

SCOPING REPORT FOR THE CHANGES TO SURFACE INFRASTRUCTURE AT THE MOKALA MINE

Mokala Mine

REPORT AVAILABLE FOR PUBLIC REVIEW

MARCH 2021

SUBMITTED IN SUPPORT OF AN APPLICATION TO AMEND AN ENVIRONMENTAL MANAGEMENT PROGRAMME AND AN APPLICATION FOR ENVIRONMENTAL AUTHORISATION IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT NO 107 OF 1998 (NEMA), READ WITH THE NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 59 OF 2008 (NEM:WA) AND THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 28 OF 2002 (MPRDA)

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EXECUTIVE SUMMARY

INTRODUCTION

This Executive Summary provides a summary of the Scoping Report compiled and distributed for review and comment as part of the Scoping and Environmental Impact Assessment (S&EIA) process that is being undertaken for an integrated Environmental Authorisation process at the Mokala Mine.

SLR Consulting (South Africa) (Pty) Ltd (SLR), an independent firm of environmental assessment practitioners (EAPs), has been appointed to manage the S&EIA process.

PROJECT BACKGROUND

Mokala Manganese (Pty) Ltd (Mokala) has received authorisation to establish the Mokala Mine which is located on the remaining extent and portion 1 of the farm Gloria 266, the farm Kipling 271 and the farm Umtu 281, approximately 4 km north west of the town Hotazel in the Joe Morolong Local Municipality, in the Northern Cape Province.

The Mokala Mine is an open cast manganese mine with approved infrastructure components comprised of a dry crushing and screening plant; WRDs, Run-of- Mine (ROM) stockpiles; topsoil stockpiles; water storage facilities; stormwater management infrastructure and mine-related support facilities such as workshops, stores, and offices. Additional approved activities include:

- the realignment of the R380 road on the farm Kipling 271 and across the remaining extent of the farm of Gloria 266;
- upgrading of the intersection to the mine on portion 1 of the farm Gloria 266 also serving the existing Gloria Mine;
- the realignment of a section of the Ga-Mogara drainage channel within the existing river channel. This realignment extends onto the farm Umtu 281.

The Mokala Mine is currently in the construction and operational phase of the project. In this regard, temporary infrastructure in support of the construction phase is currently on site. Construction facilities will either be removed at the end of the construction phase or incorporated into the layout of the operational mine. The mine has also begun with their open cast strip mining activities.

Mokala is now proposing to amend the approved mine layout to optimize their mining operations. Changes to the approved infrastructure layout that have already taken place include:

- the reconfiguration of the plant area, ROM, and high-grade product stockpiles to accommodate the expansion of the open pit;
- the relocation of the low-grade product stockpile;
- the relocation of support infrastructure (water storage facilities (potable and process water), workshops and washbay, change houses, sewage treatment plant, water treatment plant, fuel storage, Administrative block (offices, kitchen, canteen, training centre, mustering centre, clinic), stores and waste storage);
- relocation of transportation related facilities/infrastructure (internal haul road, weighbridges, parking areas, truck loading and staging facility);
- the relocation of the approved WRD to accommodate the expansion of the open pit; and
- the relocation of the approved topsoil stockpiles.

Proposed activity/infrastructure changes to the approved surface layout include:

- the proposed expansion of the open pit;
- the proposed increase in the capacity of the approved Waste Rock Dump (WRD) and the establishment of an additional WRD;

- the proposed establishment of additional topsoil stockpiles;
- the proposed relocation of stormwater management infrastructure;
- the proposed increase in the capacity of product stockpiles (ROM, Low Grade and High Grade); and
- the proposed mining of the barrier pillar between the Kalagadi Mine and Mokala Mine.

No changes are anticipated to the realignment of the R380, the realignment of the Ga-Mogara drainage channel and the intersection to the entrance of the mine.

EXISTING AUTHORISATIONS

The mine currently operates in accordance with the following approved environmental authorisations:

- a Mining Right and an approved Environmental Management Programme report (EMPr) in terms of the Mineral and Petroleum Resources Development Act No. 28 of 2002 (MPRDA). Authorisation was granted by the Department of Mineral Resources (DMR) (now the Department of Mineral Resources and Energy - DMRE) on the 19 September 2017 as per reference NC30/5/1/2/2/10090 MR;
- an Environmental Authorisation (EA) and an approved EMPr in terms of National Environmental Management Act No. 107 of 1998, as amended (NEMA). Authorisation was granted by the DMR (now the DMRE) on the 15 August 2016 as per reference NC 30/5/1/2/2/(10090) EM;
- a Waste Management License (WML) from the DMR (now the DMRE) in terms of the National Environmental Management: Waste Act No. 59 of 2008 (NEM:WA). The WML was approved as part of the Environmental Authorisation granted by the DMR on the 15 August 2016 as per reference NC 30/5/1/2/2/ (10090) EM; and
- an Integrated Water Use License (IWUL) in terms of the National Water Act No. 36 of 1998 (NWA) issued by the Department of Water, Human Settlement and Sanitation (DHSWS) on 14 August 2020 (as per reference number 08/D41K/BCGIJA/9175).

SUMMARY OF AUTHORISATION REQUIREMENTS

The proposed project includes activities listed under the of NEMA and waste management activities listed under the NEM:WA. Under both NEMA and NEM:WA, activities are prohibited from commencing until written authorisation is obtained from the competent authority, which in this case is the Northern Cape Province office of the DMRE. In terms of the Section 102 of the MPRDA, an EMPr may not be amended or varied without the written consent of the Minister of Mineral Resources.

The MPRDA, NEMA and NEM:WA require that an applicant submit the relevant environmental reports required in terms of NEMA. The NEMA Environmental Impact Assessment (EIA) Regulations, 2014 (published under Government Notice Regulation (GNR) 982 of 4 December 2014, as amended) (hereafter referred to as NEMA EIA Regulations, (GNR 982 of 2014 as amended)), promulgated in terms of NEMA sets out the assessment process and reporting requirements where authorisation is required. The project requires an integrated environmental authorisation process and will be undertaken to meet the requirements of:

- Regulation 31 (substantive amendment process) to cater for changes to the approved EMPr in terms of the NEMA EIA Regulations (GNR 982 of 2014, as amended); and
- Regulation 21 and 23 (S&EIA process) to cater for listed activities in terms of the NEMA EIA Regulations (GNR 982 of 2014, as amended).

An amendment to the existing IWUL for water uses listed under Section 21 of NWA is also required from the competent authority, which in this case is the Northern Cape Province office of the DHSWS.

SLR Consulting (South Africa) (Pty) Ltd (SLR), an independent firm of environmental assessment practitioners (EAPs), has been appointed by Mokala to manage the S&EIA process required to inform the integrated EA and EMPr amendment process.

This S&EIA process does not cover occupational health and safety legislation requirements.

OPPORTUNITY TO COMMENT

This Scoping Report has been distributed for a 30-day comment period from **29 March to 04 May 2021** in order to provide Interested and Affected Parties (I&APs) with an opportunity to comment on any aspect of the project and the findings of the S&EIA process to date. Copies of the full report and Non-Technical Summary (NTS) are available on the SLR website (at <https://slrconsulting.com/public-documents>) and the SLR data free website (at slrpublicdocs.datafree.com). Electronic copies (compact disk) of the report are available from SLR, at the contact details provided below.

