sensitive receptors

ID	Receptor Name	Distance from TRP (km)	Longitude (°S)	Latitude (°E)
1	SR1 (Informal Village)	3.1	30.064630	24.888581
2	SR2 (Informal settlement)	4	30.127585	24.973693
3	TRP Lodge	4.1	30.1435493	24.939740
4	SR3 (Informal Settlement)	6	30.119396	24.869117
5	Didingwe River Lodge	6.4	30.036795	24.868604
6	Kokwaneng	9.8	30.001313	24.905408
7	Ga- Mampuru	10	30.062794	24.846185

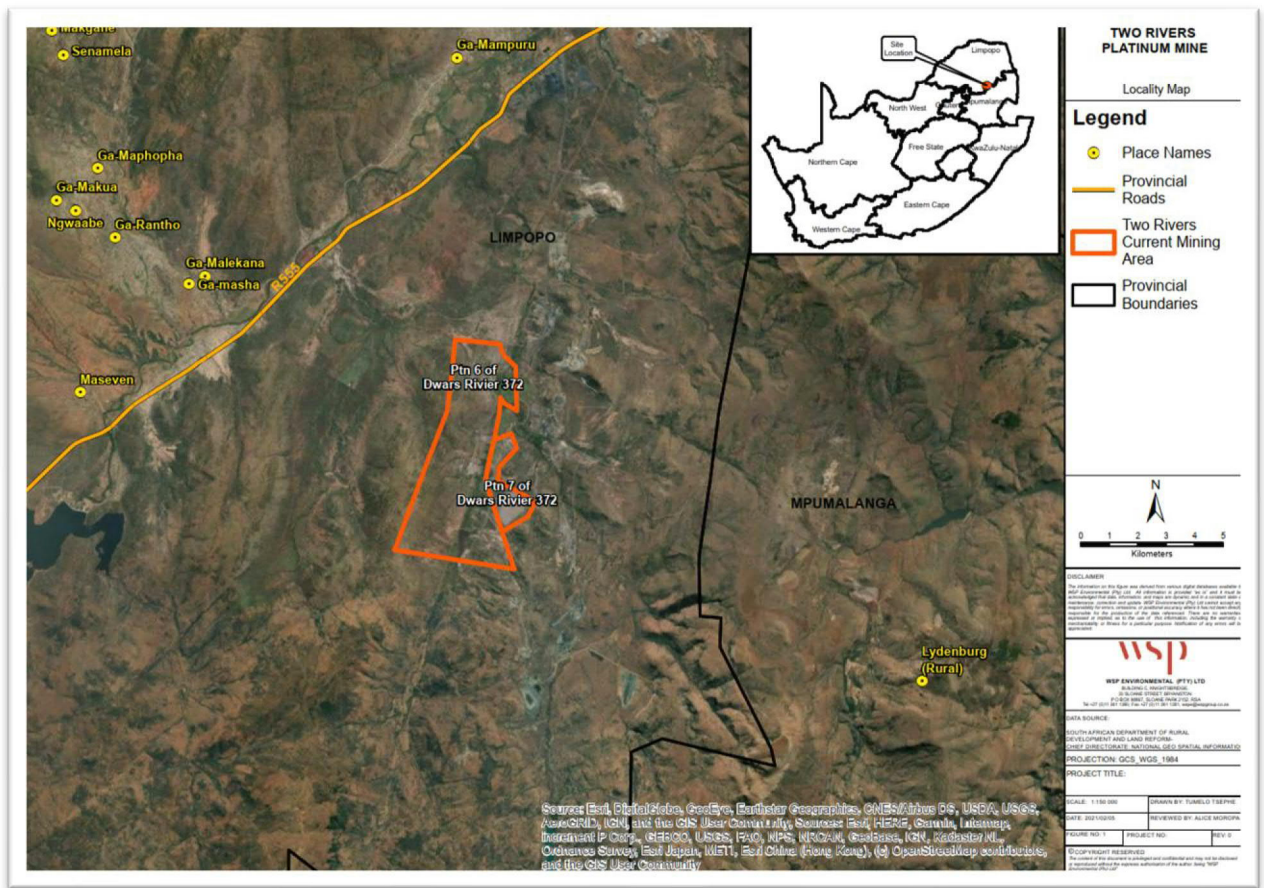


Figure 7-7: Location of TRP Mine

7.4.2 POLLUTANTS OF CONCERN AND ASSOCIATED HEALTH CONCERNS

The composition of air pollutant mixtures, pollutant concentrations, duration of exposure and other susceptibility factors (e.g. age, nutritional status and pre-existing conditions) can lead to diverse impacts on human health.

Health effects can range from nausea and skin irritation to cancer and mortality¹. High risk individuals include the elderly, people with pre-existing heart or lung disease, pregnant women, asthmatics and children. Possible health implications associated with pollutants applicable to the operation of TRP and proposed TSF expansion are summarised in **Table 7-2** below.

Table 7-2: Applicable air pollutants and associated human health impacts

Pollutant	Description	Health effects
Particulate Matter (TSP, PM ₁₀ & PM _{2.5})	<p>Particulate matter (PM) refers to solid or liquid particles suspended in the air. PM varies in size from particles that are only visible under an electron microscope to soot or smoke particles that are visible to the human eye.</p> <p>Particles can be classified by their aerodynamic properties into coarse particles, PM₁₀ (particulate matter with an aerodynamic diameter of less than 10 µm) and fine particles, PM_{2.5} (particulate matter with an aerodynamic diameter of less than 2.5 µm)².</p> <p>In addition to reduced visibility, particulate air pollution poses major health risks associated with the respiratory system³. Particle size is important for health because it controls how far into the respiratory system particles can permeate. Fine particles have been found to be more damaging to human health than coarse particles as larger particles are less respirable in that they do not penetrate deep into the lungs compared to smaller particles⁴. PM_{2.5} could enter the bloodstream via capillaries in the lungs with the potential to be laid down as plaques in the cardiovascular system or brain⁵.</p>	<ul style="list-style-type: none"> – Increase in lower respiratory symptoms; – Reduced lung function; – Inflammation of the lungs; – Angina; – Myocardial infraction; – Bronchitis; and – Mortality.

7.4.3 METEOROLOGICAL CONTEXT

Seasonal and diurnal pollutant concentration levels fluctuate in response to the changing state of atmospheric stability, to concurrent variations in mixing depth and to the influence of mesoscale and macroscale wind systems on the transport of atmospheric contaminants. This section provides an overview of the atmospheric circulations influencing airflow and the subsequent dispersion and dilution of pollutant concentrations in the study area.

MACROSCALE ATMOSPHERIC CIRCULATION

South Africa's climate and weather is controlled by three semi-permanent, subtropical high-pressure cells that dominate the sub-continent throughout the year. These anticyclonic circulations form part of the discontinuous high-pressure belt that circles the southern hemisphere at approximately 30°S, occur above the 700 hPa level

¹ Kampa, M., and Castanas, E. (2007): *Human health effects of air pollution*, Environmental Pollution 151 (2008) 362-367, Elsevier

² Harrison, R.M. and R.E. van Grieken, (1998): *Atmospheric Aerosols*. John Wiley: Great Britain

³ World Health Organization (2000): *Air Quality Guidelines for Europe* (2nd edition), Copenhagen, Denmark. (WHO Regional Publications, European Series, No 91)

⁴ Manahan, E. (1991): *Environmental Chemistry*.

⁵ US EPA (2011): *Emissions Factors & AP 42*, Compilation of Air Pollutant Emission Factors. URL: <http://www.epa.gov/ttn/chief/ap42/index.html#toc>.

(above 3000 m above sea level)⁶ and are known as the South Indian Anticyclone, the Continental High and the South Atlantic Anticyclone (**Figure 7-8**). Seasonal changes in the intensity and position of these high-pressure cells, together with the influence of tropical easterly lows and travelling circumpolar westerly waves drive South Africa's prevailing temperature and precipitation patterns⁷.

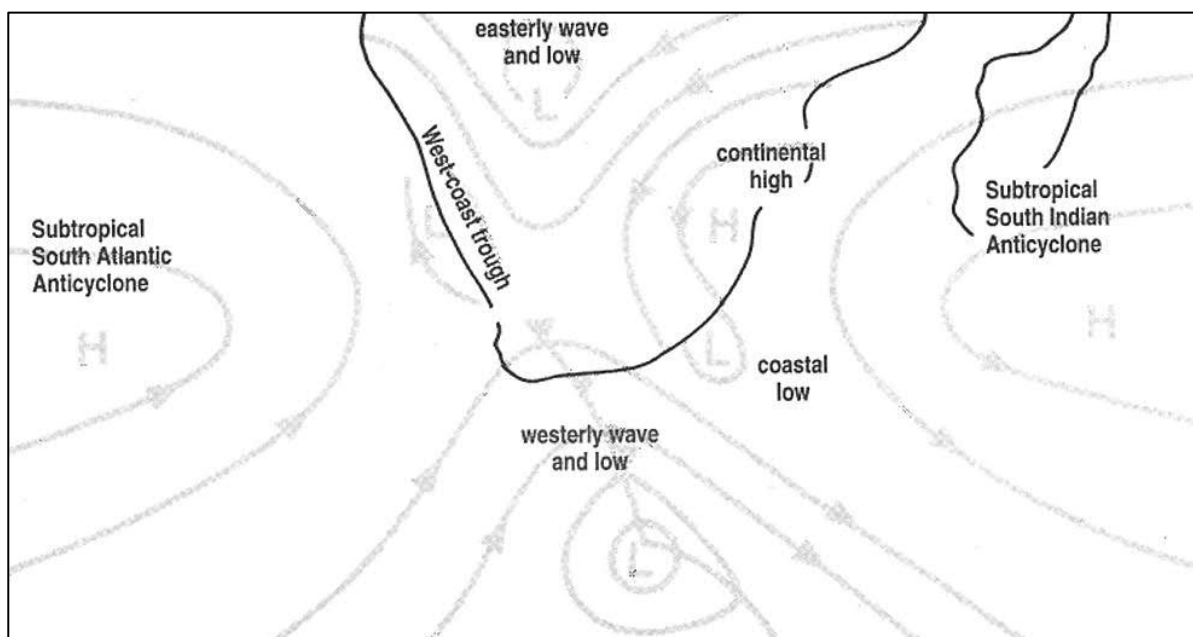


Figure 7-8: Atmospheric circulation over Southern Africa (Tyson and Preston-Whyte, 2000)

Anticyclonic systems are associated with subsidence, which produce conditions of increased stability, suppressing precipitation and increasing the prevalence of dry spells. These conditions are highly favourable for the formation of both elevated and surface inversions. Elevated inversions, also known as *absolutely stable layers*, limit the vertical transport of pollution and occur over South Africa's interior plateau, at 700 hPa, 500 hPa and 300 hPa while between the escarpment and the coastline, the *absolutely stable layer* forms at 800 hPa⁸.

Perturbations of the semi-stationary easterly waves take the form of open waves or closed lows which are associated with surface convergence and upper air divergence. This results in strong uplift, instability and sustained rainfall while surface divergence and upper air convergence on either side of the cyclonic system occurs, ensuring clear, dry conditions. These tropical disturbances are associated with copious rains if airflow has a northerly component and are mainly a summer phenomenon peaking during the months of December to February⁹.

Westerly perturbations are recognised as including westerly waves, cut-off lows, southerly meridional flow, ridging anticyclones, west-coast troughs and cold fronts. Although classed as discreetly occurring phenomena, this is often not the case as they will change or merge from one into the other. These cyclonic systems are associated with surface convergence and upper-level divergence, resulting in stable conditions ahead of the system with cloud and precipitation following behind. These systems tend to follow a south-easterly trajectory as they move into the Indian Ocean. Perturbations occur most frequently in winter and bring cool weather due to airflow from the south and southwest¹⁰.

⁶ Turner, C.R., Tosen, G.R. and Lennon S.J. (1995): *Atmospheric Pollution and Climate Change Impacts in South Africa*. Tytskrif vir Skoon Lug. Vol. 9 - No. 4

⁷ Tyson, P.D and Preston-Whyte, R.A., 2000: *The Weather and Atmosphere of Southern Africa*, Oxford University Press, Cape Town.

⁸ Tyson, P. D., Garstang, M., Swap, R., Kallberg, P. and Edwards, M. (1996): *An air transport climatology for subtropical Southern Africa*. Int. J. Climatol. 16 265-291

⁹ Tyson, P.D and Preston-Whyte, R.A., 2000: *The Weather and Atmosphere of Southern Africa*, Oxford University Press, Cape Town.

¹⁰ Tyson, P.D and Preston-Whyte, R.A., 2000: *The Weather and Atmosphere of Southern Africa*, Oxford University Press, Cape Town.

7.4.4 AMBIENT AIR QUALITY

Ambient air quality monitoring data has been provided by TRP for use in this assessment. Available data includes monthly dust fallout (DFO) monitoring from January 2019 to May 2021.

DUST FALLOUT MONITORING

Deposition of large (>10 µm) solid particulates is a function of the airborne concentration and the particle gravitational speed. The monitoring of fugitive dust is therefore conducted principally by passive dust deposition gauges, whereby an open-mouthed container is partially filled with water and exposed for a designated period. The container is then collected, and the insoluble particles are removed by filtering the water and weighing, whilst the soluble particle mass is determined after evaporation of a sample of the filtered solution. This is a standardised sampling technique in South Africa, commonly referred to as ‘bucket-monitoring’ that was originally derived from the American Society for Testing and Materials standard method for collection and analysis of dust fallout (ASTM D1739). It has now been defined in the local context as a South African National Standard (SANS 1929:2005/2009).

Dust fallout monitoring at TRP has been historically undertaken at six monitoring locations using non-directional single unit buckets. All monitoring locations are classified as non-residential and thus subject to the permissible DFO rate for non-residential areas (1,200 mg/m³/day) only. DFO rates are also compared to permissible DFO rates for residential zoning for additional context.

Table 7-3: Classifications for each monitoring location.

Locality	Description	Classification
Site A	South pot	Non- residential
Site B	Middle pot	Non- residential
Site C	North decline pot	Non- residential
Site D	Tailings dam	Non- residential
Site E	Plant area	Non- residential
Site F	New tailings dam (installed February 2021)	Non- residential

Dust fallout results for the January 2019 to May 2021 monitoring period are presented below. **Figure 7-9** shows dust fallout rates during the 2019 monitoring period. All sites were compliant with the National Dust Control Regulation (NDCR) for non-residential sites. Exceedances of the residential standard were recorded at Site B (Middle Pot) and Site C (North decline pot) during February and March respectively. These monitoring locations, however remained compliant with the NDCR for residential sites.

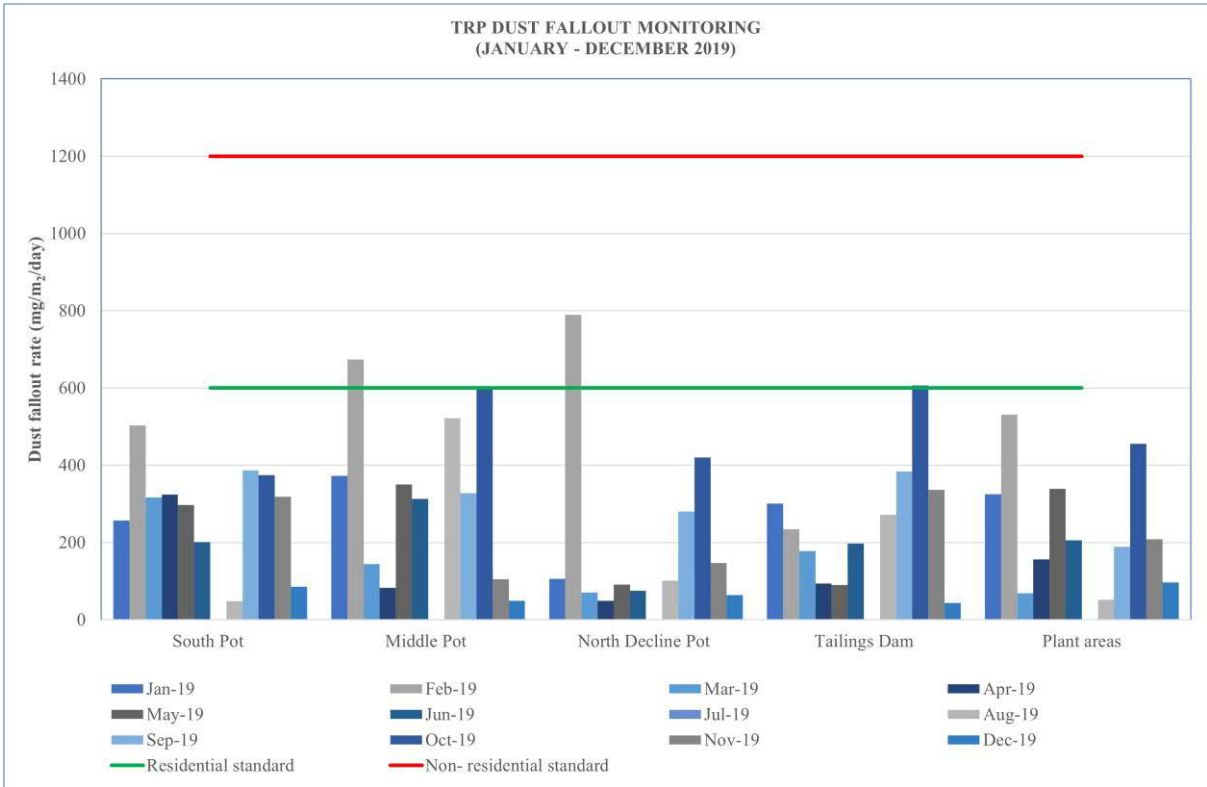


Figure 7-9: TRP Onsite dust fallout results for 2019

Figure 7-10 illustrates the dust fallout monitoring results for 2020. There are no monitoring results for the month of October due to contamination of sample. One exceedance was recorded at Site A (South pot) in March. Despite this exceedance, fallout at Site A (South Pot) remains compliant with the standard as two non-sequential exceedances are permitted per 12-month rolling period. All monitoring sites remain compliant with the NDCR. The residential standard was exceeded at all locations: Site A (March, May and November), Site B (September, November and December), Site C (January, February, December), Site D (February, March, November and December) and Site E (May and July).

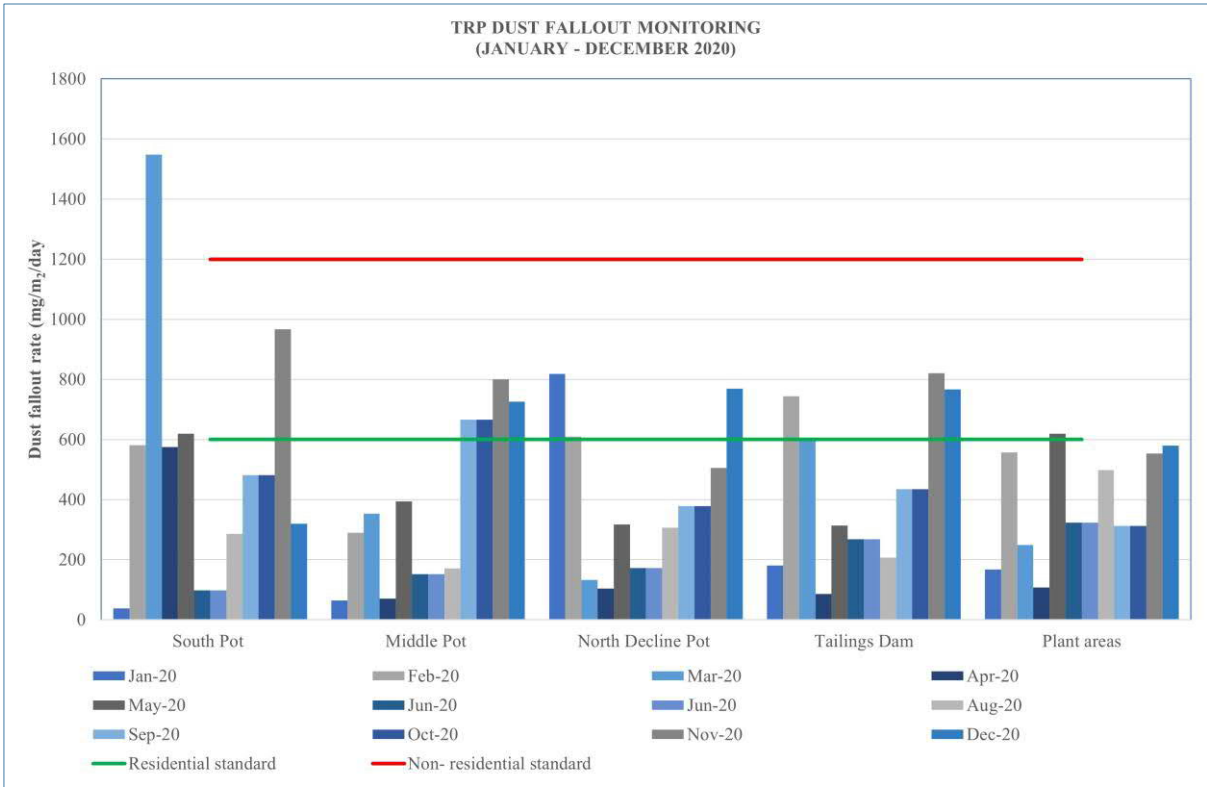
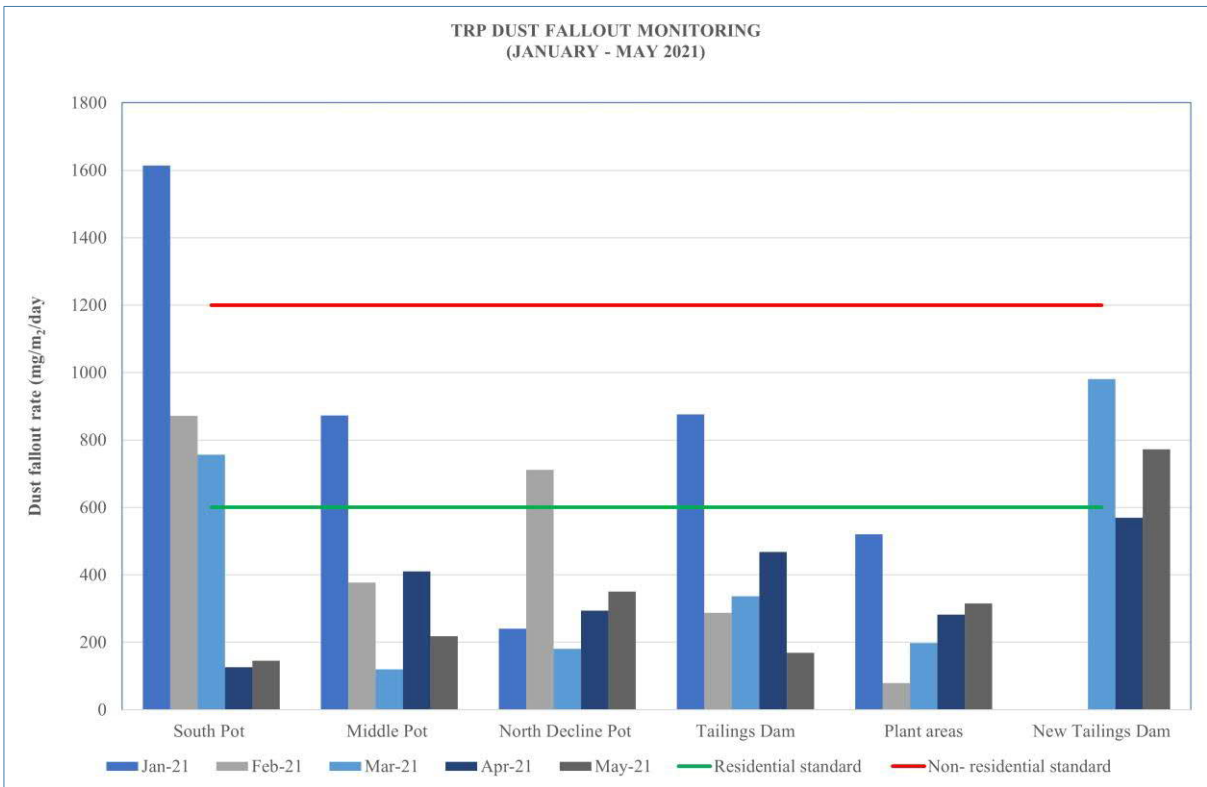


Figure 7-10: TRP Onsite dust fallout results for 2020

Figure 7-11 below illustrates the 2021 DFO rates measured to date. A new non-residential site was commissioned in February: Site F (New tailings dam). One exceedance of the non-residential standard was recorded at Site A (January); however, all sites remain compliant as two non -sequential exceedances are permitted per 12- month rolling period. of the NDCR.



