

THARISA MINERALS (PTY) LTD BACKGROUND INFORMATION DOCUMENT

ADDITIONAL WASTE STORAGE AT THE THARISA MINE

APRIL 2022

INTRODUCTION

Tharisa Minerals (Pty) Ltd (Tharisa) is an opencast mining operation that produces chrome and platinum group metals (PGM) concentrate. The opencast mine is located on the farms 342 JQ and Elandsdrift 467 JQ near the town of Marikana in the Bojanala District Municipality and Rustenburg Local Municipality, North West Province.

Tharisa holds existing environmental authorisations (EAs) and licenses under the Mineral and Petroleum Resources Development Act, 28 of 2002 (MPRDA), the National Environmental Management Act, 107 of 1998 (NEMA), the National Environmental Management: Waste Act 59 of 2008 (NEM: WA) and the National Water Act, 36 of 1998 (NWA).

Mining is undertaken, in two mining sections, namely the East Mine and West Mine, using conventional open pit truck and shovel methods. Waste rock from the open pit areas is either stockpiled on waste rock dumps (WRD's) or backfilled into the open pits as part of concurrent rehabilitation.

As part of its on-going mine planning Tharisa has identified the need for additional waste rock and tailings storage on site. In this regard, Tharisa is proposing to:

- extend a previously approved WRD;
- establish WRDs above backfilled portions of the East and West pits; and
- an increase in the capacity of existing tailings storage facilities (TSFs) by means of self-raising or other.

ENVIRONMENTAL AUTHORISATION PROCESS

Prior to the commencement of the proposed project the following is required:

- an amended Environmental Management Programme (EMPr) in terms of Section 102 of the MPRDA from the Department of Mineral Resources and Energy (DMRE).
- an EA in terms of the NEMA for activities in Listing Notice 1 (Government Notice Regulation (GNR) 983 of 2014), and Listing Notice 3 (GNR 985 of 2014), as amended, from the DMRE. The Environmental Impact Assessment (EIA) Regulations being followed are GNR 982 of 4 December 2014, as amended.
- a Waste Management Licence in terms of the NEM:WA for waste activities in Category B (GNR 921 of 2013), as amended.

The environmental assessment process required, includes an application phase, scoping phase, and an EIA and EMPr phase. SLR Consulting (South Africa) (Pty) Ltd (SLR), an independent firm of environmental consultants, has been appointed by Tharisa to manage the environmental authorisation process.

PURPOSE OF THIS DOCUMENT

This document has been prepared to inform you about:

- The proposed project;
- The project alternatives considered;
- The biophysical, cultural and socio-economic baseline environment of the project area;
- The environmental assessment processes being followed;
- Possible biophysical, cultural and socio-economic impacts and related specialist input; and
- How you can have input into the environmental assessment process.

YOUR ROLE

You have been identified as an interested and affected party (I&AP) who may want to be informed about the proposed project and have input into the environmental authorisation process and reports.

You have an opportunity to review this document and to provide your initial comments to SLR for incorporation in the environmental assessment process. You will also be given the opportunity to review and comment on the Scoping Report and EIA & EMPr.

All comments will be recorded and included in the reports submitted for decision-making.