Please send your comments to SLR at the address, telephone number or e-mail address shown below by no later than **3 May 2021** for them to be included in the updated Scoping Report. All comments received during the review process will be included in the Scoping Report.

SLR Consulting (South Africa) (Pty) Ltd

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PLAN OF STUDY FOR THE EIA PHASE

The Plan of Study describes the nature and extent of the assessment to be conducted and sets out the proposed approach to the EIA phase. In this regard, upon acceptance of the Scoping Report by the DMRE, the EIA phase of the project may commence, and the following key steps will be undertaken:

- I&APs will be informed of the DMRE's decision of the Scoping Report;
- I&APs will be provided with an opportunity to comment on any aspect of the project and the findings of the EIA and EMPr;
- An assessment of the potential biophysical, cultural and socio-economic impacts of the project will be undertaken. The assessment will be informed by specialist and project team input and comments and concerns received from I&APs during the authorisation process. Mitigation and management measures to reduce potential negative impacts, and enhance positive impacts will be included as part of the findings of the EIA and EMPr;
- The EIA and EMPr will be made available for the public, the competent authority, and other relevant stakeholders during a review period comprising 30 calendar days;
- The EIA and EMPr will be updated with any comments raised during the review period and will be made available to the DMRE for decision making purposes; and
- I&APs will be informed of the DMRE's decision.

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ACRONYMS AND ABBREVIATIONS

Acronym / Abbreviation	Definition
ABA	Acid–Base Accounting
BID	Background Information Document
BIF	Banded Iron Formation
BPGs	Best Practice Guidelines
CARA	Conservation of Agricultural Resources Act (No. 43 of 1983)
CBA	Critical Biodiversity Area
DEFF	Department of Environment, Forestry and Fisheries
DHSWS	Department of Water, Human Settlement and Sanitation
DMR	Department of Mineral Resources
DMRE	Department of Mineral Resources and Energy
DRDLR	Rural Development and Land Reform
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMF	Environmental Management Frameworks
EMPr	Environmental Management Programme report
GNR	Government Notice Regulation
HIA	Heritage Impact Assessment
I&APs	Interested and Affected Parties
IAIASa	International Association for Impact Assessment South Africa
IDP	Integrated Development Plan
IEM	Integrated Environmental Management
IUCN	International Union for Conservation of Nature
IWUL	Integrated Water Use License
LMO	Lower Manganese Ore
MAE	Mean Annual Evaporation
mamsl	Metres Above Mean Sea Level
MAP	Mean Annual Precipitation
MMO	Middle Manganese Ore
MPRDA	Mineral and Petroleum Resources Development Act No. 28 of 2002
NAAQS	National Ambient Air Quality Standards
NCPSPF	Northern Cape Provincial Spatial Development Framework
NDCR	National Dust Control Regulations
NDP	National Development Plan
NEM: AQA	National Environmental Management: Air Quality Act (No. 39 of 2004)
NEM: BA	National Environmental Management: Biodiversity Act (No. 10 of 2004)
NEM:WA	National Environmental Management: Waste Act No. 59 of 2008

Acronym / Abbreviation	Definition
NEMA	National Environmental Management Act No.107 of 1998, as amended
NFA	National Forest Act (No. 84 of 1998)
NFEPA	National Freshwater Ecosystem Priority Area
NGP	New Growth Path
NHRA	National Heritage Resources Act (No. 25 of 1999)
NPAES	National Protected Areas Expansion Strategy
NPR	Neutralising Potential Ratio
NTS	Non-Technical Summary
NWA	National Water Act (No. 36 of 1998)
NWBA	North West Biodiversity Management Act (No. 4 of 2016)
PSDF	Provincial Spatial Development Framework
RDL	Red Data Listed
RoM	Run of Mine
S&EIA	Scoping and Environmental Impact Assessment
SACAD	South Africa Conservation Areas Database
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
SAMRAD	South African Mineral Resources Administration System
SANBI	South African National Botanical Institute
SANRAL	South African National Roads Agency
SANS	South African National Standard
SAPAD	South Africa Protected Area Database
SCC	Species of Conservation Concern
SDF	Spatial Development Framework
SG	Surveyor General
SLP	Social and Labour Plan
SLR	SLR Consulting (South Africa) (Pty) Ltd
SPLP	Synthetic Precipitation Leaching Procedure
TDS	Total Dissolved Solids
TWQR	Targeted Water Quality Range
UMO	Upper Manganese Ore
WMAs	Water Management Areas
WML	Waste Management License
WRD	Waste Rocks Dump

INTRODUCTION

This section provides a brief description of the project background, summarises the legislative authorisation requirements, provides the study terms of reference, describes the structure and purpose of the report, and outlines the opportunity for comment.

PROJECT BACKGROUND

Mokala has received authorisation to establish the Mokala Mine which is located on the remaining extent and portion 1 of the farm Gloria 266, the farm Kipling 271 and the farm Umtu 281 approximately 4 km north west of the town Hotazel in the Joe Morolong Local Municipality, in the Northern Cape Province (see **Error! Reference source not found.** and Figure 2 for regional and local setting maps, respectively).

The Mokala Mine is an open cast manganese mine with approved infrastructure components comprising of a dry crushing and screening plant; WRDs, ROM stockpiles; topsoil stockpiles; water storage facilities; stormwater management infrastructure and mine-related support facilities such as workshops, stores, and offices. Additional approved activities include:

- the realignment of the R380 road on the farm Kipling 271 and across the remaining extent of the farm of Gloria 266;
- upgrading of the intersection to the mine on portion 1 of the farm Gloria 266 also serving the existing Gloria Mine;
- the realignment of a section of the Ga-Mogara drainage channel within the existing river channel. This realignment extends onto the farm Umtu 281.

The Mokala Mine is currently in the construction and operational phase of the project. In this regard, temporary infrastructure in support of the construction phase is currently on site. Construction facilities will either be removed at the end of the construction phase or incorporated into the layout of the operational mine. The mine has also begun with their open cast strip mining activities.

The mine currently operates in accordance to the following approved environmental authorisations:

- a Mining Right and an approved EMPr in terms of the MPRDA. Authorisation was granted by the DMR (now the DMRE) on the 19 September 2017 as per reference NC30/5/1/2/2/10090 MR;
- an EA and an approved EMPr in terms of NEMA. Authorisation was granted by the DMR (now the DMRE) on the 15 August 2016 as per reference NC 30/5/1/2/2/(10090) EM;
- a WML from the DMR (now the DMRE) in terms of the NEM:WA. The WML was approved as part of the EA granted by the DMR on the 15 August 2016 as per reference NC 30/5/1/2/2/ (10090) EM; and
- an IWUL in terms of the NWA issued by the DHSWS on 14 August 2020 (as per reference number 08/D41K/BCGIJA/9175).

Mokala is proposing to amend the approved mine layout to cater for activity/infrastructure changes that have already taken place and proposed changes. These changes are required optimize their mining operations.

Activity/infrastructure changes to the approved infrastructure that have already taken place include:

- the reconfiguration of plant area, ROM and high-grade product stockpiles to accommodate the expansion of the open pit;
- the relocation of the low-grade product stockpile;
- the relocation of support infrastructure (water storage facilities (potable and process water), workshops and washbay, change houses, sewage treatment plant, water treatment plant, fuel storage, Administrative block (offices, kitchen, canteen, training centre, mustering centre, clinic), stores and waste storage);

- relocation of transportation related facilities/infrastructure (internal haul road, weighbridges, parking areas, truck loading and staging facility);
- the relocation of the approved WRD to accommodate the expansion of the open pit; and
- the relocation of the approved topsoil stockpiles.