7.4.5 EXISTING SOURCES OF EMISSIONS

Possible emission sources identified in the TRP area that contribute towards air quality status quo include; mining, agriculture, domestic fuel burning and vehicle tailpipe emissions along nearby roads.

MINING AND AGRICULTURAL ACTIVITIES

Mining is the predominant land use within the surrounding area, with existing and operational chrome and platinum mines in the surrounding area. Expected fugitive emissions from mining include land clearing operations, material handling and processing, vehicle entrainment from haul roads, wind erosion from open areas and storage piles, and drilling and blasting give rise to fugitive dust (USEPA, 1995).

Additionally, agriculture is also one of the dominant lands uses within the surrounding area, comprising mostly in the form of stock grazing and the production of vegetables, lucerne and cotton.

Emissions from agricultural activities are difficult to control due to the seasonality of emissions and the large surface area producing emissions¹¹. Expected emissions resulting from agricultural activities include particulates associated with wind erosion, ploughing and burning of crop residue, chemicals associated with crop spraying and odiferous emissions resulting from manure, fertilizer and crop residue.

Dust associated with agricultural practices may contain seeds, pollen and plant tissue, as well as agrochemicals, such as pesticides. The application of pesticides during temperature inversions increases the drift of the spray and the area of impact. Dust entrainment from vehicles travelling on gravel roads may also cause increased particulates in an area. Dust from traffic on gravel roads increases with higher vehicle speeds, more vehicles and lower moisture conditions.

These are the most likely contributors of fugitive emissions from agricultural activities. However, it is noted that fugitive emissions from agricultural activities generally have confined impacts near to the source, limiting the regional impacts.

DOMESTIC FUEL BURNING

It is anticipated that certain low-income households such as informal settlements are likely to use coal and wood for space heating and/or cooking purposes. Domestic fuel burning by these household also contributes to background concentration of Particulates.

7.5 SURFACE WATER

7.5.1 LOCAL SETTING

The mine lease area measures over 21.4 km². The Klein Dwarsrivier runs in a northerly direction through most of the mine lease area. All the currently operational mining infrastructure is located within the mine lease area. The De Grooteboom TSF and the pipelines that link the TSF to the mine are located outside of the mine lease area. Despite all this infrastructure, the mine lease area remains mostly undeveloped. The undeveloped areas consist mainly of grasslands and bush areas. No agricultural activities are present within the mining rights area.

¹¹ US EPA (2011): Emissions Factors & AP 42, Compilation of Air Pollutant Emission Factors. URL: <http://www.epa.gov/ttn/chief/ap42/index.html#toc>

The mine overlaps the boundaries of quaternary catchments B41F, B41G and B41H. The applicable water management area is the Olifants River management area. The Klein Dwarsrivier flows directly west of the tailings facility in a northerly direction through the mining area. From the tailings facility, the Klein Dwarsrivier flows north for approximately 3 km where it confluences with the Dwarsrivier. The Dwarsrivier then meanders for approximately 10 km north passing several other mining activities until its confluence with the Steelpoort River. The Steelpoort River is a major tributary of the east flowing Olifants River.

The Dwarsrivier forms a small section of the mine lease area boundary, just upstream of its confluence with the Klein Dwarsrivier. Richmond Dam is on the Klein Dwarsrivier, in the southern portion of the mine lease area.

The Dwarsrivier and Klein Dwarsrivier are marked as perennial rivers on the 50 000 topo sheets. Both rivers were flowing during the site visit conducted in late June 2021. A number of small tributaries flow west to east into the Klein Dwarsrivier and Dwarsrivier in the mine lease area. These tributaries are fed by stormflow and interflow from the mountains to the east of the mine lease area. These tributaries were dry during the site visit.

The hydrological local setting is indicated in **Figure 7-12** below.

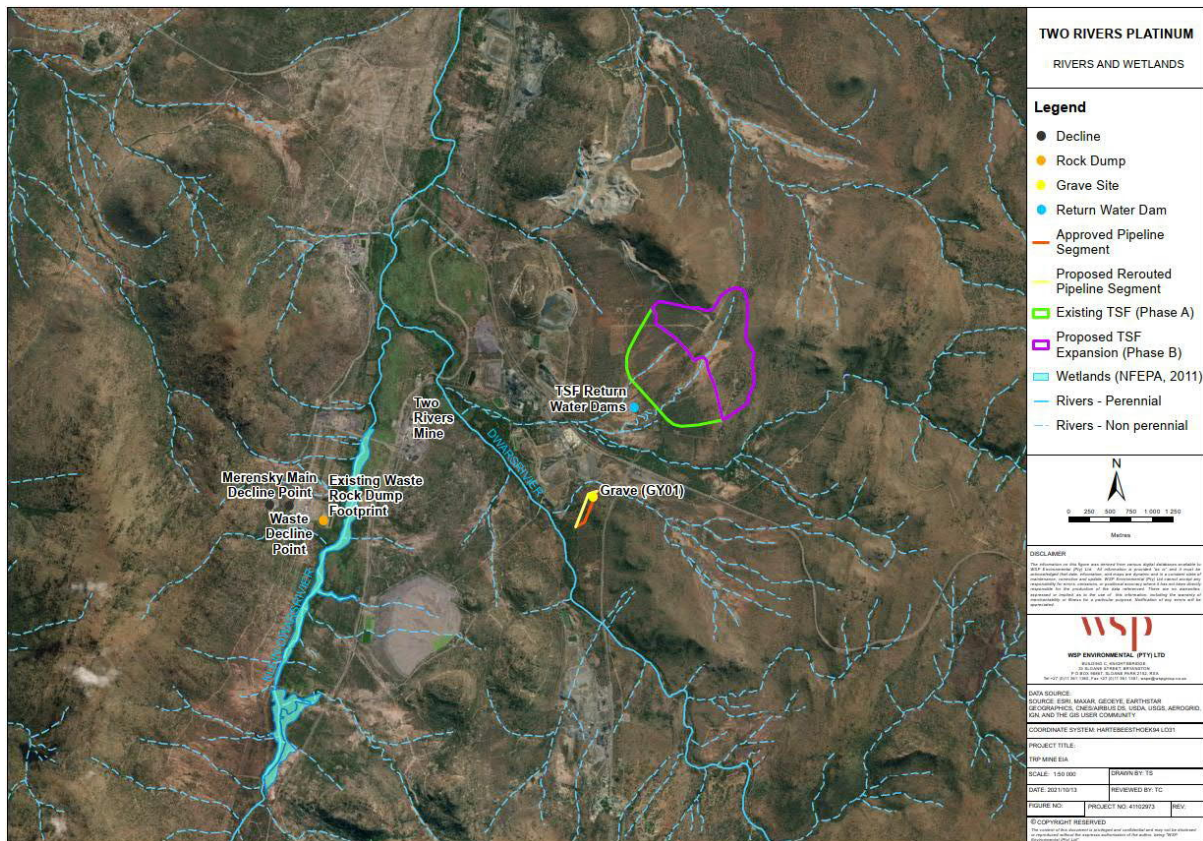


Figure 7-12: Surface Water and Wetlands

7.5.2 CATCHMENT DESCRIPTION

KLEIN DWARSRIVIER

The Klein Dwarsrivier catchment upstream of Richmond Dam is largely undeveloped with a single small mining operation (Lebowa Mine) in the Richmond Dam catchment headwaters. Minimal cropping activities are evident. Most agriculture is limited to livestock farming. The predominant vegetation is mixed grasslands and bush. Soils appear relatively thin, and topography is quite steep in places. The river flows generally in a north easterly direction.

One small dam is located just upstream of Richmond Dam.

DWARSRIVIER

Extensive mining activities are present in the Dwarsrivier catchment. These include Dwarsrivier mine, Thorncliff mine, Magareng mine, Helena Mine, Mototolo mine, Booyensdal Mine North and Booyensdal Mine South. No urban developments are located within the catchment. No cropping activities are evident. Most agriculture is limited to livestock farming. The predominant vegetation is mixed grasslands and bush. Soils appear relatively thin, and topography is quite steep in places. The river flows generally in a northerly direction.

The Der Brochen Dam is the only dam located on the Groot Dwarsrivier. This dam is located approximately midway between the mine lease area and the catchment headwaters. No dams are located on the Dwarsrivier.

7.5.3 NORMAL DRY WEATHER FLOWS

The normal dry weather flows are based on the average monthly flows documented in the Water Resources of South Africa, 2005 Study (Middleton and Bailey, 2009). The flows for the Klein Dwarsrivier in were scaled from the quaternary catchment B41G runoff, based on relative catchment size. The flows for the Dwarsrivier were scaled from the weighted average quaternary catchment B41G and B41H runoff, based on relative catchment size.

The catchments have strong baseflow components so dry season flows are relatively high.

7.5.4 BUFFER ZONES

Pollution control dams and stockpiles form part of the operations so Section 4a of GN 704 will apply to these. The surface water buffer zone therefore is the greater of the 100-year floodline or 100 m from the water course.

7.5.5 WATER QUALITY

TRP samples water quality at various location on the mine. The mine samples river water, process waters and drinking waters. The river monitoring the locations are important for this study and these locations are shown in **Figure 7-13** below. Water quality monitoring data has been collected for many years, but the last 2 years' data is used to provide a baseline. All sampling is done monthly by the mine and the results are interpreted by an independent contractor. The samples are analysed by a reputable and accredited laboratory.

TRSW8 and TRSW9 are future monitoring points. These will provide clarity on any impacts arising from the new De Grooteboom TSF.

The results show the following:

TRSW1

- The water quality is generally good.
- Sodium and Calcium have slightly elevated concentrations which often exceed the monitoring water quality guideline values set, and occasionally exceed the Class O drinking water quality guideline values.
- These impacts occur upstream of the mine.

TRSW2

- The water quality is degraded between TRSW1 and TRSW2 and can be considered as fair.
- Additional sodium, magnesium and calcium increase the total dissolved solids concentration.
- These impacts may be attributed to a small mining operation (Lebowa mine) in the catchment headwaters of the Richmond Dam.
- The degradation, while small, is considered sufficient to classify this water as fair.

TRSW3

- The water quality is slightly degraded between TRSW2 and TRSW3, with increases in calcium, sodium, chlorides, sulphates and consequently TDS.
- Magnesium qualities are generally improved between TRSW2 and TRSW3.
- The water quality at TRSW3 is considered fair.



Figure 7-13: Water Quality Locations

TRSW4

- The water quality at TRSW4 is considered fair with slight degradation in some parameters and improvements in others. The degradation and improvement are not consistent and varies in time.

TRSW5

The water quality at TRSW5 is very similar to TRSW4 and no appreciable degradation or improvement is evident.

- The water quality at TRSW4 is thus also considered fair.

TRSW6

- The water quality at TRSW6 is very similar to TRSW5 and no appreciable degradation or improvement is evident.
- The water quality at TRSW4 is thus also considered fair.

TRSW7

- The water quality is generally GOOD.
- Sodium and Calcium have slightly elevated concentrations which often exceed the monitoring water quality guideline values set, and occasionally exceed the Class O drinking water quality guideline values.
- These impacts occur upstream of the mine.

7.6 GROUNDWATER

Borehole yields in the eastern Rustenburg Layered Suite fractured aquifers are generally high and can be expected to be between 2.0 and 5.0 l/s with regional flow resembling flow in the porous medium (i.e. obeying Darcy's law).

Groundwater quality in the area is also expected to be intermediate with EC values ranging from 70 to 300 mS/m and possibly elevated Ca, Mg, Cl, and SO₄, as well as carbonate alkalinity concentrations.

7.6.1 SITE SPECIFIC GEOHYDROLOGY

The geohydrology specific to the TRP mining area was assessed through a site hydro census, groundwater sampling and analysis and review of previous geohydrological studies and programmes that included targeted borehole drilling and aquifer testing (Golder, 2016; Shangoni, 2020).

According to the 1:500 000 General Hydrogeological Map, the Rustenburg Layered Suite rocks typically act as secondary aquifers (intergranular and fractured rock aquifers with average yields ranging between 2-5 l/sec). However, the multi-layered weathering system present on these rocks could prove to have up to two aquifer systems present in the form of a shallow, saprolitic aquifer with a weathered, intergranular soft rock base associated with the contact of fresh bedrock and the weathering zone, and a fractured bedrock aquifer.

Rocks belonging to this RLS are characterised by a well-developed igneous layering and various rock units which form part of it, have a fairly uniform composition and may be traced over appreciable distances. The RLS consists mainly of mafic rocks including norite, gabbro, magnetite gabbro, anorthosite, pyroxenite and others. The groundwater potential is generally good with 42% of the successful boreholes yielding >2 l/s. Water occurs mainly in deeply weathered and fractured mafic rocks. Due to the relative high permeability of the weathered and fractured rock, these basins can be extremely good aquifers. Problems have been experienced in some of the mines outside the map area where large volumes of water are intercepted in fractured anorthosite at depths of 300m. Water is also obtained in fault and associated shear or fracture zones, contact zones and dyke contacts. The borehole yield analysis reveals that approximately 27% of 119 boreholes documented yield between 2 – 5 l/s, 26% yield between 0.5 – 2 l/s, 23% between 0.1 – 0.5 l/s, and 15% are stronger than 5 l/s. The median borehole yield is 1.0 l/s and the maximum encountered was 25 l/s.

The water within this unit is not suitable for domestic use due to the average nitrate level being above the maximum allowable limit for potable water. One EC measurement was also above the maximum allowable limit with corresponding high chloride and magnesium values. This point is, however, an anomaly and may be due to local contamination. A total of 105 chemical analyses were available for interpretation. The water displays a magnesium-bicarbonate-chloride character and appears to be slightly alkaline.

7.6.2 WATER LEVELS

Groundwater level data was obtained from the Shangoni Report (2020). During the hydro census conducted by Shangoni during July 2020, six (6) privately used boreholes, thirty-six (36) monitoring boreholes owned and operated by TRP, and fourteen (14) monitoring boreholes from adjacent mines were surveyed during the field hydro census in July 2020. One fountain (H35-F0487) was identified on a private land user's property, 4.5 km west of the mine. Two monitoring boreholes, TRPGWM06s and TRPGWM06d, monitoring the weathered and fractured aquifer, respectively were recorded as artesian. These boreholes are located to the immediate west and downgradient from the tailings. Static water levels within the fractured aquifer range between 0 and 79.10 meters below surface ("mbs") with an average of 17.01 mbs while water levels within the shallow weathered aquifer range between 0 and 12.01 mbs with an average of 5.61 mbs.

Groundwater level data was provided by the client for the monitoring period January 2018 to September 2020. The groundwater levels varied between a minimum of 3.14 m and a maximum of 58.03 m below ground level (**Figure 7-14**). The average water level over the monitoring period is 11.7mbgl. The majority of the boreholes had relatively shallow water levels over the monitoring period, with the exception of TRM 8, which had water levels exceeding 50mbgl over the monitoring period. This borehole might be affected by dewatering activities taking place at the mine.

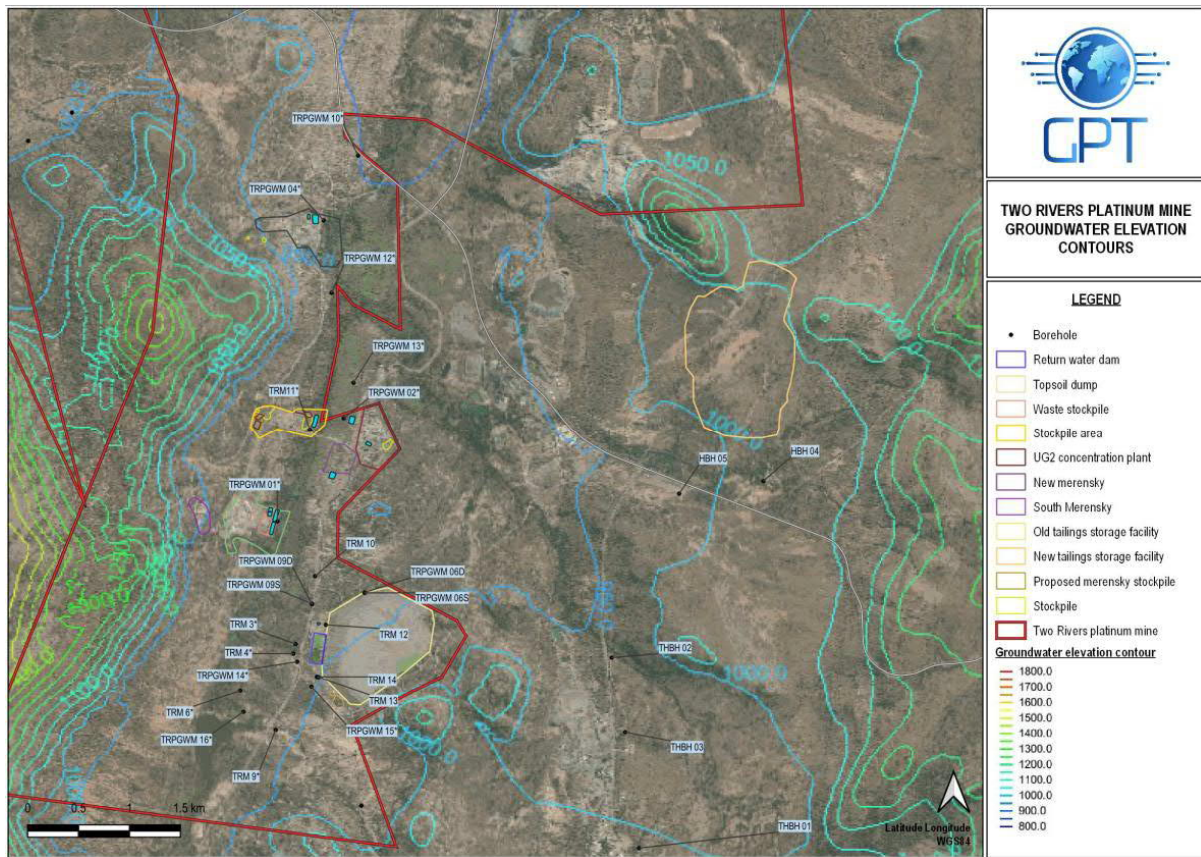


Figure 7-14: Contoured Water Levels (mamsl) of the Water Table Aquifer and Borehole Locations

Based on information collected during the hydro census it can be concluded that the aquifer system in the study area can be classified as a “Minor Aquifer System”, based that these can be fractured or potentially fractured rocks which do not have a high primary permeability, or other formations of variable permeability. Aquifer extent may be limited and water quality variable. Although these aquifers seldom produce large quantities of water, they are important for local supplies and in supplying base flow for rivers.

A Groundwater Quality Management Index of 4 was estimated for the study area from the ratings for the Aquifer System Management Classification. According to this estimate a medium level groundwater protection is required for the aquifer. Reasonable and sound groundwater protection measures based on the modelling will therefore be recommended to ensure that no cumulative pollution affects the aquifer, even in the long term. DWS’s water quality management objectives are to protect human health and the environment. Therefore, the significance of this aquifer classification is that measures must be taken to limit the risk to the following environments: The protection of the underlying aquifer and the numerous pans and wetlands situated within and outside the mining rights area.

7.7 LAND USE AND CAPABILITY

Likely owing to the steepness of the slopes of the hills in the project area, limited settlement and land development has occurred in the study area. The land is primarily covered with dense bushveld.

Two irrigation pivots are in the Klein Dwarsrivier floodplain approximately 7 km upstream of the main decline area. Small portions of cultivated land are located on the banks of the Dwarsrivier approximately 4 km North of the site and along the unnamed tributaries west of the mine. Limited human settlement development is established within the investigation area.