COVID-19 RESTRICTIONS

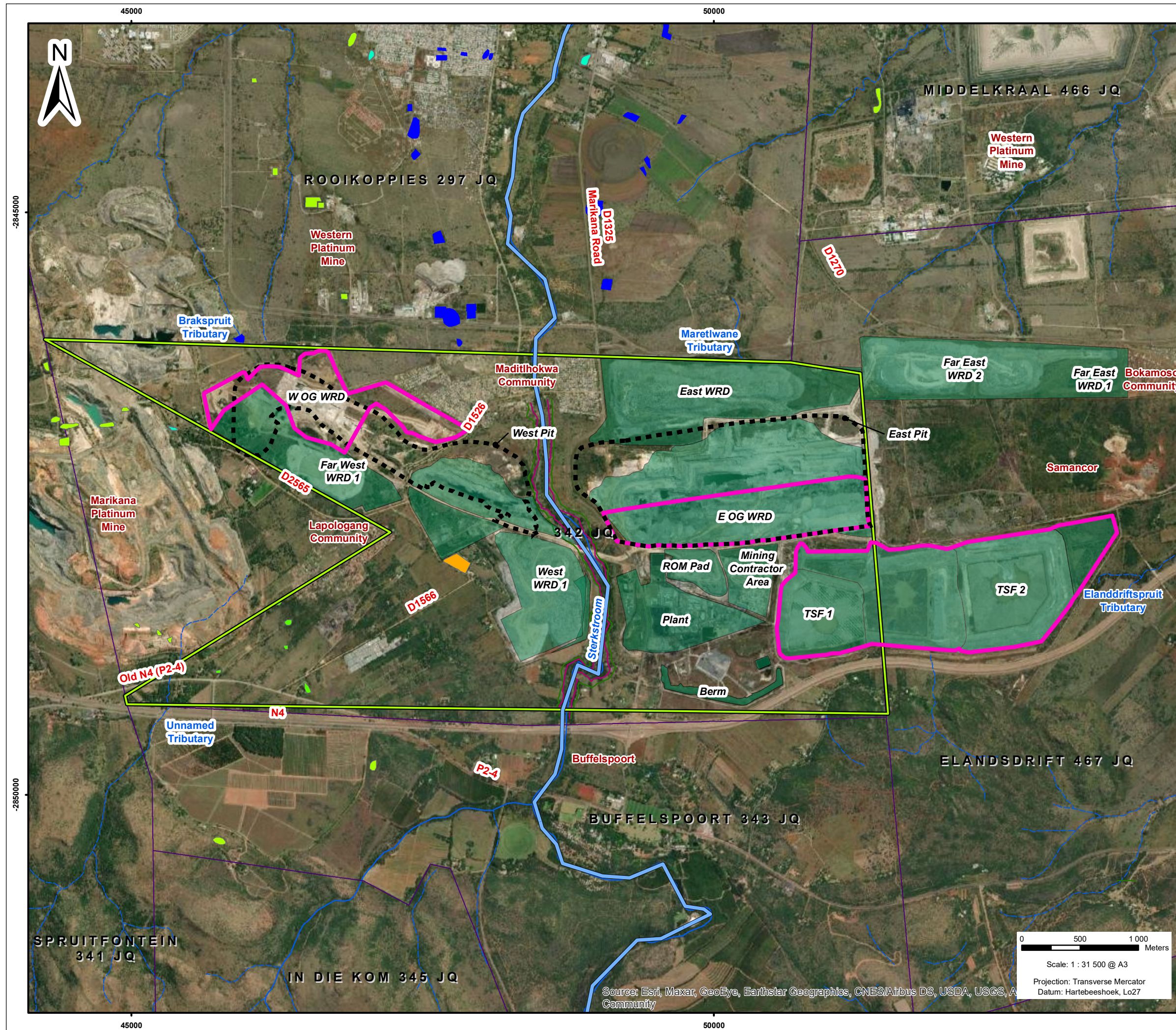
Due to COVID-19 restrictions, online and digital platforms will be utilised (as far as possible) to engage with I&APs.

HOW TO RESPOND:

Responses to this document can be submitted by means of the attached comments sheet and/or through communication with the person listed below.

WHO TO CONTACT:

Reinett Mogotshi
(011) 467 0945 (Tel) or
rmogotshi@slrconsulting.com



- Legend**
- Tharisa Mining Right
 - Final Pit Extent
 - Proposed Project Components
 - Mining and Related
 - School and Graveyard
 - Farm Boundaries
 - Rivers - Perennial
 - Rivers - Non-Perennial
 - 1:100 Floodlines
 - Regional Maximum Floodlines
 - NFEPA Rivers**
 - CLASS C: Moderately Modified
 - NFEPA Wetlands**
 - Flat
 - Unchannelled valley-bottom wetland
 - Valleyhead seep

THARISA MINERALS (Pty) Ltd

Figure 1
Local Setting



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

0 500 1000 Meters
Scale: 1 : 31 500 @ A3
Projection: Transverse Mercator
Datum: Hartbeeshoek, Lo27

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, A
Community

OVERVIEW OF EXISTING OPERATIONS

Tharisa currently operates the Tharisa Mine, producing chrome and PGM concentrates and has been operational since 2008. Mining is undertaken in two mining sections, namely the East Mine and West Mine. The two mining sections are separated by the Sterkstroom River and the D1325 (Marikana Road) (Figure 1). Key mine infrastructure includes haul roads, run-of mine, product and topsoil stockpiles, a concentrator complex, WRDs, TSFs and supporting infrastructure such as offices, workshops, change house, and access control facilities.