Proposed activity/infrastructure changes to the approved surface layout include:

- the proposed expansion of the open pit;
- the proposed increase in the capacity of the approved WRD and the establishment of an additional WRD;
- the proposed establishment of addition topsoil stockpiles;
- the proposed relocation of stormwater management infrastructure;
- the proposed increase in the capacity of product stockpiles (ROM and Low Grade, High Grade); and
- the proposed mining of the barrier pillar between the Kalagadi Mine and Mokala Mine.

No changes are anticipated to the realignment of the R380, the realignment of the Ga-Mogara drainage channel, or the intersection to the entrance of the mine.

SUMMARY OF AUTHORISATION REQUIREMENTS

The proposed project includes activities listed under the NEMA, and waste management activities listed under the NEM:WA. Under both NEMA and NEM:WA, activities are prohibited from commencing until written authorisation is obtained from the competent authority, which in this case is the Northern Cape Province office of the DMRE. In terms of the Section 102 of the MPRDA, an EMPr may not be amended or varied without the written consent of the Minister of Mineral Resources.

The MPRDA, NEMA and NEM:WA require that an applicant submit the relevant environmental reports required in terms of NEMA. The NEMA EIA Regulations (GNR 982 of 2014, as amended), promulgated in terms of NEMA sets out the assessment process and reporting requirements where authorisation is required. The project requires an integrated environmental authorisation process to be undertaken and for it to meet the requirements of:

- Regulation 31 (substantive amendment process) to cater for changes to the approved EMPr in terms of the NEMA EIA Regulations (GNR 982 of 2014, as amended); and
- Regulation 21 and 23 (S&EIA process) to cater for listed activities in terms of the NEMA EIA Regulations (GNR 982 of 2014, as amended).

An amendment to the existing IWUL for water uses listed under Section 21 of NWA is also required from the competent authority, which in this case is the Northern Cape Province office of the Department of Human Settlements, Water and Sanitation (DHSWS).

SLR, an independent firm of EAPs, has been appointed by Mokala to manage the S&EIA process required to inform the integrated EA and EMPr amendment process.

This S&EIA process does not cover occupational health and safety legislation requirements.

PURPOSE OF THIS REPORT

This Scoping Report has been compiled and distributed for review and comment as part of the S&EIA process that is being undertaken for the project at Mokala Mine. The S&EIA is contemplated in the NEMA EIA Regulations, (GNR 982 of 2014, as amended) in terms of the NEMA.

This Scoping Report:

- documents the applicable regulatory framework;

- provides a description of the proposed project and the affected environment;
- summarises the S&EIA process followed to date;
- details the consideration of alternatives; identifies potential project impacts; and
- presents a Plan of Study for the EIA phase.

I&APs are asked to comment on the Scoping Report. The document will be updated into a final Scoping Report, giving due consideration to the comments received, and will be submitted to the DMRE for consideration as part of the application for an integrated EA and EMP amendment application made in terms of the MPRDA, NEMA and NEM:WA.

TERMS OF REFERENCE

The environmental authorisation process is conducted in two phases. The first is the Scoping phase and the second is the EIA phase. The terms of reference for the S&EIA regulatory process are to:

- make application for integrated EA and EMP amendment of the project in terms of the MPRDA, NEMA and the NEM:WA;
- ensure the S&EIA process is undertaken in accordance with the requirements of NEMA and the EIA Regulations (GNR, 982 of 2014, as amended);
- ensure the S&EIA is undertaken in an open, participatory manner to ensure that all potential impacts are identified;
- undertake a public participation process, which includes the distribution of information to I&APs and provides the opportunity for I&APs to raise any concerns/issues, as well as an opportunity to comment on the S&EIA documentation; and
- integrate all the information, including the findings of the specialist studies and other relevant information, into S&EIA Reports to allow an informed decision to be taken on the project.

Further to this and in accordance with the Northern Cape DMRE reporting requirements and Appendix 2 to the NEMA EIA Regulations (GNR 982 of 2014, as amended), the key objectives of the scoping process are to:

- identify the relevant policies and legislation relevant to the activity;
- motivate the need and desirability of the activity, including the need and desirability of the activity in the context of the preferred location (if relevant);
- identify and confirm the preferred activity, technology and site alternatives (if relevant) through an identification of impacts and risks and ranking process of such impacts and risks;
- identify the key issues to be addressed in the assessment phase;
- determine the level of assessment (including specialist studies) and public participation required;
- 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 (if relevant) through the life of the activity. This also includes the nature, significance, consequence, extent, duration and probability of the impacts to inform the location of the development footprint within the preferred site (if relevant); 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.

STRUCTURE OF THE REPORT

This document has been prepared in accordance with the DMRE Scoping Report template format and was informed by the guidelines posted on the official DMRE website accessed in February 2021. In addition, this report also complies with the requirements of the NEMA and Appendix 2 of EIA Regulations, 2014, as amended.

Table 1-1 provides a summary of the requirements, with cross references to the report sections where these requirements have been addressed.

TABLE 1-1: STRUCTURE OF THE SCOPING REPORT

Legal and Regulatory Requirement		Section of Report
DMRE template requirement	NEMA: GNR 982 of 2014, as amended Appendix 2	
The EAP who prepared the report and expertise of the EAP.	Details of: <ul style="list-style-type: none"> the EAP who prepared the report; and the expertise of the EAP, including a curriculum vitae. 	Section 1
Description of the property.	The location of the activity, including: <ul style="list-style-type: none"> the 21-digit surveyor general code of each cadastral land parcel; where available, the physical address and farm name; and where the requirement information in terms (i) and (ii) is not available, the coordinates of the boundary of the property or properties. 	Section 2.
Locality plan.	A plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or on land where the property has not been defined, the coordinates within which the activity is to be undertaken.	Section 3.
Description of the scope of the proposed overall activity, including listed and specified activities.	A description of the scope of the proposed activity: <ul style="list-style-type: none"> all listed and specified activities triggered; and a description of the activities to be undertaken, including associated structures and infrastructure. 	Section 4
Description of the activities to be undertaken.		
Policy and legislative context.	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 framework and instruments that are applicable to this activity and are to be considered in the assessment process.	Section 5
Need and desirability of the proposed activity.	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 6.
Period for which the environmental authorisation is required.	The environmental authorisation is required for the life of the mine, which is estimated at 15 years	Section 7
Description of the process followed to reach the proposed preferred site.	A full description of the process followed to reach the proposed preferred activity, site and location within the site.	Section 8
Details of the alternatives considered.	Details of all the alternatives considered.	Section 8.2.
Details of the public participation process followed.	Details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs.	Section 8.3