7.8 BIODIVERSITY

7.8.1 FLORA

The desktop analysis found that the site falls within the Savanna biome and Central Bushveld bioregion. The vegetation type is mainly the Sekhukhune Mountain Bushveld (SVcb 28). The project area falls within a terrestrial CBA 1, which can be considered irreplaceable in that there is little choice in terms of areas available to meet targets, and according to the CBA category description in the Limpopo Conservation Plan.

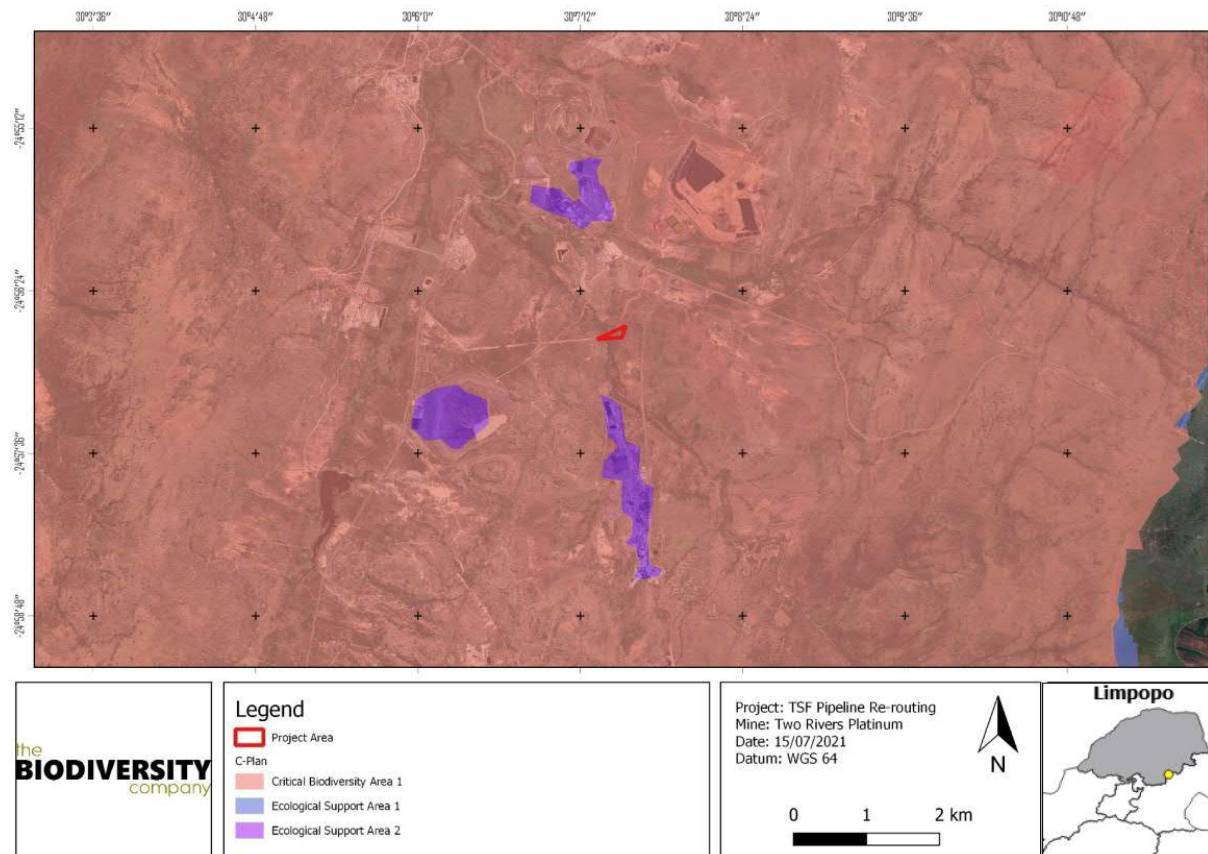


Figure 7-15: Project Site on Limpopo Conservation Plan

The project area is located within a Poorly Protected area (NBA, 2018). Strategy (NPAES) SACAD (2020) and SAPAD (2020), the TRP project area does not fall within any protected area. It is however approximately 2 km from an area listed as Priority areas for protected area expansion in Mpumalanga, the Mpumalanga Mesic Grasslands NPAES focus area. This is of no significance, however, as the project area is located in the Limpopo province.

No Important Bird and Biodiversity Areas (IBAs) are situated within the project area. The proposed project area is however located approximately 28km north of the Steenkampsberg IBA.

The project area does not traverse any protected area. TRP project area does not fall within any protected area. It is however approximately 2 km from an area listed as Priority areas for protected area expansion in Mpumalanga, the Mpumalanga Mesic Grasslands NPAES focus area.

7.8.2 VEGETATION ASSESSMENT

The area within the proposed site vicinity is rich in vegetation such as small trees, graminoids, small trees, woody climbers, geoxylic suffrutex, geophytic herbs, succulent herbs, tall shrubs, low shrubs and herbs. The description of environment that has been provided in this report is the current status of the proposed site.

One of endemic species listed in the Sekhukhuneland Centre of Plant Endemism (SCPE) is within the WRD expansion area called *Euclea sekhukhuniensis*.

Protected species are species protected by international, national and provincial legislation. Hunting, picking, owning, importing, exporting, transporting, growing, breeding and trading of such species are illegal without valid permits or licenses.

The plant species called *Sclerocarya birrea* is occurring in the Project Area (pipeline re-route and Merensky Shaft) is one of the tree protected under the National Forests Act, 1998 (Act No. 84 of 1998) and the following plant species is protected by the Limpopo Environmental Management Act, No.7 of 2003.

Most of the plants identified within the seven sites are classified as being of Least Concern (See Appendix 1 of Ecological Assessment). No special permits will be required to clear the sites with the plants species having a status of a Least Concern (LC). However, during remediation, only indigenous plants should be used to recover, preferably similar to those that already have been removed.

7.8.3 CONSERVATION STATUS

The status of conservation is vulnerable. Conservation target 24%. Approximately 30% of this area is under commercial or subsistence cultivation. Vast areas are mined for vanadium using strip mining and in recent years mining of gabbro has increased substantially (Siebert et al. 2002c). There is no formal conservation in the region, although many farmers have embarked on ecotourism initiatives. Erosion very low (56%), moderate (18%) and high (16%) (Mucina and Rutherford, 2006).

7.8.4 ALIEN INVASIVE PLANT SPECIES

Invasion by destructive alien plant species erodes the natural capital of ecosystems, compromises their stability and is a growing problem in South Africa (Richardson and van Wilgen, 2004). Alien invasion within the proposed TSF was not much. The Invasive Aliens Plants Species identified within the TSF expansion area is *Datura ferox* and *Atriplex nummularia* subsp. *Nummularia* was identified within the Merensky Plant area.

A management plan and monitoring programme is recommended to control these plants.

7.9 FAUNA

7.9.1 AVIFAUNA

Based on the South African Bird Atlas Project, Version 2 (SABAP2) database as well as ecological reports that cover the project area, 370 bird species have the potential to occur in the vicinity of the project areas. A list of bird species that occur in the proposed project will be provided in the Biodiversity Impact Assessment in the EIA phase.

7.9.2 AMPHIBIANS

Various amphibian species could be present in the proposed project area. A total of 111 species may potentially occur in the project area. The African Rock Python (*Python natalensis*) is listed as protected on the Threatened or Protected Species (ToPS) list, with a low likelihood of occurrence.

7.9.3 INVERTEBRATES

A list of invertebrate's species that occur in the proposed project is presented in **Figure 7-16** below.



Figure 7-16: *Acrotilus* spp. (Acrididae), left and *Schistocerca gregaria* (Acrididae), right

7.9.4 MAMMALS

A total of 38 mammal species are listed for the project area. Seven (7) of these species are listed as Red Data species. A list of potential mammals could be onsite are presented in **Figure 7-17** below.

Family Names	Scientific Names	Common Names	Status
Nesomyidae	<i>Mystromys albicaudatus</i>	---	EN
Chrysochloridae	<i>Amblysomus septentrionalis</i>	Highveld golden mole	NT
Muridae	<i>Otomys auratus</i>	Vlei rat	LC
Leporidae	<i>Pronolagus randensis</i>	Jameson's red rock hare	LC
Leporidae	<i>Pronolagus saundersiae</i>	Hewitt's red rock hare	LC
Mustelidae	<i>Poecilogale albinucha</i>	African striped weasel	LC
Hystriidae	<i>Hystrix africae australis</i>	---	LC
Herpestidae	<i>Ichneumia albicauda</i>	White-tailed mongoose	LC
Gliridae	<i>Graphiurus microtis</i>	---	LC
Gliridae	<i>Graphiurus platyops</i>	---	LC

Figure 7-17: Expected Mammals

7.10 HERITAGE AND ARCHAEOLOGY

Based on the Phase 1 Archaeological and Cultural Heritage Impact Assessment conducted by Vhufa Hashu Heritage Consultancy one rock art site known as (Heritage Rock) was recorded next to Merensky Shaft, three graveyards and one isolated grave was identified with a total of ± 75 graves. All graves are well marked and are not disturbed by the developments. GY01 is situated in Dwarsrivier Mine property and it is not affected by the development since the line diverted away from the graves. GY02 is not affected by the proposed development and the community still burying their loved ones in this graveyard currently. GY03 is well fenced off and it is not affected by the development. The graves at GY03 where relocated from Merensky Shaft. The isolated grave is well fenced by palisade and it is not affected by the development.

The grave locations in relation to proposed activities are illustrated in **Figure 7-18** below.



Figure 7-18: Grave Locations

7.11 PALAEOLOGY

A palaeontological desktop assessment was undertaken to determine the sensitivity, and therefore likelihood of occurrence of palaeontological resources within the site. Based on the South African Heritage Resources Information System (SAHRIS) tool, as can be seen from **Figure 7-19**, the site falls within an insignificant to low sensitivity area, entailing that there is a low chance of incurring palaeontological resources on site. As such, no field assessment is required, however, a protocol for finds is required in the event that any such resources are found during construction activities.



Figure 7-19: Palaeontological Sensitivity

7.12 NOISE

In order to assess the environmental acoustic impacts of the proposed TSF expansion, both baseline (monitored) and proposed (modelled) noise levels were assessed. Comparisons of the existing and proposed noise levels at various specified receptors (noise receivers) enabled an assessment of changes in noise levels at these locations as a result of the proposed expansion. Such changes were then assessed against the SANS community or group responses (**Table 7-4**) in order to assess the anticipated impacts/responses as a result of such increases.

Table 7-4: Categories of community/group response (adapted from SANS 10103:2008)

Excess ($\Delta L_{Req,T}$) ^a dB(A)	Estimated Community or Group Response	
	Category	Description
0 – 10	Little	Sporadic Complaints
5 – 15	Medium	Widespread Complaints
10 – 20	Strong	Threats of community/group action
>15	Very Strong	Vigorous community/group action

7.12.1 BASELINE ACOUSTIC MONITORING

Ambient sound level measurements were undertaken from 28 to 30 July 2021 at two on-site industrial locations and one off-site residential location (**Table 7-5**). All sound level measurements were free-field measurements (i.e. at least 3.5 m away from any vertical reflecting surfaces). Measurement procedures were undertaken according to the relevant South African Code of Practice SANS 10103:2008. This guides the selection of monitoring locations, microphone positioning and equipment specifications. Sound level measurements were taken with a SABS-calibrated Type 1 Integrating Sound Level Meter. The sound level meter was calibrated before and after measurements were conducted and no significant drifts (differences greater than 0.5 dB(A)) were found to occur. The make and model as well as serial number and calibration validity of the sound level meter and calibrator are presented in **Table 7-6**.

Day-time and night-time measurements were conducted for fifteen minutes, allowing monitoring to be adequately representative. The monitoring was conducted during the relevant timeframe for day (06:00 to 22:00) and at night (22:00 to 06:00) in accordance with the SANS methodology. As per the recently published GNR 320 of the NEMA, night-time monitoring took place over a minimum of two nights, with each sample taken at two different times of the night to record the typical ambient sound levels at the different times of the night. The noise parameters recorded included:

- L_{Aeq} The equivalent continuous sound pressure level, normally measured (A-weighted);
- L_{Amax} The maximum sound pressure level of a noise event measured (A-weighted);
- L_{Zpeak} The peak noise level experienced during the measurement (Z-weighted); and
- L_{A90} The average noise level the receptor is exposed to for 90% of the monitoring period.

Table 7-5: Noise monitoring locations

ID	Description	Coordinates	Distance from TSF site (m)	SANS District	SANS Classification*
TRP01	Directly south-west of the proposed TSF and north-east of the return water dam	Latitude: -24.931464° Longitude: 30.132788°	0	Industrial	F
TRP02	Offices located south of the proposed TSF	Latitude: -24.935182° Longitude: 30.141736°	187	Industrial	F
TRP03	Lodge located south of the proposed TSF	Latitude: -24.939740° Longitude: 30.143549°	606	Rural	A

Table 7-6: Sound level meter and calibrator specifications

Sound level meter	Calibrator
Make & model: CEL-633C	Make & model: CEL-120/1
Serial number: 3134723	Serial number: 3939145
Date calibrated: June 2021	Date calibrated: June 2021
Calibration due date: June 2022	Calibration due date: June 2022

7.12.2 CURRENT NOISE CLIMATE

It is important to note that wind speed and direction play a vital role in determining baseline noise levels. Noise monitoring is usually discouraged when wind speeds exceed 5 m/s (>18 km/h) as wind noise distorts the baseline noise levels by masking other noise sources. However, no wind speeds exceeding 5 m/s were recorded during the monitoring period.

Figure 7-20 shows the sound level meter situated at the various monitoring locations.



Figure 7-20: Monitoring locations, TRP01 (left), TRP02 (middle) and TRP03 (right)

DAY-TIME

The results from the day-time noise monitoring campaign conducted on 28 July 2021 are presented in Table 7-7. Noise levels at the receptor locations were compared to the typical day-time rating level for industrial areas (70 dB(A)) at TRP01 and TRP02 whilst noise levels at TRP03 was assessed against the rural day-time guideline rating level (45 dB(A)).

Noise levels (L_{Aeq}) at all the three monitoring locations were below their respective guideline rating levels. The main sources of noise identified at each of the locations included:

- TRP01: Industrial noise in the southwest, the mine in the north, people talking and walking in the east as well as vehicles idling and vehicle traffic offsite (approximately 5 vehicles);
- TRP02: Intermittent noise from the offsite mines (crushers, reverse beeps, sirens, etc), traffic onsite (4 vehicles), person hammering, maintenance and cleaning of equipment and Jojo tank pump and leaking water sounds; and
- TRP03: Onsite water pumps, reverse hooters and vehicular traffic.

Table 7-7: Day-time noise monitoring results

ID	Time	L_{Aeq} (dB(A))	L_{Amax} (dB(A))	L_{Amin} (dB(A))	SANS Guideline (dB(A))	Compliant
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TRP01	13:27	42.3	55.2	35.8	70	Yes
TRP02	13:59	41.9	61.0	35.0	70	Yes
TRP03	14:47	39.0	58.8	30.7	45	Yes

7.12.3 NIGHT-TIME

The results from the night-time noise monitoring campaign conducted on 28, 29 and 30 July 2021 are presented in **Table 7-8**. Noise levels at the receptor locations were compared to the typical night-time rating level for industrial areas (60 dB(A)) at TRP01 and TRP02 whilst noise levels at TRP03 was assessed against the rural night-time guideline rating level (35 dB(A)).

L_{Aeq} noise levels at TRP01 and TRP02 monitoring locations were below the industrial guideline levels. TRP03 was however above the rural night-time guideline of 35 dB(A). The main sources of noise identified at each location include:

- TRP01: Offsite conveyors in operation, offsite alarm, vehicles on the main road, water sounds and the security patrolling;
- TRP02: Vehicle traffic offsite, offsite conveyor noise, Jojo tank pump, water leakage sounds, security talking and insects; and
- TRP03: Conveyors operating offsite, dogs onsite, offsite vehicle traffic and security patrolling.

Table 7-8: Night-time noise monitoring results

ID	Time	L_{Aeq} (dB(A))	L_{Amax} (dB(A))	L_{Amin} (dB(A))	SANS Guideline (dB(A))	Compliant
28 July 2021 (late night)						
TRP01	22:06	45.5	57.1	39.7	60	Yes
TRP02	22:30	44.9	59.7	37.4	60	Yes
TRP03	22:56	39.9	53.0	32.3	35	No
29 July 2021 (early morning)						
TRP01	04:05	41.8	49.9	35.3	60	Yes
TRP02	04:31	44.4	53.6	36.9	60	Yes
TRP03	04:56	44.8	61.8	34.0	35	No
29 July 2021 (late night)						
TRP01	22:02	37.7	48.1	31.6	60	Yes
TRP02	22:28	35.4	52.6	28.6	60	Yes
TRP03	22:53	40.8	53.6	24.7	35	No
30 July 2021 (early morning)						
TRP01	03:59	42.3	53.3	32.8	60	Yes
TRP02	04:27	36.9	48.2	29.5	60	Yes
TRP03	04:51	42.0	64.4	26.9	35	No
Logarithmic Averages						
TRP01		42.6	53.5	36.0	60	Yes
TRP02		42.2	55.5	34.8	60	Yes
TRP03		42.3	60.7	31.0	35	No

7.13 VISUAL

7.13.1 LANDSCAPE CHARACTER

The study area consists primarily of mining operations, small settlements and agricultural land, unimproved grassland, and thicket and bushland. The natural landscape is degraded, with minimal pristine landscape remaining. Mining, especially platinum, is one of the key land-uses and contributes significantly to the visual degradation of the study area.

TRP is located between ridges and is characterised by gentle slopes running in a southerly direction. The Dwarsrivier crosses the mine and a number of non-perennial streams.

The landscape character does not change considerably through the study area and is relatively homogenous in character (Swanwick, 2002). Landscape types are distinguished by differences in topographical features, vegetation communities and patterns, land use and human settlement patterns as shown in **Figure 7-21** below.

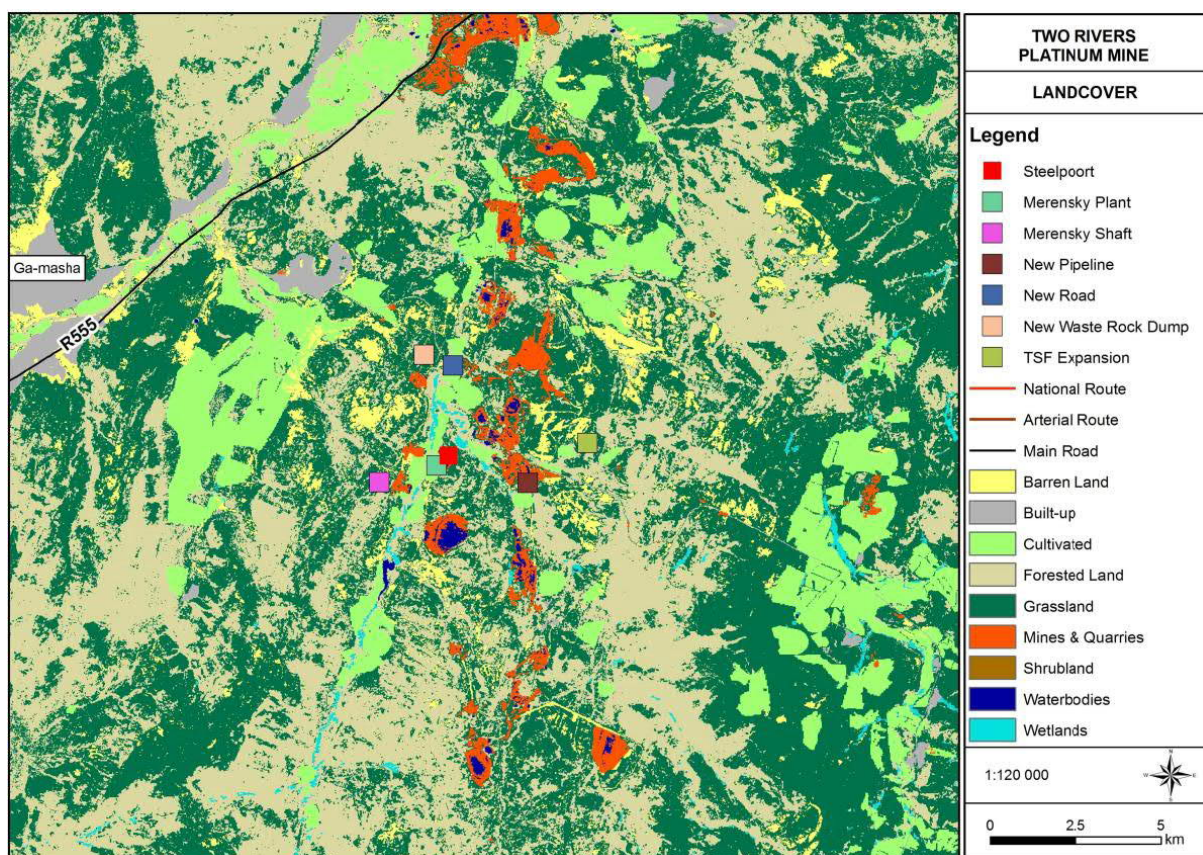


Figure 7-21: Landcover Map

The mine is situated in the Central Bushveld Bioregion. The natural vegetation has been disturbed due to anthropogenic activities. The broad scale vegetation types that have been identified in the study area is the Sekhukhune Mountain Bushveld.

7.13.2 VISUAL CHARACTER

Visual character is based on human perception and the observer's response to the relationships between and composition of the landscape, the land uses and identifiable elements in the landscape. The description of the visual character includes an assessment of the scenic attractiveness regarding those landscape attributes that have

aesthetic value and contribute significantly to the visual quality of the views, vistas and/or viewpoints of the study area.

The overall landscape presents a moderately disturbed sense of place. The large mines present a negative effect on the visual character of the landscape.

There is some pleasant scenery, and the rural atmosphere does however add attraction to the region. Very few parts of the study area have been left undisturbed and there is very little to no unspoilt pristine landscape remaining. These areas however remain under pressure and are vulnerable due to human settlement expansion and mining activities. The visual quality of the landscape is moderately low and can be attributed to the many mining developments and degraded towns and settlements.