The high-level process for the existing operations is described below and depicted in Figure 2:

1. Mining is done via a conventional open pit truck and shovel method. Topsoil is stockpiled separately and waste rock disposed of on WRDs.
2. PGM and chrome ore is processed at the concentrator plant where the ore is subjected to crushing and screening, milling, spirals and floatation.
3. Processed PGM material is sent to a thickener, whereafter platinum concentrate is dispatched for sale to third parties.
4. Processed chrome material is sent to a thickener whereafter, chrome concentrate is dispatched for sale to third parties.
5. Tailings material is sent to the TSF for disposal.

OVERVIEW OF THE PROPOSED PROJECT

As part of its on-going mine planning Tharisa has identified the need for additional waste storage on site. In this regard, Tharisa is proposing to (see Figure 1):

- Extend a previously approved WRD – referred to as West Above Ground WRD (W OG WRD);
- Establish waste rock above backfilled portions of the West and East pits – East Above Ground WRD (E OG WRD) and West Above Ground WRD (W OG WRD); and
- Increase the capacity of the existing TSFs – referred to as TSF 1 and TSF2 by means of self-raising.

The proposed WRDs are all located within the existing Tharisa Mining Right (MR) area. The West Above Ground WRD will encroach on the community Madithokwa,

PROJECT ALTERNATIVES

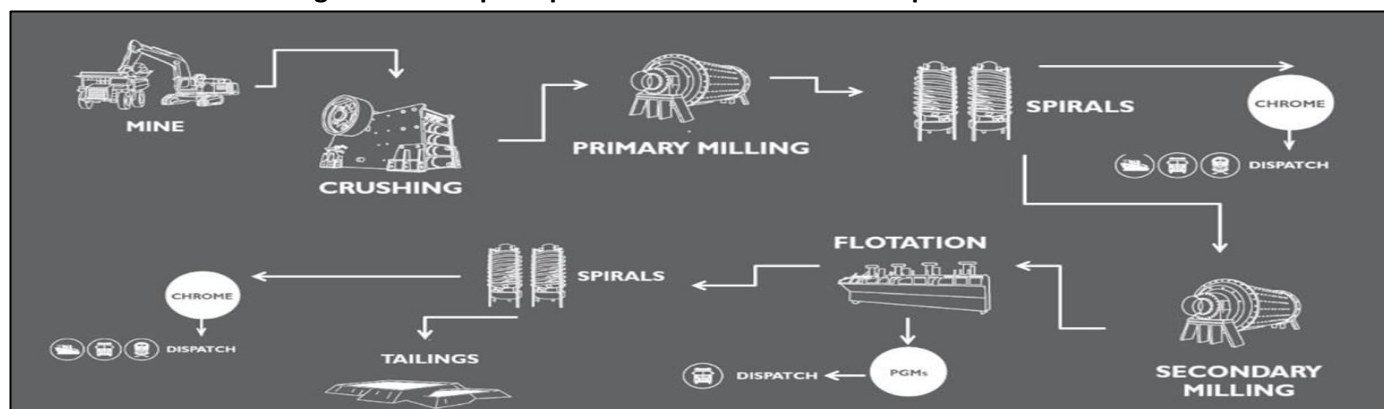
The Tharisa Mine is also bordered by other mining companies (Western Platinum Mine, Marikana Platinum Mine and Samancor) on the West, North and Eastern boundaries of the Tharisa MR area. The N4 and farming community of Buffelspoort are located to the South of the Tharisa Mine. The project components will be placed on previously disturbed areas, thereby minimising the project footprint. It follows that no alternative for the location of the proposed project components have been considered for the proposed project.

CONCEPTUAL DESIGN FEATURES

Conceptual design features associated with the proposed additional WRDs are provided below. The WRDs will be similar to those already existing or in operation at the mine.

- **Transport and Placement:** Waste rock will be loaded into mining dump trucks and hauled to the proposed waste rock storage sites where it will be tipped and dozed onto the proposed WRDs. Tailings material will be pumped to the existing tailings dam via existing infrastructure. Tharisa operations and contractors will be utilised.
- **Stormwater Management:** Stormwater management infrastructure such as berms to manage run-off from the proposed WRDs will be established around the perimeter of the proposed WRDs. Stormwater trenches and berms around the upstream boundaries of the WRDs will direct clean stormwater run-off around and away from the WRDs. Existing stormwater management infrastructure currently in place at TSF 1 and TSF 2 will continue to be used.
- **Rehabilitation and Closure:** WRD side slopes will be flattened, and re-vegetated to mimic the vegetation cover of natural topographical features in the area. Topsoil stripped prior to development will be used to provide the growth medium. TSF 1 and TSF 2 will be capped with topsoil and revegetated.