Legal and Regulatory Requirement		Section of Report
DMRE template requirement	NEMA: GNR 982 of 2014, as amended Appendix 2	
Summary of issues raised by I&APs.	A summary of the issues raised by I&APs, and an indication of the manner in which the issues were incorporated, or the reasons for not including them.	Section 8.4.
Environmental attributes associated with the sites.	The environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects.	Section 8.5
Impacts identified.	The impacts and risks identified for each alternative, <ul style="list-style-type: none"> including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts can be reversed; and that may cause irreplaceable loss of resources; and can be avoided, managed, or mitigated. 	Section 8.6
Methodology used in determining the significance of environmental impacts.	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 8.7
The positive and negative impacts that the proposed activity (in terms of the initial site layout) and alternative will have on the environment and the community that may be affected.	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 8.8
The possible mitigation measures that could be applied and the level of risk.	The possible mitigation measures that could be applied and level of residual risk.	Section 8.9
The outcome of the site selection matrix. Final site layout plan.	The outcome of the site selection matrix.	Section 8.10
Motivation where no alternative sites were considered.	Alternative locations for the activity where they were investigated, If no alternatives are possible the motivation for not considering such.	Section 8.11
Statement motivating the preferred site.	A concluding statement indicating the preferred alternatives, including preferred location of the activity.	Section 8.12
Plan of study for the environmental impact assess process	A plan of study for undertaking the environmental impact assessment process to be undertaken.	Section 9
Description of alternatives to be considered including the option of not going ahead with the activity.	A description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity.	Section 9.2.
A description of the aspects to be assessed as part of the environmental impact assessment process.	A description of the aspects to be assessed as part of the environmental impact assessment process.	Section 9.3 and 9.4
Description of aspects to be assessed by specialists.	Aspects to be assessed by specialists.	Section 9.4.

Legal and Regulatory Requirement		Section of Report
DMRE template requirement	NEMA: GNR 982 of 2014, as amended Appendix 2	
Proposed method of assessing the environmental aspects including the proposed method of assessing alternatives.	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. – Section 9.6
Proposed method of assessing duration significance.	A description of the proposed method of assessing duration and significance.	Section 9.6.
The stages at which the competent authority will be consulted.	An indication of the stages at which the competent authority will be consulted.	Section 9.7.
Particulars of the public participation process with regard to the impact assessment process that will be conducted.	Particulars of the public participation process that will be conducted during the environmental impact assessment process.	Section 9.8.
Description of the tasks that will be undertaken during the environmental impact assessment process.	A description of the tasks that will be undertaken as part of the environmental impact assessment process.	Section 9.9.
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.	Identification of 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 9.10.
Other information required by the competent authority.	Where applicable, any specific information required by the competent authority.	Section 10.
Other matter required in terms of section 24(4)(a) and (b) of the Act.	Any other matter required in terms of section 24(4)(a) and (b) of the Act.	Section 11.
Undertaking regarding correctness of information.	An undertaking under oath or affirmation by the EAP in relation to: <ul style="list-style-type: none"> the correctness of the information provided in the report; the inclusion of comments and inputs from stakeholders and I&APs; and any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by I&APs. 	Section 12.
Undertaking regarding level of agreement.	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.	Section 12.

OPPORTUNITY TO COMMENT

This Scoping Report has been distributed for a 30-day review and comment period from **29 March to 04 May 2021** in order to provide I&APs with an opportunity to comment on any aspect of the project and the findings of

the S&EIA process to date. Copies of the full report and Non-Technical Summary (NTS) are available on the SLR website (at <https://slrconsulting.com/public-documents>) and the SLR data free website (at slrpublicdocs.datafree.com). Electronic copies (compact disk) of the report are available from SLR, at the contact details provided below.

Please send your comments to SLR at the address, telephone number or e-mail address shown below by no later than **04 May 2021** for them to be included in the updated Scoping Report. All comments received during the review process will be included in the Scoping Report.

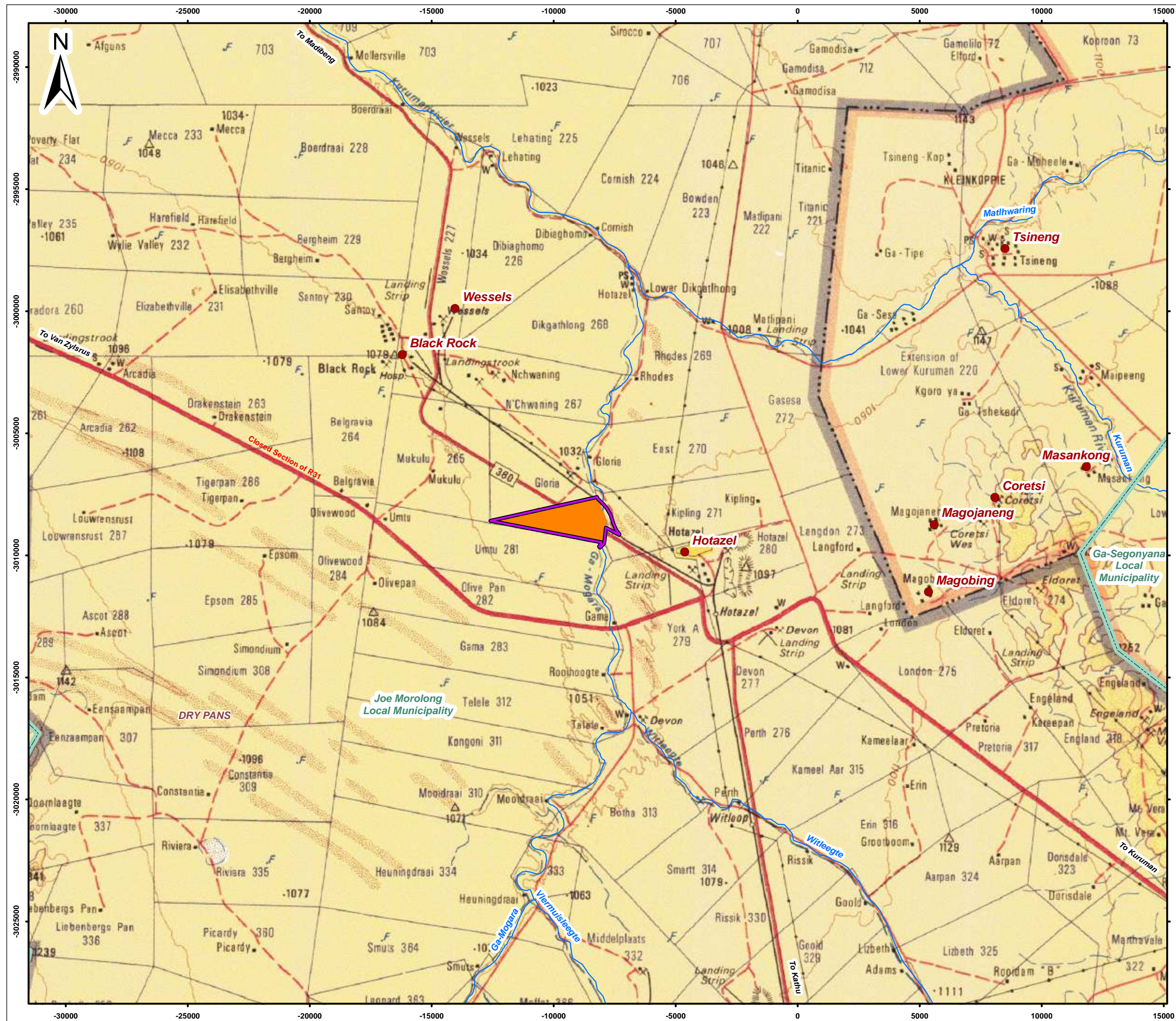
SLR Consulting (South Africa) (Pty) Ltd

Attention: Gugu Dlamini

PO Box 1596, Cramerview 2060 (if using post please call SLR to notify us of your submission)