Visual Absorption Capacity (VAC) signifies the ability of the landscape to accept additional human intervention without serious loss of character and visual quality or value. The VAC of the study area is considered moderately high and provides screening capacity for this project. The moderately high VAC relates to the mountainous topography with significant elevation changes.

Project components such as conveyor belts and crusher structures, service roads and access/haul roads, are expected to be visually absorbed to a large degree in the landscape.

7.14 SOCIO-ECONOMIC PROFILE

The information from this section was obtained from the SIA conducted by Geo-Environmental and Technical Services as well as from the Municipalities of South Africa website, <https://municipalities.co.za>.

The proposed project falls within the Limpopo Province, Greater Sekhukhune DM, Fetakgomo Tubatse LM (FTLM). The Fetakgomo Tubatse Local Municipality is located north of N4 highway, Middleburg, Belfast and Mbombela; and east of the N1 highway; Groblersdal and Polokwane. The municipal area of jurisdiction covers approximately 4550.001105 square kilometres or 45500.1105 ha in size. The municipality comprises approximately 342 villages. The municipality is largely dominated by rural landscape with only 06 (six) proclaimed townships. Like most rural municipalities in the Republic of South Africa, Fetakgomo Tubatse Local Municipality is characterised by a weak economic base, inadequate infrastructure, major service backlogs, dispersed human settlements and high poverty levels.

The FTLM is predominately rural. There is also a strong presence of tribal authorities in the region, with Traditional Leaders being responsible for the day to day running of these areas. According to the FTLM IDP (2019/20), Steelpoort has been identified as a District Growth Point area. Steelpoort, as compared to Burgersfort, comprise of more manufacturing type industries and suppliers of mining-related resources, whilst the latter is dominated by the retail and service centre. There are currently approximately six operational mines around the town of Steelpoort, but the town is still characterized by a mixed land use; including heavy engineering enterprises; suppliers to the mines; transport facilities; building material suppliers; distributors/ wholesale, medium-density housing and a small retail component.

7.14.1 LOCAL CONTEXT

POPULATION AND HOUSEHOLD PROFILE

According to the 2011 Stats SA information, the total population of the FTLM is approximately 429 471 with 106 050 households; these make FTLM a municipality with the highest population in the Sekhukhune District. The 2016 Community Survey as compared to the 2011 Stats SA results show that the FTLM records a population increase of 489 902 (12%) with a household increase of 125 454. As per the current community survey 2016, the FTLM households increased by 19 404 (15%).

The FTLM population in 2016 was composed of mostly Black African persons (99.96%) followed by 2.19% White persons. The number of Black African people has increased by 17.56% since 1995, whereas the number of Coloured and Indian or Asian persons since 1995 has increased by 53.98% and 57.14% respectively. The FTLM reflects the demographics of the DM and the province, with respectively 99.78% and 97.52% of the population being Black African.

AGE

It is important to assess the age distribution of persons to determine both the current and future needs of an area. Age is an important indicator as it relates to education, skills and dependency. A young population may require an improved educational system, whereas an older society may need an accentuated focus on healthcare. Figures for 2010 indicate that the FTLM had a similar child population (36.37%) as compared to the Sekhukhune DM (36.63%) and Limpopo Province (34.68%).

This trend continues when comparing the working-age population for each of the 3 regions, where 59.78% of the FTLM population forms part of the Economically Active Population (EAP) of the area (16 to 64 years), as compared to 59.78% and 60.45% respectively for the Sekhukhune DM and Limpopo Province. These persons normally have more work experience and usually fall within the higher skilled and higher salary bracket.

The elderly population (65 and older) for each of the regions are comparatively small (ranging between 4.95% for the DM and 3.85% for the LM), which means that less burden is placed on the EAP to support persons that are no longer economically active.

When comparing the 2010 data with that of 1995, one will note a large increase in the total population for Fetakgomo Tubatse LM (33.04%), the working-age population (46.44%) as well as the aged population (31.00%) (Figure 5-3). The child population for the Sekhukhune DM and Limpopo Province have declined by 4.21% and 8.34% respectively, whereas the Fetakgomo Tubatse LM child population has increased by 11.24%.

The age dependency ratio for the Limpopo Province has been steadily decreasing, from a high of 97.1 in 1995 to 65.4 in 2010. The Sekhukhune DM has improved significantly from a 105.5 age dependency ratio in 1995 to 71.2 in 2010. A similar trend can be seen for the Tubatse LM (109.1 in 1995 vs. 67.3 in 2010). Even though the province has improved its age dependency ratio, it still reflects poorly against that of South Africa as a whole (70.9 in 1995 vs. 56.2 in 2010).

EDUCATION

The largest percentage (11.78%) of the FTLM population has obtained a Grade 10 qualification (Figure 5-4), more than the percentage for the Limpopo Province (10.11%) or the Sekhukhune DM (10.86%). However, 6.19% of the population have not received any form of schooling. Only 2.13% of the population achieved an academic level higher than Grade 12.

According to the FTLM IDP (2019/20), there are 247 schools (primary and secondary) situated in the FTLM. Steelpoort, Ohrigstad and Burgersfort each have one government primary school. The IDP indicates that it is the norm for rural or semi-rural areas to have a high prevalence of primary schools since many pupils leave school at an early age to find employment to assist and support the family. The privileged scholars, who can afford to further their education, either attend the secondary schools in the area or secondary schools located in larger towns outside the region.

ECONOMIC PROFILE

Within the FTLM, the 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 (2019/20). The IDP, however, also highlights that although there are several mines in the area, the existing resources remain unexploited. The LM views investment in this sector as very important as it brings with it an investment in infrastructure, results in the creation of job opportunities, etc.

According to the FTLM IDP (2019/20), 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 unemployment rate in the area is pegged at approximately 55%, with a youth unemployment rate of 65.5%.

The main challenges facing economic development within the FTLM are (IDP, 2019/20):

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

8 IDENTIFICATION OF POTENTIAL IMPACTS

The scoping phase of a S&EIR process is aimed to identify those potential impacts that are most likely to be significant and which need to be assessed as part of the S&EIR process. The determination of anticipated impacts associated with the proposed development is a key component to the S&EIR process. This Chapter identifies the perceived environmental and social effects associated with the proposed project. The assessment methodology indicated in Section 3.3.

The issues identified stem from those aspects presented in **Chapter 7** of this document as well as project description provided. Each significant issue identified is to be investigated further during the S&EIR process. Non-significant issues will be scoped out of the study with reasonable consideration given within the Scoping Report.

8.1 CLIMATE

There will be limited expected changes to the climate due to the proposed construction of the project and the main source will be carbon emissions from machines, equipment and vehicles on the site during site clearance. The clearance of natural vegetation will impact the carbon storing potential of the area and hence influence climate change, however, to a small extent. No further studies are proposed during the EIA phase.

8.2 GEOLOGY

The site is not characterised by dolomite, as such, there will be no impact on the proposed infrastructure. The construction will be done as per approved engineering designs to limit the impact on the geology of the site. However, structural investigations should be conducted by the engineering team prior to construction.

In addition, no additional mining is being proposed in this authorisation process. No further studies are proposed during the EIA phase.

8.3 SURFACE WATER

The mine overlaps the boundaries of quaternary catchments B41F, B41G and B41H. The applicable water management area is the Olifants River management area. The Klein Dwars River flows directly west of the tailings facility in a northerly direction through the mining area. The TSF expansion, pipeline re-routing and access road construction activities will be within 100m of the streams in the project area, as such, there is potential impacts on surface water resources due to both construction and operational activities. The TSF (existing and proposed 90ha expansion extent) is currently approved in a WUL, however, the proposed pipeline re-routing and road construction are not authorised. A WUL amendment will be required to incorporate these activities.

During the operational phase however, a dirty and clean stormwater system will be developed, thereby routing the contaminated stormwater into the pollution control dams. A storm water attenuation system will be established on site.

Further studies are proposed during the EIA phase and the surface water currently being undertaken.

8.4 GROUNDWATER

The study area has aquifers that are groundwater resources. Borehole yields in the eastern Rustenburg Layered Suite fractured aquifers are generally high and can be expected to be between 2.0 and 5.0 l/s with regional flow resembling flow in the porous medium (i.e. obeying Darcy's law). Groundwater quality in the area is also expected to be intermediate with EC values ranging from 70 to 300 mS/m and possibly elevated Ca, Mg, Cl, and SO₄, as well as carbonate alkalinity concentrations.

There is a potential to contaminate groundwater resources through the infiltration of any fuels, oils or lubricants used by construction vehicles and by spilled tailings during the operational phase. The infiltration of material during the operation of the plant may potentially contaminate groundwater resources that are fed into surrounding boreholes.

A Groundwater Quality Management Index of 4 was estimated for the study area from the ratings for the Aquifer System Management Classification. According to this estimate a medium level groundwater protection is required for the aquifer. Reasonable and sound groundwater protection measures based on the modelling will therefore be recommended to ensure that no cumulative pollution affects the aquifer, even in the long term.

Further studies are proposed during the EIA phase and the groundwater study is currently being undertaken

8.5 LANDUSE AND CAPABILITY

Likely owing to the steepness of the slopes of the hills in the project area, limited settlement and land development has occurred in the study area. The land is primarily covered with dense bushveld.

The anticipated change in land use is that of clearing the remaining natural habitat available on site for constructing the associated infrastructure. However, this will be limited to the project footprint and natural landscape will still remaining.

The site is generally impacted by mining activities and will be rehabilitated fully on closure based on the approved closure plan of the mine.

8.6 AIR QUALITY

The proposed construction activities require clearance of the project area, which in turn requires stockpiling of material. During the operational phase, the TSF expansion area will result in additional dust emissions. As such, there is an impact anticipated from the project area which will need to be mitigated in the same manner the currently approved TSF is.

Further studies are proposed during the EIA phase and the AQIA is currently being undertaken

8.7 NOISE

The proposed construction activities will result in increased movement of vehicles as well as more mechanical activities such as excavations. During the operational phase, the re-routed pipeline, access road and expanded TSF will have limited noise generation. Impacts anticipated from the project area will need to be mitigated in the same manner as the currently approved TSF and pipeline. Further studies are proposed during the EIA phase and the NIA is currently being undertaken.

8.8 VISUAL

The study area is moderately populated, with a higher population in Ga-Mampuru, Ga-Masha, Nokaneng and Steelpoort. There are very few residents surrounding the site. The towns and surrounding areas are generally degraded and not very scenic.

A few remaining farm residents will experience intrusion on their views due to the presence of the proposed new activities of the mine. They are recognised as the general population of the study area and are identified as affected visual receptors.

It can be concluded that the study area has a low density of residents that will be affected by viewers.

The entire regional area is considered to have low tourism potential, mostly because of the heavy industrial areas and large-scale mining developments and overall environmental degradation. The R555 and other secondary roads are not main thoroughfare roads used to reach prominent tourist destinations.

The major route within the study area is the R555, connecting the towns, mines and farms. The secondary road network in the study area carries a much lower volume of motorists. Many of the roads are gravel roads which are utilized by the local residents. Their duration of views will be temporary, and it is expected that the visual intrusion that they will experience will be low.

Further studies are proposed during the EIA phase and the VIA is currently being undertaken.

8.9 BIODIVERSITY IMPACTS

The site contains natural grassland vegetation as well as shrubs and trees, with portions of the site classified as CBA 1. The main envisaged impacts include introduction of alien species, faunal displacement and degradation of floral species.

The construction activities will inevitably result in the clearance of the natural vegetation present on site, thereby further impacting the remaining critical biodiversity habitat. The removal of the remaining habitat will further disturb and possibly cause the loss of small mammals and reptiles that are unable to escape the construction activities.

The disturbance factors must be limited as much as possible to avoid displacement of sensitive species. The impacts on the floral and faunal habitat, diversity and SCC will be indicated in the reports to be done as part of the EIA phase.

8.10 HERITAGE

It is understood that all activities will be confined to the mining right. There are no historical and archaeological sites of significance to be impacted by the proposed development as long as the activities are limited to their designated footprint to avoid identified gravesite.

The proposed development may continue following any comments from SAHRA as there will be a positive impact by avoiding the identifying gravesite. The magnitude of any impacts will be assessed in the HIA to be done as part of the EIA phase.

8.11 PALAEOLOGY

Based on the SAHRIS tool, the site falls within an insignificant to low sensitivity area, entailing that there is a low chance of incurring palaeontological resources on site. As such, no field assessment is required, however, a protocol for finds is required in the event that any such resources are found during construction activities.

The intrusive construction activities can lead to the unearthing and damage to palaeontological resources, to which the protocols for finds will be implemented. No impacts with regards to palaeontological resources are anticipated during the operational phase. This is because all the palaeontological impacts are expected to be realised during the construction phase where there will be intrusive activities. No further studies are proposed during the EIA phase.

8.12 SOCIO ECONOMIC PROFILE

As indicated before, the region has underdeveloped infrastructure, suppressed industrial and agricultural development, high levels of poverty and elevated unemployment at 55%. Furthermore, the area has high population living under the poverty line.

Negative impacts anticipated include increase in population size (in-migration) and impact of temporary workers on social dynamics, although these are expected to be limited due to the project size.

There will be limited positive impacts during the construction and operational phases. The construction phase will create temporary employment for contractors required to plan, design and construct the developments. Several additional personnel will be employed on a permanent basis during the operational phase.

Further studies are proposed during the EIA phase and the social impact study is currently being undertaken.

8.13 HEALTH AND SAFETY

The proposed project tasks pose a health and safety risk. The Mine Health and Safety Act (29 of 1996) will have to be enforced at all project levels.

During construction, the employees are exposed to health and safety hazards from the mechanical machines and equipment used on the site. The operational phase health and safety impacts are expected to be limited to loading and unloading of heavy equipment as well as via the storage and handling of any hazardous material onsite.

8.14 SUMMARY OF POTENTIAL IMPACTS

The potential environmental and social impacts are described in **Table 8-1** below. These impacts will be confirmed by specialist studies, where required.

Table 8-1: Summary of Potential Impacts

ENVIRONMENT	IMPACT DESCRIPTOR/DISCUSSION	Potential Impact	Character	Probability	Consequence	SIGNIFICANCE (BEFORE MITIGATION)	Further study required
Climate	Climate change due to emissions from vehicles and machines clearing the site as well as through vegetation removal.	Climate change	Negative	1	1	Very Low	No
Geology	The site is not characterised with dolomite, limiting the impacts on infrastructure. The individual activities will have to be evaluated when proposed. The construction of the WRD and TSF, as well as the pipeline will be intrusive.	Stability of the area	Negative	3	1	Low	No
Surface Water	Areas that have been stripped of vegetation and topsoil will be prone to erosion. This also applies to any stockpiles during the construction phase This could lead to increased suspended solids being deposited into the local streams. It is unlikely that impacts will extend beyond the Dwarsrivier and the Klein Dwarsrivier.	Siltation of water resources	Negative	3	2	Medium	Yes
	If the construction vehicles are poorly maintained hydrocarbon spills could cause pollution if washed off roads by storm water. Leaks and spillage from unsafe storage could also be a factor.	Pollution of surface water resources from hydrocarbon spills	Negative	3	2	Medium	Yes
	Discharge from the TSF due to extreme rainfall or spillages due to structural failure.	Pollution due to operation of the TSF	Negative	3	3	Medium	Yes

ENVIRONMENT	IMPACT DESCRIPTOR/DISCUSSION	Potential Impact	Character	Probability	Consequence	SIGNIFICANCE (BEFORE MITIGATION)	Further study required
	Water and slurry pipes may transport polluted water between the pollution control dam and other facilities on the operations. If any of these pipes burst, significant quantities of poor-quality water and slurry could be pumped into the environment.	Pollution due to burst pipes	Negative	3	3	Medium	Yes
	Storm water generated from the dirty areas discussed in Section 10.1 must be considered as dirty and must be collected in the dirty water system. This water would have contributed to the flow into the surface water systems and in the local wetlands. The impounding of this water will result in a small reduction in the yield of the catchments.	Loss of catchment yield	Negative	3	3	Medium	Yes
Groundwater	Plume generation due to WRD and TSF operation	Pollution of groundwater due to plumes	Negative	3	3	Medium	Yes
	If the construction vehicles are poorly maintained hydrocarbon spills could cause pollution if washed off roads by storm water. Leaks and spillage from unsafe storage could also be a factor.	Pollution of groundwater due to spillages	Negative	3	2	Medium	Yes
Landuse Capability and	There will be clearing of the remaining natural habitat available on site for the purpose of constructing the proposed infrastructure. As a result, there will be transformation of the specific footprint. Potential contamination by chemical spillages may also reduce the land capability of the site, rendering it less capable of supporting the succession of a natural habitat should the plant be decommissioned in future.	Impact on land capability	Negative	2	2	Low	Yes

ENVIRONMENT	IMPACT DESCRIPTOR/DISCUSSION	Potential Impact	Character	Probability	Consequence	SIGNIFICANCE (BEFORE MITIGATION)	Further study required
Air Quality	The clearance activities will lead to increased dust emissions.	Dust and exhaust emissions during clearance	Negative	3	2	Medium	Yes
	The operation of the TSF will lead to increased dust emissions.	Dust emissions due to TSF operation	Negative	4	4	High	Yes
Noise Emissions	The presence of vehicles and machinery of the site which will cause noise to the receiving environment. This will be amplified as the individual activities are considered.	Noise from vehicles, machines and clearance activities	Negative	2	2	Low	Yes
	The operation of the WRD will result in increased noise emissions due to loading and unloading activities of chunky material.	Noise from operation of the WRD	Negative	3	3	Medium	Yes
Visual	The construction/erection of the WRD and TSF reduces the extent of the natural scenery of the surrounds.	Visual impact on adjacent land users	Negative	3	3	Medium	Yes
Ecology Biodiversity	A portion of the site is classified as a terrestrial CBA which will be cleared for individual activity use. The clearing of vegetation will lead to loss of habitat and ecosystem.	Loss of habitat / ecosystems	Negative	3	3	Medium	Yes
	Small mammals and reptiles inhabiting the site will also be disrupted and disturbed by the construction activities. A baseline study was conducted during this phase.	Destruction of smaller animals	Negative	3	3	Medium	

ENVIRONMENT	IMPACT DESCRIPTOR/DISCUSSION	Potential Impact	Character	Probability	Consequence	SIGNIFICANCE (BEFORE MITIGATION)	Further study required
	Increased noise during construction is likely to chase away fauna from within the study site if any and surroundings. Numerous species will be attracted towards the light sources and this will result in the disruption of natural cycles, such as the reproductive cycle and foraging behaviour.	Displacement of smaller fauna		3	1	Low	Yes
	The construction personnel will bring in alien invasive species during project activities.	Introduction of alien invasive species	Negative	3	3	Medium	Yes
	The clearance of vegetation will be done to clear the project footprint.	Loss of vegetation	Negative	4	3	High	Yes
Heritage	Damage and demolition of any heritage resources	Damage and demolition of any heritage resources	Negative	2	4	Medium	Yes
Palaeontology	Damage and demolition of palaeontological resources.	Damage of palaeontological resources	Negative	2	2	Low	No
Socio-economic	The project will provide a few temporary jobs during the construction phase and several more permanent jobs during the operational phase. Furthermore, the local economy will be boosted due to the injection of investments which will cause a spin off in other sectors.	Provision of employment and skills development	Positive	2	2	Low	Yes
		Boost in local economy	Positive	1	1	Very Low	Yes

ENVIRONMENT	IMPACT DESCRIPTOR/DISCUSSION	Potential Impact	Character	Probability	Consequence	SIGNIFICANCE (BEFORE MITIGATION)	Further study required
	Furthermore, negative impacts anticipated include increase in population size (in-migration) and impact of temporary workers on social dynamics, although these are expected to be limited due to the project size.	Increase in population size (in-migration) and impact of temporary workers on social dynamics	Negative	2	2	Low	Yes
Health and Safety	The proposed project task pose a health and safety risk. The Mine Health and Safety Act (29 of 1996) will have to be enforced at all project levels.	Physical injury of personnel due to mobile machinery and equipment.	Negative	4	3	High	No

The possible mitigation measures that could be applied to the potential impacts identified in **Table 8-1** are shown in **Table 8-2**.

Table 8-2: Mitigation Measures

ENVIRONMENT	MITIGATION MEASURES
Geology	<ul style="list-style-type: none"> – Follow the approved procedures during site clearance, construction of roads, power lines pipelines as per approved method statements. – Follow the approved engineering designs when conducting individual activities.
Surface water	<p>Siltation</p> <ul style="list-style-type: none"> – Areas that are stripped should be optimised to limit unnecessary stripping. – Storm water from upslope of the stripped areas should be diverted around these areas to limit the amount of storm water flowing over from these areas. – The timing of the topsoil stripping should be optimised to limit the time between stripping and construction. Where practical constraints exist and areas need to be left stripped for long periods, contour ploughing, or ripping could reduce run-off and hence reduce erosion. – Dry season construction is preferable where practical. – If natural revegetation does not cover the topsoil stockpiles, they can be hydro seeded to speed up vegetation cover. <p>Pollution of water resources</p> <ul style="list-style-type: none"> – All construction vehicles should be well maintained and inspected for hydrocarbon leaks weekly.

ENVIRONMENT

MITIGATION MEASURES

- Wash bay discharge water should flow through an oil separator.
- Fuel depots and refuelling areas should be bunded.
- Chemicals should be stored in a central secure area.
- Regular toolbox talks on the responsible handling of chemicals should be undertaken.

Contaminated water discharge

- Contaminated shallow seepage and storm water run-off must be collected and routed to lined pollution control dams or water storage facilities. The pollution control dams must be sized in accordance with Government Notice 704 of the South African National Water Act.
- The pollution control dam water levels must be constantly monitored. Steps and procedures must be put in place to manage situations where excess water builds up in the pollution control dam. This could include reprioritising water reuse from dams that are closer to spilling than those that are further from spilling, if practical.
- The pollution control dams must be operated empty as far as practicable and cannot fulfil the same role as a water storage dams, unless specifically designed to fulfil both purposes.
- Water reuse from the pollution control dams must be maximised.

Impacts due to leaking or burst dirty water and slurry pipes

- It is preferable to run the dirty water pipelines through areas already serviced by dirty water systems where possible. If not, a dedicated bunded servitude should be constructed with drainage paddocks to capture slurry and water if the pipes need to be drained.
- Pipelines should be subjected to frequent patrols. An efficient system of reporting should be available to allow the immediate tripping of pumps should a leak be found.