Figure 2: Conceptual process overview of current operation



BIOPHYSICAL BASELINE OVERVIEW

- **Geology:** The Tharisa mine is underlain by igneous rocks of the Rustenburg Layered Suite (RLS) which forms part of the Bushveld Igneous Complex (BIC).
- **Climate:** Highveld Climatic Zone, which is a warm temperate climate. Rainfall is generally in the form of thunderstorms which can be of high intensity with lightning and strong gusty south-easterly winds.
- **Topography:** The Magaliesberg Mountain range lies approximately 2 km to the south of the Tharisa Mine. The mine itself lies on a relatively flat plain with a gentle slope down towards the north.
- **Soils and land capability:** The Tharisa Mine is underlain by heavy structured soils with high clay content. These soils tend to be saline in character, are difficult cultivate and are not prone to erosion.
- **Surface water:** The Tharisa Mine is located within the upper reaches of the A21K quaternary catchment. The mining area is dominated by non-perennial tributaries and the perennial Sterkstroom, which separates the East and West mining areas.
- **Groundwater:** The mine is underlain by a shallow upper weathered aquifer and a deeper fractured aquifer, Groundwater levels within the vicinity of the mine ranges between 2-14 meters below ground level.
- **Biodiversity (Terrestrial and Aquatic Systems):** Tharisa Mine falls within the Savanna Biome, the Central Bushveld Bioregion and within the Marikana Thornveld, Moot Plains Bushveld and Gold Reef Mountain Bushveld vegetation types. Natural biodiversity at the mine has been impacted by their mining activities and infrastructure, community and private farming activities.
- **Air quality:** Significant sources of air pollution are located within the Rustenburg-Brits region and include stack, vent and fugitive emissions from industrial and mining operations.
- **Noise:** Potential sensitive noise receptors include surrounding residential and agricultural land uses, the President van Rensburg/Piet Retief school and animals. The ambient noise in the mining right area is elevated by current mining infrastructure activities, road traffic and general community activities (including farming).
- **Visual:** The landscape character within the Tharisa mine is relatively flat plain with gentle slopes, the area has been transformed due to Tharisa's current approved mining infrastructure and agricultural activities. The landscape character consists of gentle rolling plains with singular and clusters of smaller koppies with the Magaliesberg Mountain Range as the main topographical feature in the area.

SOCIO-ECONOMIC BASELINE OVERVIEW

- **Socio-economic:** The North West Province is the fourth largest provincial contributor to the gross domestic product (GDP) of South Africa. The Province has a GDP of R55 320 per capita and produces 6.7% of South Africa's GDP. Mining, agriculture and manufacturing contribute to the largest portion of provincial output. Tourism is the fourth most important economic sector in the Province. It was estimated that the unemployment rate of the province in 2016 was 32% (this is slightly higher than the current unemployment rate of 29% in South Africa). Five percent (5%) of the population has tertiary education. Furthermore, only 35% of the total population in the province have secondary education.
- **Land use:** The land use within the mining right area is a mixture of mining, farming and residential. Neighbouring mines include Western Platinum Limited (to the north), Marikana Platinum Mine (to the west), Salene Mining (to the west, owned by Tharisa) and Samancor and Sogima Mining (to the east). There are a number of land users that are actively involved in subsistence and/or commercial farming activities such as livestock, growing citrus fruits and vegetables in the vicinity of the mine. Aside from private landowners and their tenants, four settlements (Mmaditlhokwa, Lapologang, Buffelspoort and Elandsdrift) have been identified in and around the study area.

CULTURAL BASELINE OVERVIEW

- **Heritage/cultural resources and Palaeontology:** Tharisa is located in the Central Bankeveld of the Northwest Province of South Africa. The mine is located to the north of the Magaliesberg Mountain Range which is known for its rich and diverse range of heritage resources. Stone Age sites are scattered along the Range and also found in caves and rock shelters. Heritage resources of high significance have also been identified within the MR area, which include graves and houses of historical significance. Rock engraving sites are located further towards Maanhaarrand and Rustenburg in the west. Tharisa is located on the BIC of the RLS, therefore there exists no chance of palaeontological resources.