Tel: (011) 467 0945

E-mail: gdhlamini@slrconsulting.com



North West
Free State
Northern Cape
Western Cape
Eastern Cape

Project Location

Legend

- Project Area
- Mining Right Area
- Towns
- Local Municipalities
- Main Roads
- Rivers and Streams

0 2 4 Kilometers

Scale: 1:150 000 @ A3

Projection: Transverse Mercator
Datum: Hartbeeshoek, Lo 23

MOKALA MANGANESE (PTY) LTD

Figure 1

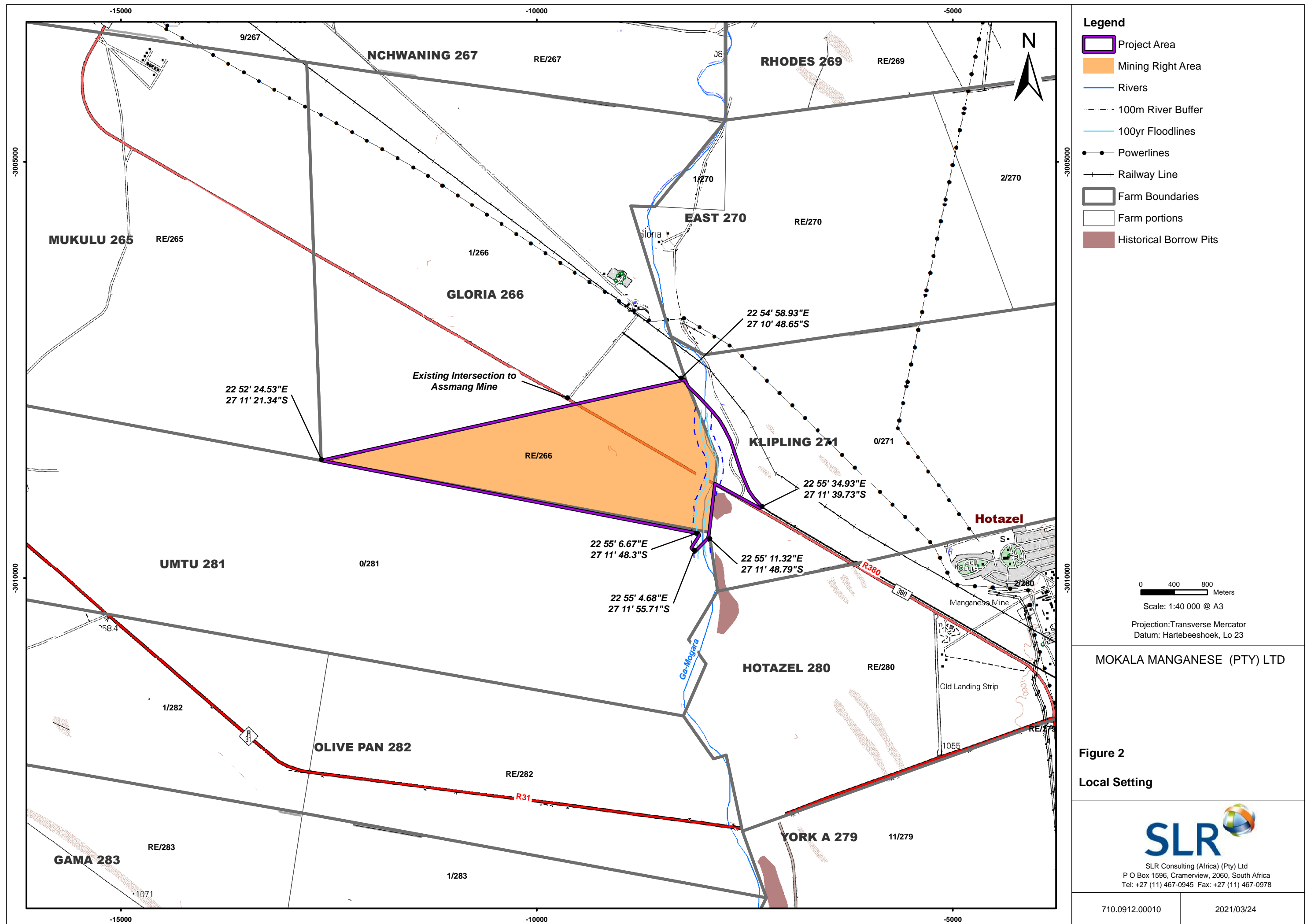
Regional Setting

SLR

SLR Consulting (Africa) (Pty) Ltd
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Tel: +27 (11) 467-0945 Fax: +27 (11) 467-0978

720.0912.P0010

2021/03/24



1 DETAILS OF THE EAP WHO PREPARED THE REPORT

This section provides the details, qualifications, and experience of the EAP undertaking the S&EIA.

1.1 CONTACT PERSON AND CORRESPONDENCE ADDRESS

SLR has been appointed as the independent EAP to undertake the S&EIA for the project. The details of the EAP project team that were involved in the preparation of this Scoping Report are provided in Table 1-1 below.

TABLE 1-1: DETAILS OF THE EAP

General		
Organisation	SLR Consulting (South Africa) (Pty) Ltd	
Postal address	PO Box 1596, Cramerview, 2060	
Tel No.	(011) 467 0945	
Name	Role	Email
Edward Perry	Project Director and Review	eperry@slrconsulting.com
Natasha Smyth	Project Manager	nsmyth@slrconsulting.com

SLR has no vested interest in the proposed project other than contractually agreed payment for consulting services rendered as part of the S&EIA process. An undertaking by SLR declaring its independence, as required by the EIA Regulations, 2014, as amended, is provided in Section 12.

1.2 QUALIFICATIONS AND EXPERIENCE OF THE EAP

Edward Perry, the Project Director / Reviewer, has worked in environmental consultancy for over 20 years for a wide range of public and private sector clients. Edward is a registered Environmental Auditor with the Institute for Environmental Management and Assessment and a Lead Auditor with the International Cyanide Management Institute. Prior to moving to South Africa in 2011 Edward worked in the United Kingdom on a wide range of projects including EIAs and Integrated Pollution and Prevention Permits. This included permitting the first hazardous waste landfill in the UK under the new integrated permitting mechanism and undertaking a study for the European Commission on the implementation of the Landfill Directive in 15 European countries. He is a member of the International Association for Impact Assessment South Africa (IAIASa) and a registered EAP with the Environmental Assessment Practitioner Association of South Africa (EAPASA).

Natasha Smyth, the Project Manager, holds an Honours degree in Geography and Environmental Management and has approximately 12 years of relevant experience. She is a registered EAP with the Environmental Assessment Practitioner Association of South Africa. She has managed and assisted in a wide range of projects for major and small-scale minerals developments throughout South Africa, as well as in Namibia and Zambia. Her areas of expertise include EIAs, Environmental Compliance and Monitoring and Environmental Due Diligence. She is a member of the IAIAsa, and a registered EAP with EAPASA.

2 DESCRIPTION AND LOCATION OF ACTIVITY

This section provides details of the project location and properties.

A description of the properties on which the Mokala Mine and project components are located is provided in Table 2-1 below.