Loss of catchment yield (

- As is best practice, dirty areas should be minimised. This will have the dual benefit of smaller dirty water management systems and reduction in catchment yield loss.

Impacts due to wash bays and workshops

- All drains that collect the wash water and storm water must be maintained regularly. These should be free of debris and silt.
- All diversion canals, trenches and conduits must be designed to convey run-off from a 50-year design storm.
- The wash bays and workshops must be equipped with oil separators to remove hydrocarbons from wash down water.

General

- Draw up a stormwater management plan to control the flow of stormwater and limit the potential of dirty water from mixing with clean water sources.
- Acquire spill kits to clean up any hydrocarbon or chemical spills during construction and operation.

ENVIRONMENT**MITIGATION MEASURES**

	<ul style="list-style-type: none"> – Ensure that the site is paved or has impermeable surface to limit the infiltration of contaminants if the individual activity allows it. – All incidents must be reported to the responsible site officer as soon as they occur. – Material Safety Data Sheets will be updated regularly and be available on site. – Employees must be issued with appropriate PPE. – Waste may be temporarily stored on site (less than 90 days) before being disposed off appropriately at a registered hazardous waste disposal facility. – Oils, greases, diesel and other chemicals will be stored in the prescribed manner and within bunded areas to prevent soil contamination. – Mitigate against soil erosion, storm water run-off control. – Sustainable erosion control measures (for wind and water erosion) will be implemented and maintained where necessary in areas disturbed by the construction operations or the existing erosion control measures will be maintained. – Dirty and clean water will be separated by implementing clean and dirty water systems/structures prior to construction to prevent pollution of clean water runoff. The clean and dirty water systems and structures will be properly designed (according to Regulation 704 of the National Water Act).
Groundwater	<ul style="list-style-type: none"> – The TSF should be lined with the appropriate liner material as dictated by the waste classification of the tailing's material. – A system of storm water drains must be designed and constructed to ensure that all water that falls outside the area of the TSF is diverted clear of the deposit. – The proposed monitoring boreholes should be added to current monitoring network before the proposed TSF and RWD is operational. These should be monitored on a quarterly basis prior to construction, during and operational for the parameters analysed in this report. – The monitoring boreholes should be sited using geophysical methods in order to identify geological structures that may act as preferential flow paths for contaminant transport. These monitoring boreholes will also serve the purpose to measure groundwater levels as well as to gather groundwater quality data to determine the impact of the new developments at Two Rivers Mine. These boreholes need to be added to the current monitoring programme and need to be monitored on a monthly basis. – Monitoring boreholes drilling should be supervised by a qualified hydrogeologist and care should be taken to accurately log the geology during drilling and construct the boreholes appropriately – The aquifer parameters should be measured by conducting an aquifer test (pump test, slug test etc.) on each of the newly drilled boreholes. 8-Hour pumping tests are recommended. This information can be used to update the numerical with accurately measured parameters. – A hydro census within a radius of 2 km around the boundary of the site should be conducted every 2 years. – A re-evaluation of the risk to the aquifer should be conducted every 2 years. – Applying the Norms and Standards for Disposal of Waste to Landfill, the strict interpretation of this assessment is that the disposal of the Type 4 waste rock would require a barrier consistent with a Class D barrier system and the disposal of Type 3 waste rock and tailings would require a barrier consistent with a Class C barrier system. However, the waste rock display an inert nature and does not require any underliner, when constructing a waste rock dump. – Update and re-evaluation of the model with every change of mine plans or surface infrastructure change, or every 5 years, whichever comes first.

ENVIRONMENT**MITIGATION MEASURES**

Landuse and Capability	<ul style="list-style-type: none">– Ensure all oil and chemical spills are cleaned up– Ensure that the site is paved or has impermeable surface to limit the infiltration of contaminants if the individual activity allows it.– Oils, greases, diesel and other chemicals will be stored in the prescribed manner and within bunded areas to prevent soil contamination.
Air Quality	<ul style="list-style-type: none">– Conduct dust suppression during construction to minimise dust emissions from the site activities.– Ensure that all vehicles and machines are adequately maintained to minimise emissions.– All issues/complaints must be recorded in the complaints register.
Noise	<ul style="list-style-type: none">– Ensure that all vehicles and machines are adequately maintained to minimise any potential noise emissions.– Retrofit silencers to any machinery that has the potential to emit noise at levels higher than the acceptable emissions limits.– Conduct occupational health surveys to ensure that the noise emissions do not exceed the acceptable occupational limits (85 dBA).– All issues/complaints must be recorded in the complaints register.– Plan construction activities in consultation with local communities so that activities with the greatest potential to generate noise are planned during periods of the day that will result in least disturbance. Information regarding construction activities should be provided to all local communities. Such information includes:<ul style="list-style-type: none">– Proposed working times;– Anticipated duration of activities;– Explanations on activities to take place and reasons for activities; and– Contact details of a responsible person on site should complaints arise.– When working near a potential sensitive receptor, limit the number of simultaneous activities to a minimum as far as possible;– Using noise control devices, such as temporary noise barriers and deflectors for high impact activities, and exhaust muffling devices for combustion engines;– Selecting equipment with the lowest possible sound power levels;– Ensuring equipment is well-maintained to avoid additional noise generation;– A drop height policy should be implemented onsite to reduce the level of noise generation when handling materials. All equipment operators should be trained in the policy such that drop height reduction is implemented onsite;– It is recommended that a maximum speed of 40 km/h should be set on all unpaved roads;– Ensure a reduction in unnecessary traffic volumes by developing plans to optimise vehicle usage and movement;– Encouraging the receipt of materials during non-peak traffic hours to avoid traffic build-up and associated noise; and– Vehicles should not be allowed to idle for more than five minutes when not in use.

ENVIRONMENT

MITIGATION MEASURES

Visual	<p>General</p> <ul style="list-style-type: none">— Where areas are going to be disturbed through the destruction of vegetation, for example, the establishment of the construction camp, the vegetation occurring in the area to be disturbed must be replanted with endemic, indigenous species, especially veld-grass and trees. A hydroseeding application is recommended in the disturbed areas as a measure of rehabilitation.— The TSF and pipeline will have a twenty-year operation period. Mitigation measures to the visual impact, including dust suppression on access roads, well placed lighting, and limiting vegetation removal should be considered prior to the construction phase. <p>Pipeline and Concrete Structures</p> <ul style="list-style-type: none">— It is advised that concrete structures are painted a natural colour to blend in with the natural environment and plant vegetation to limit the visual intrusion on the natural environment. <p>Infrastructure Buildings</p> <ul style="list-style-type: none">— Rehabilitate disturbed areas around buildings as soon as practically possible after construction. This should be done to restrict extended periods of exposed soil.— Plant fast-growing endemic trees along the building yard, service road and conveyor system. The trees will with time create a screen and increase the biodiversity of the area. <p>Areas of Cut and Fill</p> <ul style="list-style-type: none">— To minimise the visual impact of areas that need cut and fill, such as the TSF, should be done as gradually as possible. A slope of 1:2, 1:5 or 1:3 is preferred. However, where the reserve width requires a slope steeper than 1:2, the cut face or fill slope must be stabilised by means of a retaining wall that should allow for planting.— A slope of 1:2 and steeper, increases the potential for soil erosion during heavy rain events, hampering the growth of the covering vegetation.— Re-vegetation rehabilitation is recommended for these areas. <p>Access Routes</p> <ul style="list-style-type: none">— Make use of existing access roads where possible.— Where new access roads are required, the disturbance area should be kept to a minimum. A two-track dirt road will be the most preferred option.— Locate access routes so as to limit modification to the topography and to avoid the removal of established vegetation.— Avoid crossing over or through ridges, rivers, pans or any natural features that have visual value. This also includes centres of floral endemism and areas where vegetation is not resilient and takes extended periods to recover.— Road verges that need to be cleared should be kept to a minimum.— Access routes should be located on the perimeter of disturbed areas such as cultivated/fallow lands so as not to fragment intact vegetated areas.
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ENVIRONMENT

MITIGATION MEASURES

	<ul style="list-style-type: none">– If it is necessary to clear vegetation for a road, avoid doing so in a continuous straight line. Alternatively, curve the road in order to reduce the visible extent of the cleared corridor. <p>Removal of Vegetation</p> <ul style="list-style-type: none">– Locate the alignment and the associated cleared servitude so as to avoid or minimise the removal of established vegetation.– Avoid a continuous linear path of cleared vegetation that would strongly contrast with the surrounding landscape character. Feather the edges of the cleared corridor to avoid a clearly defined line through the landscape.– Planting that needs to be removed should be salvaged and kept in a nursery for future re-planting.– Trees and shrubs can be used to screen structures and break stark contrasting lines if carefully planned and positioned. Trees and shrubs should be placed to intercept the line of sight between receptors and the proposed activities. <p>Construction Camps and Laydown Yards</p> <ul style="list-style-type: none">– If practically possible, locate construction camps in areas that are already disturbed or where it isn't necessary to remove established vegetation like for example naturally bare areas.– Utilise existing screening features such as dense vegetation stands or topographical features to place the construction camps and lay-down yards out of the view of sensitivity visual receptors.– Keep the construction sites and camps neat, clean and organised in order to portray a tidy appearance.– Screen the construction camp and lay-down yards by enclosing the entire area with a dark green or black shade cloth of no less than 2m height. <p>Lighting</p> <ul style="list-style-type: none">– Light pollution should be carefully considered and kept to a minimum wherever possible.– Security flood lighting and operational lighting should only be used where absolutely necessary and carefully directed away from visual receptors, especially residential areas.– Lights should be directed downwards to avoid illuminating the sky and minimizing light spills.
Ecology / Biodiversity	<p>Construction and operational footprint</p> <ul style="list-style-type: none">– Limit the footprint area of the construction activities to what is essential to minimise environmental damage. Construction vehicles must use existing roads where possible;– All informal fires near operations and new construction areas should be prohibited.– The vegetation clearance during the operational phase will be limited only on the foot print area of the construction activities;– Edge effects of all construction and operational activities, such as erosion and alien plant species proliferation, which may affect faunal habitat, need to be strictly managed in all areas of increased ecological sensitivity;

ENVIRONMENT

MITIGATION MEASURES

- Keep all demarcated sensitive zones outside of the construction area off limits during the construction and rehabilitation phases of the development; and
- Appropriate sanitary facilities must be provided during the construction phase and all waste removed to an appropriate waste facility.

Vehicle access and speed management

- All construction footprint areas should remain as small as possible and should not encroach onto surrounding more sensitive areas. It must be ensured that these areas are off-limits to construction vehicles and personnel as much as possible;
- In the event of a breakdown, maintenance of vehicles must take place with care and the recollection of spillage should be practiced near the surface area to prevent ingress of hydrocarbons into the topsoil;
- It must be ensured that all hazardous storage containers and storage areas comply with the relevant SABS standards to prevent leakage. All vehicles must be regularly inspected for leaks. Re-fueling must take place on a sealed surface area to prevent ingress of hydrocarbons into the topsoil; and
- All spills should be immediately cleaned up and treated accordingly.
- A speed restriction of 30 km/h should be placed on all construction vehicles within the project area;
- Drivers should receive regular training and awareness of the need for speed control and the enforcing a maximum speed limit of 30 km/h on all mine roads;
- Driving at night should be strictly controlled and only allowed where urgent and authorized by senior management staff; there should also be a written record of all staff driving at night;

Alien plant species

- Proliferation of alien and invasive species is expected within any disturbed areas. These species should be eradicated and controlled to prevent their spread beyond the linear development. Alien plant seed dispersal within the top layers of the soil within footprint areas must be controlled as it will have an impact on future rehabilitation;
- Removal of the alien and weed species encountered within the sites must take place to comply with existing legislation (amendments to the regulations under the Conservation of Agricultural Resources Act, 1983 and Section 28 of the National Environmental Management Act, 1998). Removal of species should take place throughout the construction, operational, and rehabilitation/ maintenance phases;
- Species specific and area specific eradication recommendations:
- Care should be taken with the choice of an appropriate method such as mechanical method to use for the removal of alien species;
- Footprint areas should be kept as small as possible when removing alien plant species; and
- No vehicles should be allowed to drive through designated sensitive areas during the eradication of alien and weed species.

Soils

- All soils compacted because of construction activities falling outside of project footprint areas should be ripped and profiled. Special attention should be paid to alien and invasive control within these areas. Alien and invasive vegetation control should take place throughout all construction and rehabilitation phases to prevent loss of floral habitat; and

ENVIRONMENT**MITIGATION MEASURES**

	<ul style="list-style-type: none"> – Monitor all systems for erosion and incision. <p>Remediation</p> <ul style="list-style-type: none"> – Upon remediation, re-seeding of indigenous grasses should be implemented in all impacted areas and strategic planting of grassland species should take place; – As much as vegetation growth possibly should be promoted surrounding the new development in order to protect soils. In this regard, special mention is made of the need to use indigenous vegetation species where seeding and rehabilitation planting (where applicable) are to be implemented.
Heritage	<ul style="list-style-type: none"> – Construction activities should be conducted carefully and all activities ceased if any archaeological, cultural and heritage resources are discovered. The SAHRA should be notified and investigation conducted before any activities can commence.
Socio-Economic	<ul style="list-style-type: none"> – Consider the use of local labour for the project in order to benefit the local community. – Where possible, use local suppliers for all required machinery or material. – Employment criteria should be communicated to the existing labourers and the community in advance (e.g. in newspapers, community forum notice boards, etc); – Verify the details of potential employees to ensure that local labour is employed; – Temporary staff should be housed in the surrounding communities like Bed and Breakfasts, etc. to prevent the establishment of construction camps
Health and Safety	<ul style="list-style-type: none"> – HSE officer will monitor safety conditions during construction activities; – Ensure employees are properly trained to use specific equipment or machinery; – Train personnel on how to deal with snake encounters, as well as encounters with other dangerous animals known to occur in the area; – Provide suitable personal PPE; – Conduct site and safety induction to raise awareness of the risks associated with the site; – Conduct regular toolbox talks as refreshers to improve health and safety; – Develop safe work instruction method statements that should be used by employees in completing their tasks; – Train all relevant personnel on handling, use and storage of hazardous substances; – Provide MSDS for all hazardous substances kept onsite; and – All visitors should undergo site induction and be made aware of the risks associated with the site.

9 PLAN OF STUDY FOR THE ENVIRONMENTAL IMPACT ASSESSMENT REPORTING PHASE

9.1 TERMS OF REFERENCE

Table 9-1 outlines the structure of the plan of study as required in terms of Annexure 2 of GNR 982, as amended.

Table 9-1: Plan of Study Structure

PLAN OF STUDY CHAPTER INFORMATION REQUIREMENT AS PER GNR 982, AS AMENDED

Description of EIA Tasks	A description of the tasks that will be undertaken as part of the environmental impact assessment process.
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9.2 OVERVIEW OF THE EIAR TASKS

The EIA phase will consist of the following tasks; each of these tasks is detailed separately in the following sub-sections:

- Specialist studies;
 - Continuation of Authority and stakeholder engagement;
 - Assessment of the significance of potential impacts; and
 - Preparation of the EIAR.
-

9.3 DESCRIPTION OF ALTERNATIVES

The EIA process identifies two types of project alternatives:

- Concept Level Alternatives which relates to the site, technology and process alternatives; and
- Detailed Level Alternatives which relates to working methods and mitigation measures,

The feasibility of the higher level concept alternatives have been considered and assessed within Section 6 of the DSR. The Detailed Alternatives, if any are required by the CA, will be addressed within the EIAR.

9.4 SPECIALIST STUDIES TO BE UNDERTAKEN

Table 9-2 below outlines the specialist studies that were identified during the Screening Assessment and verified during a site verification assessment. Where the specialist studies are deemed not applicable a motivation is provided to that effect.

Table 9-2: Specialist Studies

SPECIALIST STUDY	APPLICABILITY	SCOPE OF WORK (IF REQUIRED)
Agricultural Assessment Impact	Based on the site verification, the majority of the site is disturbed and there is no agricultural potential remaining. As such it is deemed that a specialist study is not required.	N/A
Archaeological and Cultural Heritage Impact Assessment	An Archaeological and Cultural Heritage Impact Assessment will be undertaken by Vhufa Hashu Heritage Consultancy.	A HIA will be conducted and will include: <ul style="list-style-type: none"> — A literature survey; — A physical field survey; — All sites, objects, features and structures identified were documented; — Assessment of the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value; — Description of the possible impact of the proposed development on these cultural remains, according to a standard set of conventions; — Recommended suitable mitigation measures to minimize possible negative impacts on the cultural resources by the proposed development; — Reviewed applicable legislative requirements; and — Compiled a report.
Palaeontology Assessment Impact	A Palaeontological Assessment is not required as the proposed developments fall under the grey and blue sections of the SAHRIS tool. No palaeontological studies are required however a protocol for finds is required, which will be provided in the EIAR.	N/A
Biodiversity Assessment Impact	A Biodiversity Assessment will be undertaken for the proposed TSF expansion, road and pipeline re-routing by The Biodiversity Company. DEM Environmental Services conducted a general baseline study for the mine.	The study will include: <ul style="list-style-type: none"> — Description of the baseline receiving environment specific to the field of expertise (general surrounding area as well as the site-specific environment); — Identification and description of any sensitive receptors in terms of relevant specialist disciplines (biodiversity) that occur in the project area, and the manner in which these sensitive receptors may be affected by the activity; — Identify ‘significant’ ecological, botanical and faunal features within the proposed project areas; — Identification of conservation significant habitats around the project area which might be impacted; — Screening to identify any critical issues (potential fatal flaws) that may result in project delays or rejection of the application;

SPECIALIST STUDY	APPLICABILITY	SCOPE OF WORK (IF REQUIRED)
		<ul style="list-style-type: none"> — Provide a map to identify sensitive receptors in the project area, based on available maps and database information; — Site visit to verify desktop information; — Conduct risk assessments relevant to the proposed activity; and — Impact assessment, mitigation and rehabilitation measures to prevent or reduce the possible impacts.
Hydrology Assessment	<p>The proposed project activities are close to the Dwarsrivier and its tributary, as well as the tributary of the Klein Dwarsrivier.</p> <p>As such, a hydrological assessment will be conducted by iLanda Water Services.</p>	<p>A hydrological assessment will be conducted and will include:</p> <ul style="list-style-type: none"> — A description of the regional setting; — A description of the local setting; — A description of the catchment area; — Baseline hydrology; — Description of buffer zones; — Description of the water quality on site and downstream; — Impact assessment due to proposed activities; — Description of the monitoring programme; — Reviewed applicable legislative requirements; and — Report compilation.
Hydrogeological Assessment	<p>A hydrogeological assessment will be done by GCS Consulting to assess the impacts of the proposed activities on the groundwater. This will include a hydrogeochemical model by Aquatox Consulting.</p>	<p>A hydrological assessment will be conducted and will include:</p> <ul style="list-style-type: none"> — A desktop study of the site; — Conducting a hydro census; — Conducting groundwater recharge calculations — Applied mineralogy; — Baseline of the site; — Groundwater modelling; — Impact assessment due to proposed activities; — Reviewed applicable legislative requirements; and — Report compilation.
Noise Impact Assessment	<p>The proposed site activities, particularly the TSF related activities can generate noise. As such, a NIA will be conducted by WSP.</p>	<p>A NIA will be conducted and will include:</p> <ul style="list-style-type: none"> — A desktop study of the site; — Identification of sensitive receptors; — Baseline monitoring of the site; — Impact assessment due to proposed activities; — Reviewed applicable legislative requirements; and — Report compilation.
Traffic Impact Assessment	<p>There will be limited movement of construction vehicles on the regional roads during construction and operational phase. The majority of the activities will occur within the TRP mining boundary. As such it is</p>	N/A

SPECIALIST STUDY	APPLICABILITY	SCOPE OF WORK (IF REQUIRED)
	deemed that a specialist study is not required.	
Socio-Economic Assessment	<p>It is anticipated that temporary employment opportunities will be generated during the execution of the proposed, however, these will be minimal. Furthermore, the negative impacts due to the TSF footprint needs to be assessed.</p> <p>As such it is deemed that a specialist study is required.</p>	<p>A social impact study will be conducted and will include:</p> <ul style="list-style-type: none"> – Desktop description of the baseline receiving environment specific to the field of expertise (general surrounding area as well as site specific environment); – Identification and description of any sensitive receptors in terms of relevant social aspects; – Identify key social issues within the proposed development areas; – Site visit to verify desktop information; – Provide a map to identify sensitive receptors in the project area, based on available maps, database information & site visit verification; – Identification of risk factors associated with the developments; – Report compilation
Air Quality Impact Assessment	An AQIA will be undertaken by WSP due to the anticipated impact from the TSF.	<p>An AQIA will be conducted and will include:</p> <ul style="list-style-type: none"> – Undertake a baseline assessment of the current meteorological and ambient air quality situation in the area surrounding the proposed plant. – Compile a comprehensive emissions inventory for the TSF. – Use a Level Two (AERMOD) atmospheric dispersion model to determine the air quality impacts associated with the TSF. – Compile an Atmospheric Impact Report, detailing all findings from the baseline assessment, emissions inventory and dispersion modelling simulations; – Provide recommendations on the scope of any mitigation measures to reduce the air quality associated with the proposed plant; and – Compile an AQIA for the TSF.
Visual Assessment	A VIA will be undertaken by Outline Landscape Architects, to determine the impacts of the TSF expansion.	<p>A VIA will be conducted and will include:</p> <ul style="list-style-type: none"> – Conduct a desktop assessment; – Identification of sensitive receptors; – Baseline description of the site; – Impact assessment due to proposed activities; – Reviewed applicable legislative requirements; and – Report compilation.

9.5 IMPACT ASSESSMENT METHODOLOGY

The EIA uses a methodological framework developed by WSP to meet the combined requirements of international best practice and NEMA, Environmental Impact Assessment Regulations, 2014, as amended (GN No. 326) (the “EIA Regulations”).

As required by the EIA Regulations (2014) as amended, the determination and assessment of impacts will be based on the following criteria:

- Nature of the Impact;
- Significance of the Impact;
- Consequence of the Impact;
- Extent of the impact;
- Duration of the Impact;
- Probability if the impact;
- Degree to which the impact:
 - can be reversed;
 - may cause irreplaceable loss of resources; and
 - can be avoided, managed or mitigated.