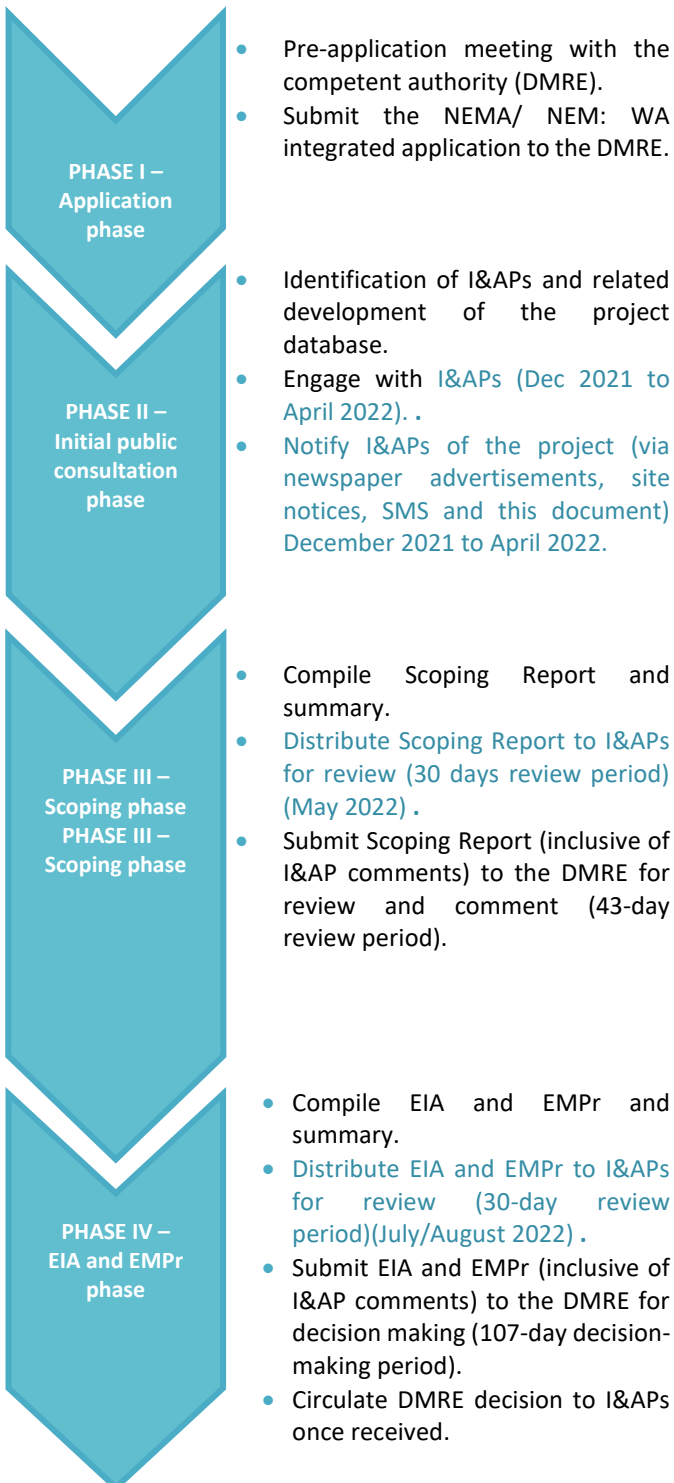
POTENTIAL BIOPHYSICAL, CULTURAL AND SOCIO-ECONOMIC IMPACTS AND RELATED SPECIALIST INPUT

Potential impacts that have been identified and will be investigated as part of the environmental assessment process are tabulated below. Where specialist input is required, this has been indicated.

Aspect	Potential environmental and socio-economic impacts	Specialist input (where required)
Biophysical		
Geology	Sterilisation of resources.	Qualitative assessment by EAP
Topography	Contribution to alteration of topography linked to impacts on drainage patterns, visual landscape.	
Soils and land capability	Physical disturbance and contamination of soil resources, loss of agricultural land.	Soils, Land Use and Land Capability Study inc. Agricultural Potential Assessment
Biodiversity – Terrestrial and Aquatic	Physical loss and general disturbance of habitats and species.	Terrestrial and Aquatic Biodiversity Studies
Surface water	Contamination and alteration of drainage patterns.	Stormwater management design
Groundwater	Contamination of resources.	Groundwater Study and Geochemistry Study
Air Quality and Noise	Increase in emissions and ambient levels.	Air Quality and Noise Studies
Visual	Contribution to alteration of visual landscape.	Visual Study
Cultural		
Heritage/cultural/palaeontological resources	Loss of or damage to resources.	Heritage/ Cultural/ Palaeontological Studies
Socio-economic		
Socio-economic	Continued operation of the mine and associated socio-economic impacts.	Qualitative assessment by EAP