TABLE 2-1: DESCRIPTION OF THE PROPERTY

Description	Details
Farm name (Mokala Mine)	<ul style="list-style-type: none"> Remaining extent and portion 1 of the farm Gloria 266 – Mining related infrastructure and the realignment of the R380. The farm Kipling 271 – Realignment of the R380. The farm Umtu 281 – Realignment of the Ga-Mogara drainage channel.
Farm name (project components)	Remaining extent of the farm Gloria 266.
Application area (ha)	The approved EMPr caters for a disturbance area of 154 ha. As part of the project, an additional disturbance area of approximately 224 ha is associated with proposed activities. The reconfiguration and relocation of infrastructure amounts to approximately 54 ha of the approved area of disturbance.
Magisterial district	The Mokala Mine is located within John Taolo Gaetseene District Municipality, the Kuruman Magisterial District and the Joe Morolong Local Municipality.
Distance and direction from nearest town	Mokala Mine is located approximately 4 km to the north west of Hotazel Town, in the Northern Cape Province.
21-digit Surveyor General (SG) Code for the project area	Remaining extent of the farm Gloria 266: CO2100000000026600000
Co-ordinates	<ul style="list-style-type: none"> Western point: 22° 52' 24.53" E and 27° 11' 21.34" S Northern point: 22° 54' 58.93" E and 27° 10' 48.65" S Eastern point: 22° 55' 34.93" E and 27° 11' 39.73" S Southern point: 22° 55' 11.32" E and 27° 11' 48.79" S
Water catchment and management area	<ul style="list-style-type: none"> Lower Vaal water management area. D41K quaternary catchment.

3 LOCALITY PLAN

The regional and local settings of the Mokala Mine are illustrated in Figure 1 and Figure 2, respectively.

4 DESCRIPTION OF THE SCOPE OF THE ACTIVITY

This section identifies the listed and specified activities applicable to the project and describes the activities that would be undertaken as part of the project.

4.1 LISTED AND SPECIFIED ACTIVITIES

The listed activities in terms of the NEMA EIA Regulations, 2014 (GNR 982, as amended in 2016, 2017, 2018 and 2020) and NEM:WA applicable to the proposed activity/infrastructure changes are included in Table 4-1 below. A list of activity/infrastructure changes that have already taken place but do not constitute any listed activities are detailed in Table 4-2 below.

TABLE 4-1: PROPOSED PROJECT ACTIVITIES/INFRASTRUCTURE AND ASSOCIATED LISTED ACTIVITIES

Name of Activity	Aerial extent of the Activity Ha or m ²	Listed Activity	Applicable Listing Notice	Waste Management Authorisation
The proposed expansion of the open pit.	Approximately 80 ha	X	<p>NEMA (GNR 984 of 2014) as amended by GNR.325 of 2017 (G.G. 40772 of 07/04/2017): Listing Notice 2, Activity 15: The clearance of an area of 20 ha or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for:</p> <ul style="list-style-type: none"> (i) The undertaking of a linear activity; or (ii) Maintenance purposes undertaken in accordance with a maintenance management plan. <p>RELEVANCE: The expansion of the open pit will clear an area of more than 20 ha of indigenous vegetation.</p> <p>NEMA (GNR 984 of 2014) as amended by GNR.325 of 2017 (G.G. 40772 of 07/04/2017): Listing Notice 2, Activity 17: Any activity including the operation of that activity which requires a mining right as contemplated in section 22 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including –</p> <ul style="list-style-type: none"> (a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource; or (b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing; but excluding the secondary processing of a mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource in which case activity 6 in this Notice applies. <p>RELEVANCE: Mokala has approval to mine approximately 1.3 million tonnes of ore per annum. With the expansion of the</p>	Not applicable.

Name of Activity	Aerial extent of the Activity Ha or m ²	Listed Activity	Applicable Listing Notice	Waste Management Authorisation
			<p>open pit, this will increase the tonnes of ore mined per annum to approximately 1.5 million.</p> <p>NEMA (GNR 983 of 2014) as amended by GNR.327 of 2017 (G.G. 40772 of 07/04/2017) and GNR.706 of 2018 (G.G. 41766 of 13/07/2018: Listing Notice 1, Activity 48:</p> <p>The expansion of -infrastructure or structures where the physical footprint is expanded by 100 square metres or more; or (dams or weirs, where the dam or weir, including infrastructure and water surface area, is expanded by 100 square metres or more.</p> <p>where such expansion occurs -</p> <ul style="list-style-type: none"> (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse. <p>RELEVANCE: The proposed expansion of the open pit is within 32 m of the Ga-Magara drainage channel.</p>	Not applicable
The proposed increase in the capacity of the approved WRD and the establishment of an additional WRD.	<ul style="list-style-type: none"> • Increase of approved WRD – Approximately 28 ha • Proposed additional WRD – Approximately 84 ha <p>Currently the capacity of the approved WRD is 3 474 969 m³, the mine still has a</p>	X	<p>NEMA (GNR 984 of 2014) as amended by GNR.325 of 2017 (G.G. 40772 of 07/04/2017): Listing Notice 2, Activity 15:</p> <p>The clearance of an area of 20 ha or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for:</p> <ul style="list-style-type: none"> (i) The undertaking of a linear activity; or (ii) Maintenance purposes undertaken in accordance with a maintenance management plan. <p>RELEVANCE: The increase in the capacity of the approved WRD and the establishment of an additional WRD will clear an area of more than 20 ha of indigenous vegetation.</p> <p>NEMA (GNR 983 of 2014) as amended by GNR.327 of 2017 (G.G. 40772 of 07/04/2017) and GNR.706 of 2018 (G.G.</p>	NEM:WA (GNR 921 of 2013) as amended by GNR.332 of 2014 (G.G. 37604 of 02/05/2014), GNR.633 of 2015 (G.G. 39020 of 24/07/2015) and GNR.1094 of 2017 (G.G. 41175 of 11/10/2017): Category B, Activity 11: 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 Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).

Name of Activity	Aerial extent of the Activity Ha or m ²	Listed Activity	Applicable Listing Notice	Waste Management Authorisation
	remaining approved capacity of 731 806 m ³ . The current footprint of the approved WRD is approximately 14.63 ha. The authorised footprint is 16 ha, it follows that the established WRD is below the authorised footprint.		<p>41766 of 13/07/2018: Listing Notice 1, Activity 34: The expansion of existing facilities or infrastructure for any process or activity where such expansion will result in the need for a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the release of emissions, effluent or pollution, excluding –</p> <ul style="list-style-type: none"> (i) where the facility, infrastructure, process or activity is included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies; (ii) the expansion of existing facilities or infrastructure for the treatment of effluent, wastewater, polluted water or sewage where the capacity will be increased by less than 15 000 cubic metres per day; or (iii) the expansion is directly related to aquaculture facilities or infrastructure where the wastewater discharge capacity will be increased by 50 cubic meters or less per day. <p>RELEVANCE: The increase in the approved WRD capacity will require an amendment to the existing IWUL.</p> <p>NEMA (GNR 984 of 2014) as amended by GNR.325 of 2017 (G.G. 40772 of 07/04/2017: Listing Notice 2, Activity 6: The development of facilities or infrastructure for any process or activity which requires a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent excluding –</p>	<p>RELEVANCE: The increase in WRD capacity will require an amendment of the existing WML.</p> <p>GNR.1094 of 2017 (G.G. 41175 of 11/10/2017): Category A, Activity 13: 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.</p>

Name of Activity	Aerial extent of the Activity Ha or m ²	Listed Activity	Applicable Listing Notice	Waste Management Authorisation
			<p>(i) where the facility, infrastructure, process or activity is included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies;</p> <p>(ii) the expansion of existing facilities or infrastructure for the treatment of effluent, wastewater, polluted water or sewage where the capacity will be increased by less than 15 000 cubic metres per day; or</p> <p>(iii) the expansion is directly related to aquaculture facilities or infrastructure where the wastewater discharge capacity will be increased by 50 cubic meters or less per day.</p> <p>RELEVANCE: The existing IWUL will need to be amended to cater for an additional WRD.</p>	
The proposed increase in the capacity of product stockpiles (ROM, Low Grade and High Grade)	To be confirmed.	X	<p>NEMA (GNR 983 of 2014) as amended by GNR.327 of 2017 (G.G. 40772 of 07/04/2017) and GNR.706 of 2018 (G.G. 41766 of 13/07/2018: Listing Notice 1, Activity 34: The expansion of existing facilities or infrastructure for any process or activity where such expansion will result in the need for a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the release of emissions, effluent or pollution, excluding –</p> <p>(i) where the facility, infrastructure, process or activity is included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies;</p>	Not applicable.