Following international best practice, additional criteria have been included to determine the significant effects. These include the consideration of the following:

- Magnitude: to what extent environmental resources are going to be affected;
- Sensitivity of the resource or receptor (rated as high, medium and low) by considering the importance of the receiving environment (international, national, regional, district and local), rarity of the receiving environment, benefits or services provided by the environmental resources and perception of the resource or receptor); and
- Severity of the impact, measured by the importance of the consequences of change (high, medium, low, negligible) by considering inter alia magnitude, duration, intensity, likelihood, frequency and reversibility of the change.

It should be noted that the definitions given are for guidance only, and not all the definitions will apply to all of the environmental receptors and resources being assessed. Impact significance was assessed with and without mitigation measures in place.

9.5.1 METHODOLOGY

Impacts are assessed in terms of the following criteria:

- a) The nature; a description of what causes the effect, what will be affected and how it will be affected.

Table 9-3: Nature or Type of Impact

NATURE OR TYPE OF IMPACT DEFINITION

Beneficial / Positive	An impact that is considered to represent an improvement on the baseline or introduces a positive change.
Adverse / Negative	An impact that is considered to represent an adverse change from the baseline, or introduces a new undesirable factor.
Direct	Impacts that arise directly from activities that form an integral part of the Project (e.g. new infrastructure).

Indirect	Impacts that arise indirectly from activities not explicitly forming part of the Project (e.g. noise changes due to changes in road or rail traffic resulting from the operation of Project).
Secondary	Secondary or induced impacts caused by a change in the Project environment (e.g. employment opportunities created by the supply chain requirements).
Cumulative	Impacts are those impacts arising from the combination of multiple impacts from existing projects, the Project and/or future projects.

b) The **physical extent**.

Table 9-4: Physical Extent Rating of Impact

SCORE	DESCRIPTION
1	the impact will be limited to the site;
2	the impact will be limited to the local area;
3	the impact will be limited to the region;
4	the impact will be national; or
5	the impact will be international;

c) The duration, wherein it is indicated whether the lifetime of the impact will be:

Table 9-5: Duration Rating of Impact

SCORE	DESCRIPTION
1	of a very short duration (0 to 1 years)
2	of a short duration (2 to 5 years)
3	medium term (5–15 years)
4	long term (> 15 years)
5	permanent

- d) Reversibility: An impact is either reversible or irreversible. A scale of the level of reversibility if an impact is How long before impacts on receptors cease to be evident.

Table 9-6: Reversibility of The Impact

SCORE	DESCRIPTION
1	The impact is immediately reversible.
3	The impact is reversible within 2 years after the cause or stress is removed; or
5	The activity will lead to an impact that is in all practical terms permanent.

- e) The magnitude of impact on ecological processes, quantified on a scale from 0-10, where a score is assigned.

Table 9-7: Magnitude Rating of Impact

SCORE	DESCRIPTION
0	small and will have no effect on the environment.
1	minor and will not result in an impact on processes.
2	low and will cause a slight impact on processes.
3	moderate and will result in processes continuing but in a modified way.
4	high (processes are altered to the extent that they temporarily cease).
5	very high and results in complete destruction of patterns and permanent cessation of processes.

- f) The probability of occurrence, which describes the likelihood of the impact actually occurring. Probability is estimated on a scale where:

Table 9-8: Probability Rating of Impact

SCORE	DESCRIPTION
1	very improbable (probably will not happen).
2	improbable (some possibility, but low likelihood).
3	probable (distinct possibility).
4	highly probable (most likely).
5	definite (impact will occur regardless of any prevention measures).

- g) The significance, which is determined through a synthesis of the characteristics described above (refer formula below) and can be assessed as low, medium or high;
- h) The status, which is described as either positive, negative or neutral;

- i) The degree to which the impact can be reversed;
- j) The degree to which the impact may cause irreplaceable loss of resources; and
- k) The degree to which the impact can be mitigated.

The significance is determined by combining the above criteria in the following formula:

Significance = (Extent + Duration + Reversibility + Magnitude) x Probability

$$[S=(E+D+R+M) \times P]$$

Where the symbols are as follows:

SYMBOL	CRITERIA	DESCRIPTION
S	Significance Weighting	
E	Extent	Refer to Table 9-4
D	Duration	Refer to Table 9-5
M	Magnitude	Refer to Table 9-7
P	Probability	Refer to Table 9-8

The significance weightings for each potential impact are as follows:

OVERALL SCORE	SIGNIFICANCE RATING (NEGATIVE)	SIGNIFICANCE RATING (POSITIVE)	DESCRIPTION
< 30 points	Low	Low	where this impact would not have a direct influence on the decision to develop in the area
31 - 60 points	Medium	Medium	where the impact could influence the decision to develop in the area unless it is effectively mitigated
> 60 points	High	High	where the impact must have an influence on the decision process to develop in the area

The impact significance without mitigation measures will be assessed with the design controls in place. Impacts without mitigation measures in place are not representative of the proposed development's actual extent of impact, and are included to facilitate understanding of how and why mitigation measures were identified. The residual impact is what remains following the application of mitigation and management measures, and is thus the final level of impact associated with the development. Residual impacts also serve as the focus of management and monitoring activities during project implementation to verify that actual impacts are the same as those predicted in the EIAR.

9.6 ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Once the DSR has been submitted to the proposed project will proceed into detailed EIA phase, which involves the detailed specialist investigations. WSP will produce a Draft EIAR after the completion of the required specialist studies. The Draft EIAR will provide an assessment of all the identified key issues and associated impacts from the Scoping phase. All requirements as contemplated in the EIA Regulations (GNR 982, as amended) will be included in the Draft EIAR. The Draft EIAR will contain, inter alia, the following:

- Details of the EAP who prepared the report and the expertise of the EAP to carry out the S&EIR process, including a curriculum vitae;
- 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; and the coordinates of the boundary of the property or properties;
- A plan which locates the proposed activity or activities applied for as well as the associated structures and infrastructure at an appropriate scale;
- A description of the scope of the proposed activity, including all listed and specified activities triggered and being applied for; and a description of the associated structures and infrastructure related to the proposed project;
- A description of the policy and legislative context within which the development is located and an explanation of how the proposed development complies with and responds to the legislation and policy context;
- 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;
- A motivation for the preferred development footprint within the approved site;
- A full description of the process followed to reach the proposed development footprint within the approved site;
- Details of the public participation process undertaken;
- 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;
- The environmental attributes associated with the development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;
- The impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts;
- The methodology used in determining and ranking of potential environmental impacts and risks;
- Positive and negative impacts;
- An assessment of each identified potentially significant impact and risk;
- The possible mitigation measures that could be applied;
- An environmental impact statement;
- A description of any assumptions, uncertainties and gaps in knowledge;
- A reasoned opinion as to whether the proposed activity should or should not be authorised;
- An undertaking under oath or affirmation by the EAP; and
- An EMPR.

9.7 STAKEHOLDER AND AUTHORITY ENGAGEMENT

9.7.1 PUBLIC PARTICIPATION PROCESS

Public participation during the EIA phase revolves around the review and findings of the environmental impact assessment, which will be presented in the Draft EIAR. All stakeholders will be notified of the progress to date and availability of the Draft EIAR, via mail, email and/or SMS. A legislated period of 30 consecutive days will be allowed for public comment. Reports will be made available in the following way:

- Distribution for comment at central public places, which were used during the Scoping phase;
- The document will be made available to download from the WSP website; and
- Copies of CDs will be made available on request.

A public meeting required in order to reach the majority of the stakeholders especially the landowners as the land is communally owned. The meeting will be facilitated by key members of the project team. The public meeting would be to present the findings of the impact assessment and address issues of concern raised during the Scoping phase.

The EIA phase will provide the following information to I&APs:

- Initial Site Plan;
- Alternatives;
- A description of activities and operations to be undertaken;
- Baseline information;
- Specialist studies;
- Impact assessment;
- Management measures;
- Monitoring and measuring plan; and
- Closure details.

The information outlined above will be presented in one or more of the following:

- Notifications;
- Scoping Report;
- EIAR; and
- EMPR.

All comments received during the EIA phase will be recorded in the CRR, which will be included in the Draft and Final EIAR. The Final EIAR will incorporate public comment received on the Draft EIAR and will be made available for public review with hard copies distributed mainly to the authorities and key stakeholders.

9.8 NOTIFICATION OF ENVIRONMENTAL AUTHORISATION

All stakeholders will receive a letter at the end of the process notifying them of the authority's decision, thanking them for their contributions, and explaining the appeals procedure.

9.9 CONSULTATION WITH AUTHORITIES

It is envisaged that consultation with the DMRE will coincide with the compilation of the following key documents:

- DSR;
- FSR;
- Draft EIAR/EMPr; and
- Final EIAR/EMPR.

10 WAY FORWARD

This DSR contains:

- A description of the existing and proposed activities;
- A description of the alternatives considered to date;
- An outline of the proposed process to be followed;
- Information on the proponent, EAP and stakeholders who have chosen to participate in the project;
- An outline of the environment in which the project falls;
- Information on the potential environmental impacts to be studied in more detail during the EIAR phase of the project; and
- Information on the proposed specialist studies to be undertaken.

A number of environmental impacts have been identified as requiring some more in-depth investigation and the identification of detailed mitigation measures, namely transport and air quality. Therefore, a detailed EIA is required to be undertaken in order to provide an assessment of these potential impacts and recommend appropriate mitigation measures.

The recommendation of this report is that detailed specialist studies for terrestrial ecology and heritage are undertaken on the proposed project. The scope of work required in the EIA phase of the project is included in the ToR for EIA in this DSR.

This DSR is available for review from **19 October 2021** to **19 October 2021**. All issues and comments submitted to WSP will be incorporated in the CRR of the FSR.

The DSR will be submitted to the delegated competent authorities responsible for authorising this project.

If you have any further enquiries, please feel free to contact:

WSP Environmental (Pty) Ltd
Attention: Tutayi Chifadza
PO Box 98867, Sloane Park, 2152
Tel: 011 361 1390
Fax: 011 361 1301
E-mail: Tutayi.Chifadza@wsp.com

APPENDIX

A EAP CV



APPENDIX

A-1 *TUTAYI CHIFADZA*



CHIFADZA TUTAYI, Pri.Sci.Nat, B.Sc.H

*Environmental Consultant (Environmental Management),
Environment & Energy*



Years with the firm

3>

Years of experience

>7

Areas of practice

Environmental Management

*Environmental and Social Impact
Assessment*

Compliance Auditing

*Environmental, Social and
Governance (Due Diligence
Services)*

*Environmental Screening
Assessments*

*Waste Classification and
Management*

CAREER SUMMARY

Tutayi Chifadza is an Environmental Consultant currently working for WSP at the Johannesburg, Bryanston office in the Environmental Services division. He also serves as a Client Relationship Manager for a strategic set of WSP's clients. He moved to WSP from Sparrow Consulting early 2016 where he was Project Manager for their Technical Manual/Training material development team.

He has experience in Scoping and EIA projects in several industrial sectors including Oil & Gas, Waste Management, Mining and Agricultural sectors applying local legislation. In 2018, he was part of the team that conducted an ESIA in Somaliland for Dubai Port World in their bid to expand the Port of Berbera quay. Furthermore, he has extensive experience in conducting compliance audits in different sectors on Environmental Authorisations, Waste Management Licenses and Environmental Management Programmes. He has been involved on a couple of projects conducting Environmental Health and Safety audits for worker safety.

Tutayi has also been involved in a couple of Due Diligence projects in the Industrial as well as Oil & Gas sectors. This has been through a desktop exercise reviewing documents provided and identifying information gaps as well as conducting site visits with the guidance of checklists generated from IFC Performance Standards.

He is currently part of the Employment Equity Committee at WSP representing foreign nationals as well as the WSP Environmental Fresh Exchange team that provides a link between employees and senior management.

EDUCATION

Bachelor of Science (Honours), Applied Science in Environmental Technology, University of Pretoria, Pretoria, South Africa	2013
Bachelor of Science, Chemistry, University of Pretoria, Pretoria, South Africa	2012

PROFESSIONAL REGISTRATIONS

South African Council for Natural Scientific Professions (SACNASP): <i>Pri.Sci.Nat</i>	2021
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ADDITIONAL TRAINING

IFC Environmental and Social Risk Management Training Course for Due Diligence with focus on IFC Performance Standards and Equator Principles	2018 & 2019
IFC Environmental and Social Risk Management Training Workshop on publicly available tools for assisting in assessing the IFC performance standards for Due Diligence process	2018
Environmental Legal Compliance and Auditing Training by Janice Tooley & Associates	2017
Certificate of Completion for Project Management Professional (PMBOK), e-careers (Online Learning)	2016

PROFESSIONAL EXPERIENCE

Key Environmental Impact Assessment Process

— Gridflex Battery Energy Storage System Screening Assessment, Gauteng, South Africa (2020): Conducted a screening assessment for a proposed BESS facility in

order to determine the suitability of the proposed sites and technology for the project. The purpose of the BESS facility is to store additional energy and feed the grid when there is no supply. Client: Gridflex Limited.

- Eskom Gemsbok-KwaMhlanga 132kV Powerline Basic Assessment, KwaMhlanga, Mpumalanga, South Africa (2020): Compiled the BA supporting documentation including the BAR, EMPr and the related public participation material. The purpose of the BA was for Eskom to construct a 132kV powerline. Client: Eskom Holding SOC Limited.
- Eskom Hlanganani Customer Network Centre, Mahatlani, Limpopo, South Africa (2019): Compiled the BA supporting documentation including the BAR, EMPr and the related public participation material. The purpose of the BA was for Eskom to clear a 2-hectare area for the purposes of constructing a customer network centre. Client: Eskom Holding SOC Limited.
- Sasol Phenosolvan Plant Decommissioning of Redundant Equipment Basic Assessment (BA), Sasolburg, Free State, South Africa (2019): Compiled the BA supporting documentation including the BAR, EMPr and the related public participation material. The purpose of the BA was for Sasol to decommission redundant equipment on the Phenosolvan Plant to create space and improve the health and safety aspects of the site. Client: Sasol South Africa Limited.
- Eskom Medupi Raw Water Pipeline BA, Lephalale, Limpopo, South Africa (2019): Compiled the BA supporting documentation including the BAR, EMPr and the related public participation material. The purpose of the BA was for Eskom to clear a servitude in order to construct an underground raw water pipeline within the Medupi site in order to supply water for the use in the Flue Gas Desulphurisation process on the facility to reduce sulphur emissions. Client: Eskom Holding SOC Limited.
- AgriProtein Gauteng Nutrient Recycling Facility EIA, Johannesburg, Gauteng, South Africa (2018): Compiled the EIA supporting documentation including the Scoping Reports, EIA Reports, EMPr and the related public participation material. I was also the main contact with the Gauteng Department of Agriculture and Rural Development. The purpose of the EIA was for Agriprotein to develop and build an industrial scale nutrient recycling bio-technology plant at a green field site. Client: Agriprotein Gauteng.
- Wildcoast Special Economic Zone (SEZ) EIA, Mthatha, Eastern Cape, South Africa (2018): Compiled the EIA supporting documentation including the Scoping Reports, EIA Reports, EMPr and the related public participation material. The purpose of the EIA was for the Coega Development Corporation (CDC) to clear an area and develop an SEZ in the Wildcoast area to the immediate north and immediate south of the Mthatha airport. The purpose of the SEZ is to accommodate different economic activities, with agricultural activities to the north and commercial activities to the south (hotels, etc) to boost the local economy and create employment in the region. Client: Coega Development Corporation.
- Port of Berbera Phase 1 Expansion ESIA, Woqooyi Galbeed, Somaliland (2018): Assisted in compiling the ESIA supporting documentation including the Background Information Document, ESIA Report, Environmental and Social Monitoring Plan, Cumulative Impact Assessment methodology and report as well as the Legal Framework. This was done following conducting site assessments using the IFC Performance Standards as a basis. The purposes of the project was to extend the existing quay on the port in order to support larger vessels as well as expand the shipping container storage area including amenities as well as ensure control of the movement of goods around the region. Client: DP World.
- Proposed Animal Feedlot BA, Mpumalanga, South Africa (2018): Compiled the BA supporting documentation including the BAR, EMPr and the related public participation material. The purpose of the feedlot was to support the project

to support the Agri-Parks programme, which is the cornerstone of rural economic transformation, and support the red meat sector in the region. Client: Department of Rural Development and Land Reform.

- BioTherm Wind and Solar Energy Facilities, Western Cape and Northern Cape, South Africa (2017-2017): Created a consolidated impact assessment rating based on the available specialist studies for all the proposed sites. This assisted in acquiring the cumulative impact from all the projects in the area based on the publicly available information. It also included consolidating the comments and response from commenting authorities and stakeholders in the Comments and Responses Report. Client: BioTherm Energy.
- Transnet Pipelines EIA/BA process, Secunda, Mpumalanga, South Africa (2017): Compiled the BA supporting documentation including the BAR, EMPr and the related public participation material. The purpose of the BA was for Transnet to acquire an authorisation in order to cover an exposed hydrocarbon pipeline using a concrete gabion mattress structure to protect it and prevent contamination of surrounding watercourses. Client: Transnet Pipelines, a Division of Transnet Limited.
- Anglo Platinum Water Separation Project, Rustenburg, North West, Gauteng (2016-2017): Compiled the BA supporting documentation including the BAR, EMPr and the related public participation material. The purpose of the BA was for Anglo to construct a new raw water pipeline and a reservoir for storage of water for use in the event of lack of supply as well as for firefighting purposes. Client: Anglo American Platinum Limited.
- Amandelbult Mine Dangerous Goods Storage and Railway Extension Project BA, Limpopo, South Africa (2017): Compiled the BA supporting documentation including the BAR, EMPr and the related public participation material. The purpose of the BA was for the client to obtain authorisation to install diesel storage tanks to support the mine expansion as well as the extension of the existing railway line in order to support more rail cars. Client: Rustenburg Platinum Mines Limited.

Due Diligence

- Environmental Due Diligence, South Africa (2020): Partnering a Senior Associate on a Phase 1 EDD conducting a desktop assessment of a site in Cape Town the client proposes to buy to extend their operations. My role entails reviewing existing studies as well as analysing GIS and ESG tools to draft a report which gives insight on the current state of the site along with any major findings the client has to be aware of before proceeding with the transaction. Client: Confidential.
- Environmental Due Diligence, South Africa (2019): Partnered a Senior Associate on a Phase 1 EDD conducting a desktop assessment of various sites in South Africa for an explosives manufacturing company which proposed to buy similar operations from another organisation. My role entailed reviewing existing studies and reports on the various sites to provide insight on the state of the sites along with any major findings the client had to be aware of before proceeding with the transaction. Client: Confidential.
- Environmental Social Governance Due Diligence, South Africa/Swaziland (2017): Partnered with two Senior Associates during the project and conducted site visits and conducted facility inspections (Johannesburg sites and at one facility in Swaziland) based on the checklist prepared in line with EHS Guidelines and IFC Performance Standards (1 and 2) at selected WACO Africa facilities in Johannesburg and Swaziland on behalf of the client who intended to invest. Client: The Abraaj Group.

Compliance Auditing: Key Projects

- Refurbishment (Fit-Out) of The 8th Floor in 140 West Building, South Africa (2020) Tutayi compiled the Environmental Management Plan for the

refurbishment/construction of the Goldman Sachs office space in Sandton, Johannesburg. This included understanding the proposed project activities and deriving the potential impacts from the different project aspects (waste, air quality, etc.). The EMP was compiled to provide the environmental management measures for the site for the proposed site activities in order to acquire a Green Star SA – Office v1 certification by the Green Building Council of South Africa. A monitoring programme was also developed as part of the project. Tutayi applied his scientific knowledge in coming up with the relevant management measures for the expected impacts. Client: Goldman Sachs

- Anglo Gold Ashanti Regulation 34 Audits, Klerksdorp, North West (2019): Conducted an EMPR compliance audit for the mine's Mine Waste Solutions business which focuses on tailings recovery based on Regulation 34 of the requirements of the local National Environmental Management Act (NEMA). Client: Anglo Gold Ashanti Limited.
- Impala Platinum Regulation 34 Audits, Rustenburg, North West (2019): Conducted an EMPR compliance audit focusing on the mine's shafts, concentrators, smelters and other ancillary operational activities based on Regulation 34 of the requirements of the local NEMA. Client: Impala Platinum Limited.
- Anglo American Mogalakwena Mine Regulation 34 Audits, Mokopane, North West (2019 & 2020): Conducted an EMPR compliance audit focusing on the mine's opencast pit operations as well as ancillary services based on Regulation 34 of the requirements of the local NEMA. Client: Anglo American Platinum.
- 1 Fricker Road Towers Building Development, South Africa (2018). Tutayi undertook the first compliance audit against the Environmental Management Plan for the refurbishment/construction of the J.P. Morgan Chase & Company office building in Illovo, Johannesburg. This included conducting interviews with the appointed Designated Environmental Officer from the contractor, site personnel on gathering information on the operations and the environmental management measures in place for the site. The purpose of the development was to acquire a Green Star SA – Office v1 certification by the Green Building Council of South Africa. A site walk was conducted to confirm any findings. A monitoring programme was also developed as part of the project. Tutayi applied his scientific knowledge in coming up with the relevant management measures for the expected impacts. Client: J.P. Morgan Chase and Company
- South 32 Water Use Licence (WUL) Audits, Middelburg, Mpumalanga (2016-2019, annual audits): Conducted compliance audits against two WULs focusing on the water uses for two different sections of opencast pits operations based on the requirements of the local National Water Act (NWA). Client: South 32.
- Tubatse Ferrochrome Waste Management Licence (WML) Audits, Steelpoort, Limpopo (2017-2019, annual audits): Conducted WML compliance audits against five licences mainly focusing on management of disposal of baghouse dust from the smelting operations as well as slag disposal facilities. Audits are based on the requirements of the local National Environmental Management: Waste Act (NEM: WA). Client: Samancor Chrome.
- Sasol Regulation 34 Audits, Secunda, Mpumalanga (2019): Conducted compliance audits against project based Environmental Authorisations and corresponding EMPs for different operations on Sasol's Secunda facility based on Regulation 34 of the requirements of the local National Environmental Management Act (NEMA). Client: Sasol South Africa (Pty) Limited.
- Samancor Manganese South Plant demolition, Meyerton, Gauteng, South Africa (2016): Provide Environmental Control Officer (ECO) services by conducting bimonthly EMP audits for the demolition of the South Plant site on the premises. This entailed conducting environmental audits to ensure EMP compliance for the

project to minimise impacts and risk during the activities. Client: Samancor Manganese, Metalloys, operated by South 32.