ENVIRONMENTAL AUTHORISATION PROCESS

The environmental assessment process provides information pertaining to procedural components and the environment in which it is being undertaken. It identifies and assesses, in consultation with I&APs, the negative and positive biophysical and socio-economic impacts (Key I&AP input stages are indicated in blue text below). The environmental assessment process also reports on management measures required to mitigate impacts to an acceptable level and incorporates requirements for monitoring programmes (where required). The process steps and estimated timeframes are provided below.



PUBLIC PARTICIPATION PROCESS

The purpose of the public participation process is to notify I&APs of the proposed project and to provide them with the opportunity to raise issues or concerns regarding the proposed project. The public participation process will be undertaken in accordance with the requirements of Chapter 6 of GNR 982 of 4 December 2014 (EIA Regulations), as amended. Due to COVID-19 restrictions, online and digital platforms will be utilised (as far as possible) to engage with I&APs. These platforms will include a combination of email, SMS, posters, and access to SLR’s website and a data free website where reports can be accessed. Loud hailing services and information booths will also be utilised to inform I&APs about the proposed project. I&APs involved in the environmental authorisation process are listed below:

I&APS INVOLVED IN THE ENVIRONMENTAL ASSESSMENT PROCESS

LANDOWNERS, LAND USERS AND OTHER I&APS

- Surrounding landowners, land users and communities.
- Non-government organisations and associations.
- Surrounding mines and industries.
- Parastatals.

COMPETENT AUTHORITY

- North West Department of Mineral Resources and Energy (DMRE).

COMMENTING AUTHORITIES

- Department of Economic Development, Environment, Conservation and Tourism.
- Department of Rural Environment and Agricultural Development.
- Department of Forestry, Fisheries and Environment;
- North West Parks and Tourism Board.
- Department of Rural Development and Land Reform – inclusive of the Land Claims Commissioner.

LOCAL AUTHORITIES

- Rustenburg Local Municipality (including the Ward 32 Councillor).
- Bojanala District Municipality.

Please let us know if there are any additional parties that should be involved.

**THARISA MINERALS (PTY) LTD
BACKGROUND INFORMATION DOCUMENT**

**ADDITIONAL WASTE STORAGE AT THE THARISA MINE
APRIL 2022**

DATE		TIME			
PARTICULARS OF THE INTERESTED AND AFFECTED PARTY					
NAME					
INTEREST IN THE PROPOSED PROJECT					
POSTAL/STREET ADDRESS					
		POSTAL CODE			
WORK/DAY TELEPHONE NUMBER		WORK/DAY FAX NUMBER			
CELL PHONE NUMBER		E-MAIL ADDRESS			
PLEASE REGISTER ME AS AN INTERESTED & AFFECTED PARTY (I&AP) SO THAT I MAY RECEIVE FURTHER INFORMATION AND NOTIFICATIONS DURING THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">YES</td> <td style="width: 50%; text-align: center;">NO</td> </tr> </table>	YES	NO
YES	NO				
HOW WOULD YOU LIKE TO RECEIVE YOUR NOTIFICATIONS?			E-MAIL		
			REGISTERED MAIL (POST)		

PLEASE WRITE YOUR COMMENTS AND QUESTIONS HERE (please use separate sheets if you wish)

PLEASE INCLUDE THE FOLLOWING OF MY COLLEAGUES/FRIENDS/NEIGHBOURS AS I&APS FOR THIS PROJECT:
Please return completed forms to:
<p>By providing your personal information to be registered as an I&AP for this project you consent to SLR managing your information in accordance with the Protection of Personal Information Act 4 of 2013. This includes; retaining and using your Personal Information as part of a contact database for this and/or other ESIA's, contacting you regarding this and/or other ESIA processes, disclosing the database to other authorised parties including the applicant for lawful purposes, and including any correspondence in the ESIA Reports. You may request for your Personal Information to be deleted from the Project database or comments to be excluded from ESIA Reports at any time by contacting SLR.</p>
Reinett Mogotshi SLR Consulting (South Africa) (Pty) Ltd (011) 467 0945 rmogotshi@slrconsulting.com

THANK YOU FOR YOUR CONTRIBUTION!!!