Name of Activity	Aerial extent of the Activity Ha or m ²	Listed Activity	Applicable Listing Notice	Waste Management Authorisation
			<p>(ii) the expansion of existing facilities or infrastructure for the treatment of effluent, wastewater, polluted water, or sewage where the capacity will be increased by less than 15 000 cubic metres per day; or</p> <p>(iii) the expansion is directly related to aquaculture facilities or infrastructure where the wastewater discharge capacity will be increased by 50 cubic meters or less per day.</p> <p>RELEVANCE: The proposed increase in the capacity of the product stockpiles will require an amendment to the existing IWUL.</p>	
The proposed establishment of additional topsoil stockpiles.	Approximately 15 ha	X	<p>NEMA (GNR 983 of 2014) as amended by GNR.327 of 2017 (G.G. 40772 of 07/04/2017) and GNR.706 of 2018 (G.G. 41766 of 13/07/2018): Listing Notice 1, Activity 27: The clearance of an area of 1 ha or more, but less than 20 ha of indigenous vegetation, except where such clearance of indigenous vegetation is required for:</p> <p>(i) the undertaking of a linear activity; or</p> <p>(ii) maintenance purposes undertaken in accordance with a maintenance management plan.</p> <p>RELEVANCE: The establishment of additional topsoil stockpiles will clear additional indigenous vegetation but will not exceed the removal of 20 ha of indigenous vegetation.</p>	Not applicable.
The relocation of stormwater management infrastructure.	To be confirmed.	Not applicable	Not applicable as it is assumed that the approved capacities will remain unchanged.	Not applicable.
The proposed mining of the barrier pillar between the	To be confirmed	X	<p>NEMA (GNR 983 of 2014) as amended by GNR.327 of 2017 (G.G. 40772 of 07/04/2017) and GNR.706 of 2018 (G.G. 41766 of 13/07/2018): Listing Notice 1, Activity 27: The</p>	Not applicable.

Name of Activity	Aerial extent of the Activity Ha or m ²	Listed Activity	Applicable Listing Notice	Waste Management Authorisation
Kalagadi Mine and Mokala Mine.			<p>clearance of an area of 1 ha or more, but less than 20 ha of indigenous vegetation, except where such clearance of indigenous vegetation is required for:</p> <ul style="list-style-type: none"> (i) The undertaking of a linear activity; or (ii) Maintenance purposes undertaken in accordance with a maintenance management plan. <p>RELEVANCE: The mining of the barrier pillar will clear additional indigenous vegetation but will not exceed the removal of more than 20 ha of indigenous vegetation.</p> <p>NEMA (GNR 984 of 2014) as amended by GNR.325 of 2017 (G.G. 40772 of 07/04/2017): Listing Notice 2, Activity 17: Any activity including the operation of that activity which requires a mining right as contemplated in section 22 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including –</p> <ul style="list-style-type: none"> (a) associated infrastructure, structures, and earthworks, directly related to the extraction of a mineral resource; or (b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing; but excluding the secondary processing of a mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource in which case activity 6 in this Notice applies. <p>RELEVANCE: Mokala has approval to mine approximately 1.3 million tonnes of ore per annum. The mining of the barrier pillar will increase the tonnes of ore mined per annum to approximately 1.5 million.</p>	

TABLE 4-2: LAYOUT CHANGES THAT HAVE ALREADY TAKEN PLACE

Name of Activity	Approved aerial extent of the Activity Ha or m ²	Listed Activity	Applicable Listing Notice	Waste Management Authorisation
The reconfiguration of plant area and the high grade and ROM product stockpiles to accommodate the expansion of the open pit.	Overall prepared area of approximately 11 ha (within approved footprint)		Not applicable. Mokala has approval for the establishment of a plant, high grade and ROM product stockpiles. The reconfiguration of approved infrastructure does not trigger listed NEMA or NEM:WA listed activities.	
The relocation of the low-grade product stockpile	Approximately 1.03 ha and 140 000 m ³ (as per approved EMPr) (within approved footprint)		Not applicable. Mokala has approval for the establishment of a low-grade product stockpile. The reconfiguration of approved infrastructure does not trigger listed NEMA or NEM:WA listed activities.	
The relocation of support infrastructure: <ul style="list-style-type: none"> • water storage facilities; • workshops and washbay; • change houses; • sewage treatment plant; • treatment plant; • fuel storage; • Administrative block (offices, kitchen, canteen, training centre, mustering centre, clinic); and • stores and waste storage. 	Overall prepared area of approximately 7 ha (within approved footprint)		Not applicable. Mokala has approval for support infrastructure. The relocation of approved infrastructure does not trigger listed NEMA or NEM:WA listed activities.	
The relocation of transportation related facilities/infrastructure (internal haul road, weighbridges, parking areas, internal access roads, truck loading and staging facility).	Approximately 9 ha (within approved footprint)		Not applicable. Mokala has approval for transportation related infrastructure. The relocation of approved infrastructure does not trigger listed NEMA or NEM:WA listed activities.	

Name of Activity	Approved aerial extent of the Activity Ha or m ²	Listed Activity	Applicable Listing Notice	Waste Management Authorisation
The relocation of the approved WRD to accommodate the expansion of the open pit.	Approximately 16 ha (within approved footprint)		Not applicable. Mokala has approval for the establishment of a WRD. The relocation of approved infrastructure does not trigger listed NEMA or NEM:WA listed activities. The current footprint of the approved WRD is approximately 14.63 ha.	
The relocation of the approved topsoil stockpiles.	Approximately 8 ha (within approved footprint)		Not applicable. Mokala has approval for the establishment of a topsoil stockpiles. The relocation of approved infrastructure does not trigger listed NEMA or NEM:WA listed activities.	

4.2 OVERVIEW OF EXISTING APPROVED OPERATIONS

The Mokala Mine is an approved open cast mining operation, which targets the manganese ore body of the Kalahari Manganese field. The current RoM is anticipated to be 1 -1.3 million tonnes of ore a year with a grade target of 37.5% Mn ROM. The depth of the open pit will range between 40 m – 180 m. The Life of Mine is estimated to be 15 years. Further information pertaining to the operations is provided in the sections below (SLR, 2015).