- Sappi External Waste Management Licence Compliance Audit, Springs, Gauteng, South Africa (2016): Conducted the WML environmental compliance audit of the solid waste disposal facility situated at Enstra and compile an audit report according to the requirements of NEMWA. Client: Sappi Southern Africa Limited.
- General Electric Healthcare Environmental Health and Safety Audit, Rosebank, Gauteng, South Africa (2016): Conducted an Environmental Health and Safety (EHS) inspection of the GE Healthcare operations in Rosebank and one field site. The field site was at the Life Carstenhof Hospital where the Field Engineers were installing a new piece of equipment. Client: GE Healthcare, a Division of General Electric.
- Rose Foundation Environmental Compliance Audit of Old Oil Man, Chamdor, Gauteng, South Africa (2016): Conducted an environmental compliance audit to identify and assess key environmental issues pertaining to the operations and facilities against which on-going continuous improvements and modifications of the facility can be evaluated. The audit covered site operational control measures, legal and regulatory compliance, impacts to environment and general environmental practice. Client: Rose Foundation.

Waste Management

- Transnet Port Terminals Waste Classification Survey, South Africa (2020): Tutayi conducted the waste classification survey of the Transnet Port Terminals around the country which included, Durban Car Terminal, Maydon Wharf, Durban Container Terminal 1, Durban Container Terminal 2, Richards Bay, Port Elizabeth, East London, Cape Town and Saldanha Bay. This included conducting interviews with the SHEQ Manager, SHEQ Officers and gathering information on the operations and the waste management measures in place for both general and hazardous waste based on the operations. A survey of the available documentation including the waste inventory and previous classifications and SDSs was done. This was to ensure that the waste management requirements were met. Site walks were conducted at each site to confirm that the same standards were applied and any unclassified waste streams had samples collected for analysis at an accredited laboratory. The results were then analysed internally and Tutayi developed the SDSs for the waste streams identified as hazardous. Tutayi also applied his scientific knowledge when he was advising the clients and contractors when dealing with challenges onsite that had to be solved and providing recommendations for any non-compliances noted during the audit. This was reflected in the waste classification survey reports which were produced for each site. Client: Transnet Port Terminals
- South 32 Dam Sludge Classification Project, South Africa (2018): Tutayi assisted in the waste classification on the sludge from the South 32 Ifalethu Colliery Pollution Control Dams. South 32 intended to do dam clean up and wanted to assess the sludge for disposal. Tutayi collected samples from the dams which were analysed at an accredited laboratory. The results were then analysed internally and Tutayi developed the SDSs for the waste streams identified as hazardous. Client: South 32 Coal Holdings
- Mine Water Reclamation Plant (MWRP) Gypsum Classification Project: Tutayi assisted in the waste classification of the gypsum generated from the South 32 water treatment plant. The MWRP generates a solid waste during the mine water treatment process, which theoretically, should be gypsum based on the chemistry of the plant. The project was to intended to confirm that the gypsum produced was pure and could be sold to farmers for use as a fertilizer. This would help empty the gypsum dams that were getting full and find a way to reuse the by-product. Tutayi collected grab samples which were analysed at an accredited laboratory.



CHIFADZA TUTAYI, B.Sc.H

*Environmental Consultant (Environmental Management),
Environment & Energy*

The results were then analysed internally and an SDS and a classification report produced. Client: South 32 Coal Holdings

- PPC Waste Classification, All PPC South Africa sites, South Africa (2016): Consolidated the waste inventories from different sites into one waste inventory, pre-classified the waste, collected samples, conducted waste profiling, waste classification and created SDSs based on laboratory analysis of samples collected. Created generic SDSs for waste where sampling was not required. Client: PPC Ltd.

APPENDIX

A-2 ANRI SCHEEPERS



ANRI SCHEEPERS, BA

Principal Consultant (Environmental Services), Environment & Energy



Years with the firm

8

Years of experience

13

Professional registrations

IAIA SA

Areas of expertise

*Legal Compliance Assessments
Stakeholder Engagement
Water Use License Applications
Environmental Authorisation
Processes
Environmental Management Plans
Waste Management
Environmental Due Diligence and
Liability Assessments
Environmental Management*

CAREER SUMMARY

Anri graduated from the University of Johannesburg with a BA honours in Geography in 2007, and has thirteen years work experience. Anri is a principal environmental consultant and team coordinator for the Planning and Advisory Services unit.

Anri has been involved in numerous mining and industrial projects in South Africa. Anri has experience with diamond, gold, platinum, chrome, coal and manganese mining and processing operations. The projects include Environmental and Social Impact Assessments, Amendment processes and Environmental Management Programme consolidation and alignment processes. She has project managed numerous multi disciplinary projects in various sectors in South Africa and has experience with the International Finance Corporation Performance Standards and African Development Bank Guidelines.

Anri is qualified as a Lead Auditor and has undertaken legal compliance auditing, including environmental authorisations, waste management licences, water use licences and environmental performance assessments. In addition, she has undertaken general site assessments to determine compliance against, local, provincial and national environmental legislation. Anri has also been involved in environmental due diligence and liability assessments.

Anri's roles and responsibilities include the management of Environmental Authorisation and Waste Management Licence Processes (Basic Assessments and Scoping and Environmental Impact Assessment Reporting), Water Use Licence Application Processes and Auditing.

EDUCATION

Bachelor of Arts (Honours), Geography, University of Johannesburg, Gauteng, South Africa	2007
Bachelor of Arts, Geography, University of Johannesburg, Gauteng, South Africa	2006

ADDITIONAL TRAINING

Environmental-Law Mine Closure, Centre for Environmental Management, South Africa	2019
Environmental Management Systems ISO 14001 Audit: Lead Auditor, Centre for Environmental Management, South Africa	2014
IWRM, Water Use Authorisations, and Water Use Licence Applications – Procedures, Guidelines, IWWMPs and Pitfalls, Carin Bosman Sustainable Solutions, South Africa	2012
ISO 14001 Environmental Management Systems (EMS), Implementation and Auditing, Centre for Environmental Management, South Africa	2011
IEMA Approved Foundation Course in Environmental Auditing, Aspects International, South Africa	2009

PROFESSIONAL EXPERIENCE

Environmental Authorisation Processes

- Jet Park Warehouse Development, Gauteng (2020-2021). Project Manager. Basic Assessment Process for the development of a commercial park within a 30m from a wetland and within a critical biodiversity area. Client: Sable Place Properties

- Vosloorus Filling Plant, Vosloorus, Gauteng (2019-2020). Project Manager. Environmental authorisation process for the proposed dangerous goods filling plant. Client: Richbay Chemicals
- Mbabane – Manzini Corridor Dam (Nondvo Dam), Hhohho Region, Eswatini (2018-2019). Project Manager. An Environmental and Social Impact Assessment for the proposed Nondvo Dam in Eswatini (previously Swaziland). Client: Government of the Kingdom of Eswatini, Ministry of Natural Resources and Energy, Department of Water Affairs
- Sappi Ngodwana Reservoir, Mpumalanga (2020): Project Manager. Basic Assessment Process for the construction of a reservoir within a critical biodiversity area. Client: Sappi Southern Africa
- Demolition and Rehabilitation of Infrastructure at West Wits Business Operations, Carletonville, Gauteng (2019): Project Manager. A contaminated land assessment and environmental authorisation process for the decommissioning and rehabilitation of selected infrastructure West Wits Operations. Client: AngloGold Ashanti
- Environmental Authorisation Process for the SO₂ Abatement Plant at Mortimer Smelter, Swartklip, North West, South Africa (2016-2017): Project Manager. Undertaking a Scoping and Environmental Impact Reporting Process to ensure compliance with the National Environmental Management Air Quality Act (No. 39 of 2004). Client: Anglo American Platinum Limited
- Environmental Authorisation Process for the SO₂ Abatement Plant at Polokwane Smelter, Polokwane, Limpopo, South Africa (2016-2017): Project Manager. Undertaking a Scoping and Environmental Impact Reporting Process to ensure compliance with the National Environmental Management Air Quality Act (No. 39 of 2004). Client: Anglo American Platinum Limited

Environmental Management Plans/Programmes

- Refurbishment (Fit-Out) of the 8th Floor in 140 West Building, South Africa (2020): Project Manager. Compilation of the Environmental Management Plan for the refurbishment of an office space in order to acquire a Green Star SA – Office v1 certification by the Green Building Council of South Africa. Client: Goldman Sachs
- Environmental Management Plan for the South Sudan Feeder Roads, South Sudan (2019): Project Director. Compilation of an Environmental Management Plan for the construction of the Kayango Market to A43 Road in South Sudan. Client: United Nations Office for Project Services (UNOPS)
- Separation of the Union Section Operational Environmental Management Programme (and Addendums) into ‘Carved Out’ versus ‘Retained’ categories, Swartklip, North West Province, South Africa (2017): Project Manager. The Section is in possession of an approved Environmental Management Programme as well as numerous addendums for mining, concentrating and smelting, operations. The Section is in a restructuring process which involves the selling and/or disenfranchising of certain of the operations. WSP/PB restructured the Sections’s consolidated Environmental Management Programme to align with the future goals/strategies of the Mine. Client: Anglo Platinum Limited - Rustenburg Platinum Mines Limited
- EMPR Updates – Vaal River and West Wits Operations, Gauteng and North West, South Africa (2014-2016): Project Manager. The alignment of the West Wits (WW) and Vaal River (VR) Operations Environmental Management Programme Reports (EMPR) in accordance with the requirements of the Mineral and Petroleum Resources Development Act (No. 28 Of 2002) (MPRDA). Client: AngloGold Ashanti (Pty) Ltd

Environmental Authorisation Amendments/Renewals

- Transfer of the West Wits Operations EMPR to Harmony Gold (2020): Project Manager. The amendment of the EMPR to transfer the West Wits Operations EMPR to Harmony Gold. Client: AngloGold Ashanti Limited
- Amandelbult Section Bus and Taxi Terminal Part 2 Amendment Process, Thabazimbi, Limpopo (2020-2021): Project Manager. The amendment process of the existing Environmental Management Programme Report to formalise the bus and taxi terminal. Client: Rustenburg Platinum Mines
- Sibanye Rustenburg Platinum Mine Part 2 Amendment Process, Rustenburg, North West (2018): Project Manager. The proposed amendment of the Environmental Management Programme Report to excluded activities which will not take place and to ensure alignment of the management measures. Client: Sibanye-Stillwater
- Zibulo Colliery Part 2 Amendment Process, Mpumalanga (2018-2019): Project Manager. The amendment of the Zibulo Colliery Environmental Management programmes for the inclusion of a new coal stockpile. Client: Anglo American Inyosi Coal

Stakeholder Engagement

- Minimum Emissions Standard Postponement Application for Nulandis Lilianton and Modderfontein (2018-2019): Project Manager. Undertaking the stakeholder engagement process in support of the Nulandis Lilianton and Modderfontein Minimum Emissions Standard Postponement Application. Client: Nulandis
- Minimum Emissions Standard Postponement Application for Sappi Ngodwana (2019): Project Manager. Undertaking the stakeholder engagement process in support of the Sappi Ngodwana Minimum Emissions Standard Postponement Application. Client: Sappi Southern Africa
- Minimum Emissions Standard Postponement Application for AEL Interlligent Blasting Modderfontein (2018-2019): Project Manager. Undertaking the stakeholder engagement process in support of the Modderfontein Site Minimum Emissions Standard Postponement Application. Client: AEL Intelligent Blasting

Legal Compliance

- AfriSam Regulation 34 Audits (2020-2021): Lead Auditor. Undertaken the Regulation 34 Compliance Audits for various AfriSam Operations (Eikenhof, Roodekrans, Ladysmith, Umlaas, Pietermaritzburg, Rooikraal). Client: AfriSam
- EMPR Regulation 34 Audits at Mogalakwena Section, Limpopo, South Africa (2020): Lead Auditor. Undertaking nine compliance audits in accordance with Regulation 34 of the EIA Regulations and compilation of seven statements of confirmation that the activities have not yet commenced. Client: Rustenburg Platinum Mines.
- Impala Platinum Regulation 34 and Waste Management Licence Audits, Rustenburg (2019): Lead Auditor. Undertaking seven compliance in accordance with Regulation 34 of the EIA Regulations. Client: Impala Platinum
- Surface Operations Regulation 34 Audits (2019): Lead Auditor. Undertaking the Regulation 34 audits for the Vaal River, Mine Waste Solution and West Wits Operations. Client: AngloGold Ashanti Limited
- Used Oil Industry Audits, Countrywide, South Africa (2014-2019): Lead Auditor. Country-wide environmental compliance auditing of the South African recycled oil industry, comprising sixteen oil refinery operations, and twenty nine drum re-conditioning plants. The audits are primarily focussed on compliance to legislation and ensuring that each site follows international best practice. The audits include a review of the refineries ISO14000 auditor's findings, and tracking of compliance in regards to corrective actions. Client: OSE Foundation

APPENDIX

B EAP DECLARATION





environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER, DECLARATION OF INTEREST AND UNDERTAKING UNDER OATH

(For official use only)

File Reference Number:

NEAS Reference Number:

Date Received:

DEA/EIA/

Application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

PROJECT TITLE

Two Rivers Platinum Tailings Facility Expansion and Pipeline Reroute

Kindly note the following:

1. This form must always be used for applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting where this Department is the Competent Authority.
2. This form is current as of 01 September 2018. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at <https://www.environment.gov.za/documents/forms>.
3. A copy of this form containing original signatures must be appended to all Draft and Final Reports submitted to the department for consideration.
4. All documentation delivered to the physical address contained in this form must be delivered during the official Departmental Officer Hours which is visible on the Departmental gate.
5. All EIA related documents (includes application forms, reports or any EIA related submissions) that are faxed; emailed; delivered to Security or placed in the Departmental Tender Box will not be accepted, only hardcopy submissions are accepted.

Departmental Details

Postal address:

Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Private Bag X447
Pretoria
0001

Physical address:

Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Environment House
473 Steve Biko Road
Arcadia

Queries must be directed to the Directorate: Coordination, Strategic Planning and Support at:
Email: EIAAdmin@environment.gov.za

1. ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP) INFORMATION

EAP Company Name:	WSP Group Africa (Pty) Ltd		
B-BBEE	Contribution level (indicate 1 to 8 or non-compliant)	1	Percentage Procurement recognition
			150%
EAP name:	Tutayi Chifadza		
EAP Qualifications:	Bsc Hons: Applied Science: Environmental Technology Bsc Chemistry		
Professional affiliation/registration:	South African Council for Natural Scientific Professions (SACNASP): Environmental Science (Professional Natural Scientist), Reg Number: 129636		
Physical address:	Building C, Knightsbridge, 33 Sloane Street, Bryanston,		
Postal address:	P.O. Box 98867, Sloane Park		
Postal code:	2152	Cell:	073 770 1635
Telephone:	011 361 1390	Fax:	011 361 1390
E-mail:	Tutayi.Chifadza@wsp.com		

The appointed EAP must meet the requirements of Regulation 13 of GN R982 of 04 December 2014, as amended.

2. DECLARATION BY THE EAP

I, **Tutayi Chifadza**, declare that –

- I act as the independent environmental assessment practitioner in this application;
- I have expertise in conducting environmental impact assessments, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I will take into account, to the extent possible, the matters listed in Regulation 13 of the Regulations when preparing the application and any report relating to the application;
- I undertake to disclose to the applicant and the Competent Authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the Competent Authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the Competent Authority, unless access to that information is protected by law, in which case it will be indicated that such information exists and will be provided to the Competent Authority;
- I will perform all obligations as expected from an environmental assessment practitioner in terms of the Regulations; and
- I am aware of what constitutes an offence in terms of Regulation 48 and that a person convicted of an offence in terms of Regulation 48(1) is liable to the penalties as contemplated in Section 49B of the Act.

- I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Regulations;
- I have a vested interest in the proposed activity proceeding, such vested interest being:

Chi fadza

Signature of the Environmental Assessment Practitioner

WSP GROUP AFRICA (PTY) LTD

Name of Company:

13 OCTOBER 2021

Date

3. UNDERTAKING UNDER OATH/ AFFIRMATION

I, Tutayi Chifadza, swear under oath / affirm that all the information submitted or to be submitted for the purposes of this application is true and correct.

Chifadza

Signature of the Environmental Assessment Practitioner

WSP GROUP AFRICA (PTY) LTD

Name of Company

13 OCTOBER 2021

Date

J.P. Masheane

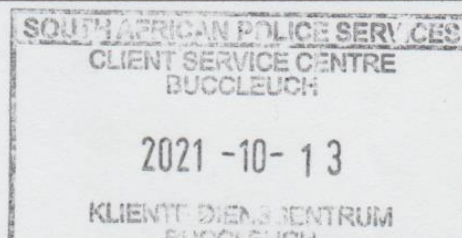
Signature of the Commissioner of Oaths

02 SUMMIT ROAD
MORNINGSIDE

2021-10-13

Date

Details of EAP, Declaration and Undertaking Under Oath



APPENDIX

C STAKEHOLDER DATABASE

Due to POPI Act, the stakeholder database will not be shared in this version, but only for the authorities

APPENDIX

D PUBLIC PARTICIPATION

Public Participation Documentation will be available in Final Scoping Report

APPENDIX

D-1 SITE NOTICES

Proof of placement will be in Final Scoping Report

SCOPING & ENVIRONMENTAL IMPACT ASSESSMENT (S&EIA) PROCESS

NOTICE OF THE PROPOSED SCOPING AND ENVIRONMENTAL IMPACT ASSESSMENT PROCESS FOR THE PROPOSED TAILINGS FACILITY EXPANSION, PIPELINE RE-ROUTING AND CONSTRUCTION OF A WASTE DECLINE AT TWO RIVERS PLATINUM MINE, LIMPOPO PROVINCE

Notice is given in terms of Regulation 41(2) of GNR 982 as Amended (07 April 2017) published under section 24 and 24D of the National Environmental Management Act (No. 107 of 1998) (NEMA) for submission of applications for Environmental Authorisations (EA) in respect of activities identified in terms of GNR 983 and 984 as Amended (7 April 2017).

Notice is given in terms of Section 47(3) of the National Environmental Management: Waste Act (Act No. 59 of 2008) (NEM:WA) and the list of waste management activities (GN 921), requiring submission of a waste management license (WML) application

BACKGROUND AND LOCATION

Two Rivers Platinum Mine (Pty) Ltd (TRP) is an existing mine conducting underground mining activities on the farm Dwarsrivier 372 KT on the southern part of the eastern limb of the Bushveld Complex. The mine is situated approximately 27km south of Steelpoort and 35km south-west of Burgersfort within the Fetakgomo Tubatse Local Municipality, Greater Sekhukhune District Municipality, Limpopo Province.

In order to support current operations and sustain its life of mine, TRP proposes to expand its infrastructure and the following developments are proposed:

- The removal of the Merensky North Decline section from the approved EMP; and addition of a 30m waste decline;
 - The expansion of the existing tailings facility (TSF) from 90ha to 180ha which is already authorised under water use licence (WUL);
 - The re-routing of a 547m portion of the approved (but not yet constructed) TSF Pipeline route (it is estimated that the new pipeline route will be 4km in length).
- The proposed activities require an integrated environmental authorisation (IEA) in terms of the NEMA and the associated Environmental Impact Assessment (EIA) Regulations, 2014 as amended. Due to the nature of the project thresholds, TRP is required to follow a Scoping and Environmental Impact Report (S&EIR) process to acquire environmental authorisation prior to the commencement of the Proposed Project.

ENVIRONMENTAL APPLICATION

The following listed activities are triggered:

- NEMA Listed Activities:
 - GNR 983 Activities 27 and 48;
 - GNR 984 Activity 15; and
 - GNR 985 Activity 12.
- NEM:WA Listed Activities:
 - GNR 921 Category A, Activity 13; and GNR 921 Category B, Activity 11.

REGISTRATION

WSP Group Africa (Pty) Ltd (WSP) has been appointed as the independent Environmental Assessment Practitioner (EAP) by TRP to manage the S&EIR process. Parties wishing to formally register as interested and affected parties (I&APs) in order to receive more information and/or raise their comment(s) on the proposed amendments, are requested to forward their full contact details to the EAP and disclose their direct and/or indirect business, financial, personal or other interest in the project. Any comments on the proposed amendments should be submitted to the EAP via the details provided below. Registered I&APs will be forwarded all future project related correspondence and notified individually of additional opportunities to participate in the process.

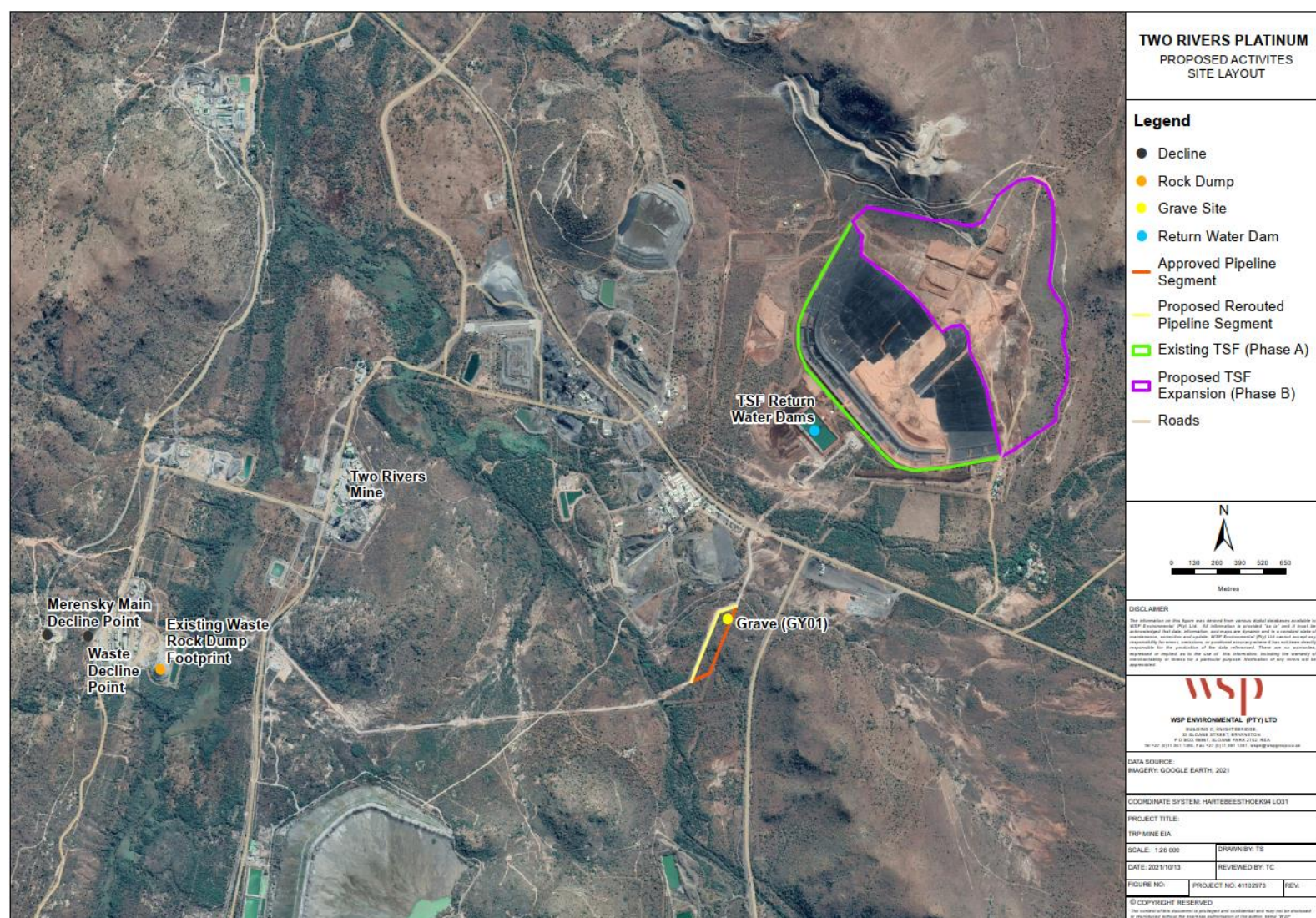
DRAFT SCOPING REPORT REVIEW PERIOD

The Draft Scoping Report (DSR) will be made available at the venues below for review and comment for 30 days from **19 October 2021** to **19 November 2021**.

- TRP Health Centre Security Area;
- Burgersfort Public Library;
- Mapodile Public Library; and
- WSP website: <https://www.wsp.com/en-ZA/services/public-documents>

Kindly ensure that all comments on the proposed project or requests to be registered as an Interested and Affected Party are submitted to the contact details provided herewith, by **19 November 2021**. Should you have any queries/comments, please do not hesitate to contact the EAP.

Name: Tutayi Chifadza | Tel: 011 361 1390 | Email: Tutayi.Chifadza@wsp.com



APPENDIX

D-2 ADVERT

Proof of placement will be in Final Scoping Report

NOTICE OF THE PROPOSED SCOPING AND ENVIRONMENTAL IMPACT ASSESSMENT PROCESS FOR THE PROPOSED TAILINGS FACILITY EXPANSION, PIPELINE RE-ROUTING AND CONSTRUCTION OF A WASTE DECLINE AT TWO RIVERS PLATINUM MINE, LIMPOPO PROVINCE

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Kindly ensure that all comments on the proposed project or requests to be registered as an Interested and Affected Party are submitted to the contact details provided herewith, by **19 November 2021**. Should you have any queries/comments, please do not hesitate to contact the EAP.

The contact details of the EAP: Tutayi Chifadza (T) 011 361 1390 (E) Tutayi.Chifadza@wsp.com



APPENDIX

D-3 *EMAIL* *NOTIFICATIONS*

Proof of email notifications will be in Final Scoping Report

APPENDIX

D-4 SMS NOTIFICATIONS

Proof of SMS notifications will be in Final Scoping Report

APPENDIX

D-5 COMMENTS AND RESPONSES REPORT

Comments are Responses Report will be available in Final Scoping Report

APPENDIX

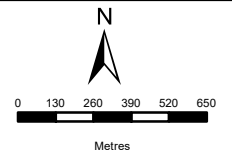
E LAYOUT MAP



TWO RIVERS PLATINUM
PROPOSED ACTIVITIES
SITE LAYOUT

Legend

- Decline
- Rock Dump
- Grave Site
- Return Water Dam
- Approved Pipeline Segment
- Proposed Rerouted Pipeline Segment
- ▭ Existing TSF (Phase A)
- ▭ Proposed TSF Expansion (Phase B)
- Roads



DISCLAIMER

The information on this figure was derived from various digital databases available to WSP Environmental (Pty) Ltd. All information is provided "as is" and it must be acknowledged that data, information, and maps are dynamic and in a constant state of maintenance, correction and update. WSP Environmental (Pty) Ltd cannot accept any responsibility for errors, omissions, or positional accuracy where it has not been directly responsible for the production of the data referenced. There are no warranties, expressed or implied, as to the use of this information, including the warranty of merchantability or fitness for a particular purpose. Notification of any errors will be appreciated.



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DATA SOURCE:
 IMAGERY: GOOGLE EARTH, 2021

COORDINATE SYSTEM: HARTEBEESTHOEK94 LO31

PROJECT TITLE:

TRP MINE EIA

SCALE: 1:26 000

DRAWN BY: TS

DATE: 2021/10/13

REVIEWED BY: TC

FIGURE NO:

PROJECT NO: 41102973

REV:

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APPENDIX

F DMRE MEETING MINUTES



APPENDIX

F-1 PRE-APPLICATION MEETING MINUTES



MEETING NOTES

JOB TITLE	Two Rivers Platinum Mine Environmental Authorisation and Amendment Application
PROJECT NUMBER	41102973
DATE	15 March 2021
TIME	10:00
VENUE	Microsoft Teams
SUBJECT	Pre-Application Meeting
DMRE REFERENCE	TBC
CLIENT	Two Rivers Platinum Mine (Pty) Ltd
PRESENT	Tutayi Chifadza (TC) – WSP Alice Moropa (AM)- WSP Anri Scheepers (AS)- WSP Tintswalo Kanyongolo (TK) -TRP Jane Mulaudzi (JM) – DMRE
APOLOGIES	None
DISTRIBUTION	As above

MATTERS ARISING

ACTION

MATTERS ARISING	ACTION
1.0 INTRODUCTIONS	WSP
1.1 All participants introduced themselves. WSP then chaired the meeting and presented the project.	
2.0 PROJECT DESCRIPTION	WSP
2.1 TC provided a brief description of each item on the agenda and highlighted the topics that will be discussed fully during the meeting.	WSP
2.2 TC provided an overview of the TRP mine, highlighting its mining activity, locality and the consolidated Environmental Management Programme Report under which the mining activities are operated.	
2.3 TC presented the following list of the proposed projects that TRP wishes to undertake, and provided a detailed description of each project: <ul style="list-style-type: none">– Amendment of the Merensky and UG2 Reef EMPr.– Amendment of the authorised new TSF from 90ha to 180ha.	

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MEETING NOTES

MATTERS ARISING

ACTION

<ul style="list-style-type: none"> – Amendment of a portion of the approved (but not yet constructed) TSF Pipeline route to avoid a gravesite that has been identified on the approved route. – Expansion of the existing Waste Rock Dump (WRD). – Installation of new diesel tanks with the capacity of 100 000 litres at the Concentrator Plant. <p>2.4 TC presented the set of National Environmental Management Act (NEMA) and National Environmental Management Waste (NEM: WA) Listed activities that are triggered by each of the proposed development, based on WSP’s legal review. The following were indicated:</p> <ul style="list-style-type: none"> – The expansion of the TSF triggers The NEMA LN1, 2 &3. – The expansion of the WRD triggers the NEMA LN3. – The establishment of the diesel storage tanks triggers LN1. – The expansion of the TSF triggers the NEM: WA Category A and potentially a Category B activity. – The expansion of the WRD triggers the NEM: WA Category A and potentially a Category B activity. <p>2.5 TC also alluded to the fact that the TSF and WRD were authorised in terms of an EMPR at a time when a Waste Management Licence (WML) was not required for the activities in which case the transitional arrangements were applicable. TC therefore requested clarity from the DMRE to confirm whether the developments would have to be licenced as a whole (in which case a WML would be required) or be regarded as expansions of existing facilities still operated under the transitional arrangements.</p> <p>2.6 TC discussed the legal process to be followed based on the Legal Review undertaken by highlighting the following</p> <ul style="list-style-type: none"> – An integrated Scoping and Environmental Impact Reporting (S&EIR) process is anticipated to licence the triggered NEMA and NEM: WA activities. – A part 2 amendment process would be required due to the pipeline re-routing that has been proposed (although the removal of the North decline from the EMPr only requires a part 1 amendment, however they are authorised together). <p>2.7 TC presented the various existing specialist studies that were undertaken at the mine and indicated that all of the studies were undertaken in 2013 or prior that. WSP requested clarification on whether the studies could still be utilised for the proposed projects, or if they had to be updated, or new ones would be requested.</p> <p>2.8 TC then opened the floor to JM for a discussion on the issues presented.</p>	
<p>3.0 DISCUSSION</p>	<p>ALL</p>
<p>3.1 JM indicated that she did not have many comments or questions from her side, as the main purpose of the meeting was for her to understand the proposed projects.</p> <p>3.2 JM indicated that from all the specialist studies listed, the Social Impact Study as well as a Visual Impact study would have to be updated due to the expected impact by the WRD and TSF. JM also advised that the specialists who authored the remaining studies were to be approached for them to confirm if there is a need to update the existing studies.</p> <p>3.3 AS requested clarity on which activity to apply for regarding the TSF and WRD, as both can be via an expansion activity in Listing Notice 1 of NEMA or through the Category A listed activity in NEM: WA that accounts for an expansion.</p> <p>3.4 AS then enquired on whether the Category A activity would be applicable considering that there is no WML in place for the existing portions of the TSF and WRD as they fell within the transitional arrangement when they were originally approved, or would the Category B activity be triggered for an actual WML for each site. JM indicated that she would not advise during the meeting on which application route to take, and indicated that she would first have to consult her Supervisor and Regional Manager for their advice on the matter and provide feedback.</p>	

MEETING NOTES

MATTERS ARISING

ACTION

3.5	AS enquired on whether JM would recommend that WSP submits a clarification letter to the DMRE as the matter has a bearing on the application route to take , whether a Basic Assess or full EIA application.	
3.6	JM agreed to the submission of a clarification letter and advised that the letter is mailed to the Regional Manager and have she and Mr Kolani copied in the email. JM emphasised that decision would be issued following this consultation.	
3.7	TC requested the regional manager’s contact details and JM provided the email address.	
3.8	TC confirmed with JM that the only new specialist studies required are those of the Social and Visual Assessments, and enquired on whether the rest could be used as is (at WSP’s discretion that no updating is required), or whether a letter would be required from the specialists indicating that the studies are still relevant. JM agreed that letters should be obtained from specialists, confirming the relevance of the studies, but emphasized again that the social and visual studies would have to be undertaken.	
3.9	TC enquired on the turnaround time for a response from the Regional Manager on the letter of clarification JM indicated that she was not certain of the turnaround time, however, she indicated that although it depends on the Regional Manager’s schedule, issues of that nature are resolved quicker. She also indicated that she would follow up with the Regional Manager should it take longer than normal to receive feedback.	
3.10	TC enquired on whether there were any additional questions from the floor. TK indicated that the pipeline project does not entail a complete re-routing but a shift by a few meters form the original route AS indicated that a 40m buffer has been applied to the pipeline route to indicate the possible re-routing direction (as an alternative) in relation to a gravesite that was identified next to the authorised route.	
4.0	WAY FORWARD	ALL
4.1	WSP closed out the meeting by thanking the DMRE for accommodating the team. — WSP committed to draft the clarification letter and send it to the Regional Manager and copy in Mr Kolani and JM — WSP committed to draft meeting minutes and circulate them for approval	

NEXT MEETING

No additional meeting is required.

APPROVAL OF MINUTES

WSP

TRP

DMRE

APPENDIX

F-2 CLARIFICATION MEETING MINUTES



MEETING NOTES

JOB TITLE	Two Rivers Platinum Mine Environmental Authorisation and Amendment Application
PROJECT NUMBER	41102973
DATE	19 April 2021
TIME	11:30
VENUE	Microsoft Teams
SUBJECT	Pre-Application Clarification Meeting
DMRE REFERENCE	TBC
CLIENT	Two Rivers Platinum Mine (Pty) Ltd
PRESENT	Tutayi Chifadza (TC) – WSP Alice Moropa (AM)- WSP Poseletso Sebake (PS) -TRP Thivhulawi Kolani (TK) – DMRE
APOLOGIES	Tintswalo Kanyongolo (TKa) - TRP
DISTRIBUTION	As above

MATTERS ARISING

ACTION

1.0	INTRODUCTIONS	WSP
1.1	<p>TC introduced the WSP team working on the project and highlighted that the purpose of the meeting was to obtain clarification on the legal triggers of the proposed project as a follow up from the discussion held with Jane Mulaudzi during the Pre-application meeting.</p> <p>PS introduced herself as a representative from Two Rivers Platinum (TRP) and indicated that TKa rendered an apology as she had to commit to another urgent meeting.</p> <p>TC enquired if TK would prefer WSP present the project again to provide background, or whether the clarification request letter that was provided was sufficient.</p> <p>TK indicated that he would be happy with either option.</p> <p>TC opted to provide a summary of the presentation.</p>	WSP
2.0	PROJECT DESCRIPTION	WSP

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MEETING NOTES

MATTERS ARISING

ACTION

- | MATTERS ARISING | ACTION |
|--|--------|
| 2.1 TC indicated that TRP was the project proponent represented by their contact person TKa, and that WSP was the Environmental Assessment Practitioner (EAP) represented by AM and TC. | WSP |
| 2.2 TC provided an overview of the TRP mine and indicated that TRP's existing underground mining activity has an environmental authorisation (EA) and consolidated approved Environmental Management Programme (EMPR) under which the mining activities are operated. TC also presented the locality of the current mining activities. | |
| 2.3 TC presented the following list of the proposed projects that TRP proposes to undertake, and provided a detailed description of each project: <ul style="list-style-type: none"> — Amendment of the Merensky and UG2 Reef EMPr. — Amendment of the authorised new Tailings Storage Facility (TSF) from 90ha to 180ha. — Amendment of a portion of the approved (but not yet constructed) TSF Pipeline route to avoid a gravesite that has been identified on the approved route. — Expansion of the existing Waste Rock Dump (WRD). — Installation of new diesel tanks with the capacity of 100 000 litres at the Concentrator Plant. | |
| 2.4 TC explained that TRP proposes to remove the approved North decline section from the EA and include a 30m waste decline at the Merensky Main shaft to transport waste rock. TK enquired on whether both the Merensky Main and North decline were authorised. TC indicated that both were authorised however, TRP proposes to remove the North decline from the EA and include the waste decline. TK enquired on why the applicant proposes this amendment on the EA as it is onerous administrative process that could be avoided by leaving it as is. PS indicated that TRP added this amendment seeing that they were already undertaking other unavoidable amendments. TK indicated that the client was at liberty to amend the EA whichever way they found suitable. | |
| 2.5 TC presented TRP's proposal to also add a 30m waste decline that would transport waste rock from the underground workings to the surface. | |
| 2.6 TC presented TRP's proposal to expand their TSF, which is currently authorised for 90ha, however when applying for their Water Use Licence (WUL), they applied for 180ha as they realised that more space would be needed. As such, the EA approves 90ha, whilst the WUL approves 180ha. TRP therefore wishes to amend the EA to authorise 180ha. TC indicated the list of auxiliary infrastructures that would be constructed and established at the TSF. TK enquired on whether the auxiliary infrastructure is currently approved and whether any additional infrastructure that would trigger any additional listed activities. TC indicated that all the infrastructure was approved in the existing EA and that only the TSF itself would be expanded to 180ha. PS confirmed this assertion. | |
| 2.7 TC presented TRP's proposal to reroute the authorised pipeline as there is a grave site along the approved pipeline route. TC added that TRP placed a 40m buffer around the gravesite, which they aim to avoid when constructing the pipeline in the proposed amendment. He also indicated that no construction has been undertaken as yet. TK enquired on whether the re-routing of the pipeline triggers any activities. TC confirmed that the re-routing will only be undertaken on a small portion of the existing authorised pipeline along which the grave site is located, and no additional activities are triggered. | |
| 2.8 TC presented TRP's proposal to expand their existing WRD as additional capacity is required to support the extended life of mine. TC indicated that there is a non-perennial river situated about 400m south of the existing WRD. He indicated (and displayed) that the expansion of the WRD would be to the south on an area that is already disturbed and contains very little vegetation, and is surrounded by existing mining infrastructure. | |
| 2.9 TC presented the last project of installation of new diesel tanks with a combined capacity of 100 000L at the existing Concentrator Plant, at an area that is already disturbed with no vegetation. He indicated that only bunding will be constructed on the site. | |

Will be triggered by the clearance of vegetation of more than 20Ha.

MEETING NOTES

MATTERS ARISING

ACTION

<p>2.10</p> <p>2.11</p> <p>2.12</p> <p>2.13</p>	<p>TC presented the set of National Environmental Management Act (NEMA) and National Environmental Management Waste (NEM: WA) Listed activities that are triggered by each of the proposed development, based on WSP's legal review. The following were indicated:</p> <ul style="list-style-type: none"> — The expansion of the TSF triggers the NEMA LN1, 2 &3. The expansion trigger from 90ha to 180ha triggers LN1 activity 48, the clearance of more than 20ha of indigenous vegetation triggers LN2 activity 15, and the clearance of more than 300 square meters of CBA triggers LN3 activity 12. — The expansion of the WRD triggers the NEMA LN3 activity 12 for the clearance of more than 300square meters of CBA. — The establishment of the diesel storage tanks triggers LN1 activity 14. — The expansion of the TSF triggers the NEM: WA Category A and potentially a Category B activity. — The expansion of the WRD triggers the NEM: WA Category A and potentially a Category B activity. <p>TC indicated that when the TSF and WRD were authorised, there was no requirement for a waste management licence (WML), however, clarification was needed on whether the expansion of these waste facilities triggers the need for a WML or if transitional arrangements still apply.</p> <p>TC also indicated that the north decline, waste decline and pipeline re-route are all grouped as part of the part 2 amendment process that is necessitated by the amendment of the TSF size.</p> <p>TC then opened the floor for a discussion pertaining to the clarification of the triggered activities.</p>	
<p>3.0</p>	<p>DISCUSSION</p>	<p>ALL</p>
<p>3.1</p> <p>3.2</p> <p>3.3</p> <p>3.4</p> <p>3.5</p> <p>3.6</p>	<p>TC enquired again on whether a WML would be required for the TSF and WRD expansions. TK enquired on whether the activities applied for trigger both NEM: WA and NEMA activities TC indicated that TSF only triggers the clearance of an area of more than 20ha, requiring a Scoping and EIR (S&EIR) process, and doesn't necessarily trigger NEM: WA TK indicated that since an S&EIR process is triggered, and section 21L allows for a combination for the NEM: WA and NEMA application as an integrated application, therefore the issue of whether a new WML is required is of less importance.</p> <p>PS indicated that there is a confusion in that TRP holds no WML for the TSF, and therefore there is uncertainty as to whether an application for the WML would be for the expansion portion only or the entire TSF.</p> <p>TK indicated that the WML would be for the expansion portion only as the existing authorised section was authorised when there was no WML requirement. He added that an integrated application approach would have to be undertaken.</p> <p>TK also indicated that the issue of a part 1 or 2 amendment is not relevant as a listed activity has already been triggered and an S&EIA process will be undertaken under which the amendments can be authorised, as such, an amendment will not be necessary.</p> <p>TC alluded that the projects are different. TK enquired on whether or not one application would be lodged for all the projects. TC indicated that both applications for EA and EMPR would be lodged. TK indicated that all applications can be combined as one as all old EMPRs approved under MPRDA are now approved and deemed as EAs. TC requested that confirm TK if all the EAs and EMPRs could be placed under one integrated application, and TK confirmed this.</p> <p>AM required clarification on whether even though the different operations have different authorisations, this application would combine the applications for the different operations.</p>	

MEETING NOTES

MATTERS ARISING

ACTION

3.7	TK indicated that as long as all the proposed operations are operated under one Mining Right (MR), one combined application can be lodged as per section 21L to cover both the NEMA and NEM: WA activities, and an integrated authorisation will be issued.	
3.8	TC enquired on whether the diesel tanks would also be authorised under the combined application. TK confirmed that the diesel tanks would be authorised under the same EA.	
3.9	TC asked PS if PS would be happy with that approach. PS confirmed that TRP would be happy with the approach as it would be an easier administrative approach.	
3.10	TC enquired if there would be one EA that would read as per the different operations. TK confirmed the statement and asked whether the applicant and EAP would agree to this approach being an easier one.	
3.11	TC indicated that he understood the reasons for the suggested approach, and enquired if WSP could still opt for a different approach if for any reason the suggested approach presents challenges. TK indicated that any approach which WSP deems necessary (i.e. separate applications or a consolidated application) can be taken. He indicated that with a consolidated application, the amendment application would not be charged, and a discount on the application fee would be granted.	
3.12	TC asked if there were any additional questions. All parties confirmed that there were no additional questions, and the meeting was adjourned.	
4.0	WAY FORWARD	ALL
4.1	WSP closed out the meeting by thanking the DMRE for accommodating the team. <ul style="list-style-type: none">— WSP indicated that they would proceed with the lodgement of the application.— WSP indicated that they would send the meeting minutes for approval	

NEXT MEETING

No additional meeting is required.

APPROVAL OF MINUTES

WSP

TRP

DMRE