4.2.1 Approved construction phase activities

It is important to note that Mokala is in the construction phase of the mine and has also recently begun mining ore (March 2021). Temporary infrastructure has been developed in support of the construction phase activities. These facilities will either be removed at the end of the construction phase or incorporated into the layout of the operational mine. The key approved construction activities include (SLR, 2015):

- Site establishment of temporary offices, portable toilets, contractor lay down area; temporary workshop and washbay and temporary non-mineralised waste storage facilities – *Currently taking place*;
- Clearing of vegetation in accordance with the relevant vegetation management procedures – *Currently taking place*;
- Stripping and stockpiling of soil resources and earthworks in accordance with the relevant soil conservation procedures – *Currently taking place*;
- Sourcing of material for construction – *Currently taking place*;
- Establishment of stormwater management facilities such as recycle water ponds and clean water realignment berms – *has not commenced*;
- Preparing stockpile areas (product, waste rock and ROM) - *Currently taking place*;
- Establishment of sewage treatment plant and water treatment plant (*not established as yet*);
- Construction of administrative block (*not established as yet*);
- Installation of main tower tank (*already established*), potable and process water tanks (*not established as yet*) and the fire water tank (*not established as yet*);
- Realignment of the R380, upgrading the intersection to the Gloria Mine, and establishment of internal haul roads and parking area - *Currently taking place*;
- Realignment of the Ga-Mogara drainage channel within the existing channel - *Currently taking place*
- Construction of a crushing, screening and loading plant (*not established as yet*); and
- Establishment of access control facilities - *Currently taking place*.

The construction phase facilities include (SLR, 2015):

- Contractor's laydown areas;
- Workshop/maintenance area for servicing and maintaining equipment and vehicles;
- Temporary waste collection and storage area;
- Store for the storing and handling of fuel, lubricants, solvents, paints and construction substances;
- Parking area for cars and equipment;
- Mobile site offices;
- Portable ablution facilities;
- Change houses;
- Soil stockpiles and WRDs;
- Water management infrastructure;
- Security and access control; and

- Main access road and turning circle.

No changes to the approved listed construction activities and facilities have taken place. It is however important to note that two additional temporary entrances to the mine site have been established to assist with the construction related activities. These temporary access roads each span less than 1 km in length. These temporary entrances will be removed once the main access road has been completed. Further to this, a temporary mobile crushing and screening site has been established until such time as the permanent crushing, screening and loading plant has been established.

4.2.2 Approved mining method – open cast activities

The Mokala Mine comprises conventional open cast strip mining methods. Following site preparation and initial earthworks, both excavation and drill and blast methods will be used to loosen the overburden rock and ore. Truck and shovel methods will be used to load and haul the box cut materials to the WRD and the ROM to the relevant delivery point. Topsoil and waste rock stripped during the mining operations will be used in the on-going rehabilitation processes. Table 4-3 summaries the approved associated open cast activities and a conceptual flow diagram is provided in Figure 3. **It is important to note that as part of the project, no changes to the approved mining method are anticipated.**

TABLE 4-3: SUMMARY OF OPEN CAST ACTIVITIES (2015, SLR)

Activity	Description
Topsoil stripping	Topsoil is stripped and stockpiled separately in accordance with the conservation management procedures.
Drilling and blasting	Once the topsoil and waste rock material has been removed, the hard waste rock will be drilled as per a predetermined design. Charges for blasting will be designed to prevent excessive ground vibration, fly rock and air blast.
Removal of waste rock	The removal of the waste rock above the ore body is done by means of dozing / loading and hauling with large equipment. Apart from the waste rock stockpile that is required for the initial box cut, the waste rock material will be placed into the previously mined out void. Some waste rock has been utilised for the establishment of platforms, internal haul roads and for construction of the fills and pavement layers to the diverted R380 Provincial road. Topsoil will be placed on top of the backfilled overburden thus ensuring that the rehabilitation is done concurrently to the mining (rollover mining).
Mining progression and strips	The initial box cut was developed on the eastern boundary of the open pit where the manganese seam is the shallowest. Mining will progress towards the west. Each mine strip will have a width of 50 m and a total of 2 strips will be open at any given time.
Removal of ore	The ROM ore is transported via dump trucks to one of two designated ROM stockpiles (high grade and low grade) prior to being fed into the processing plant.

4.2.3 Approved mineral processing

Mineral processing activities at Mokala are undertaken at the processing plant which is comprised of a primary crushing station, a screening station and secondary crushing station, product stockpiling and loading facilities. The processing plant has been designed to generate saleable manganese ore product which meets certain grades and size specifications. Further processing occurs by third parties involved with furnace smelting production of the ferroalloy or direct sale of manganese ore to the market.

A description of mineral processing activities is provided in Table 4-4 and a conceptual flow diagram is provided in Figure 3. **It is important to note that as part of the project, no changes to the approved processing method are anticipated.**

TABLE 4-4: SUMMARY OF MINERAL PROCESSING ACTIVITIES

Activity	Description
Primary crushing station	Excavator or front-end loaders are used to load the ore delivered from the ROM stockpile into a primary crushing feed bin. The ore is withdrawn from the feed bin with a vibrating grizzly feeder located at the bottom of the feed bin. The vibrating grizzly feeder transfers the ore directly to the jaw crusher in order to reduce the material to a size required by the downstream processes. The jaw crusher reduces the ore with a maximum of 700mm to – 180mm. The crushed ore is transferred from a jaw crusher onto a series of conveyor belts which will transfer the crushed ore into a surge bin.
Screening station	<p>The crushed material from the surge bin in the primary crushing station is withdrawn from the surge bin via a vibrating feeder that feeds the crushed ore onto a conveyor. The conveyor transfers the material to the triple deck screen. The upper deck will cut at -75mm + 25mm, the middle deck at -25mm +9m and the bottom deck at -9mm.</p> <p>Oversize material (+ 75mm) from the screening process is sent to the secondary crushing station by means of a conveyor.</p> <p>Correctly sized material (-75 mm +25 mm and -25mm + 9mm) is fed from the middle and bottom decks to a product stockpile via conveyor. The material is loaded by front end loaders and conveyors to the truck loading facility to trucks which transport the product off-site for sale to third parties. A smaller supplementary product stockpile is approved for any overflow from the product stockpile. Product from the supplementary product stockpile is re-circulated back to the product stockpile or loaded directly onto the truck loading facility.</p> <p>The fines screened (-9 mm) out from the screening station is fed onto a conveyor which delivers the fines onto a fines stockpile. Front end loaders remove the fines from the fines stockpile and load onto trucks for sale to third parties.</p> <p>A smaller supplementary fines stockpile is approved to accommodate any overflow from the fines stockpile. Product from the supplementary fines stockpile is re-circulated back to the fines stockpile or loaded directly onto trucks.</p>
Secondary crushing station	Oversize material from the screening station is fed to a secondary surge bin at the secondary crushing station in order to reduce any oversize material to the required specifications. Material from the secondary surge bin is withdrawn via a vibrating pan feeder and transferred to the secondary cone crusher. The re-crushed material is re-circulated back to the screening station via a conveyor. Any oversize material still present in the secondary crushing station will continue to be re-circulated until the required product specification is reached.
Wash-down	The plant has high pressure wash water pumps to supply water for wash-down and cleaning for maintenance operations. Dedicated JOJO tanks filled with process water are used for the wash-down. The wash water used in the wash down operation will collect in dedicated sumps in all the main areas from where spillage pumps will pump the accumulated water back into a JOJO tank to be reused as wash-down water. The wash water pumps can also be used to pump water from the JOJO tanks to dedicated water control or recycle ponds as required. The solids in the sump will be removed by a bobcat loader and disposed of at the fines dump and then sold as fines when dried out.

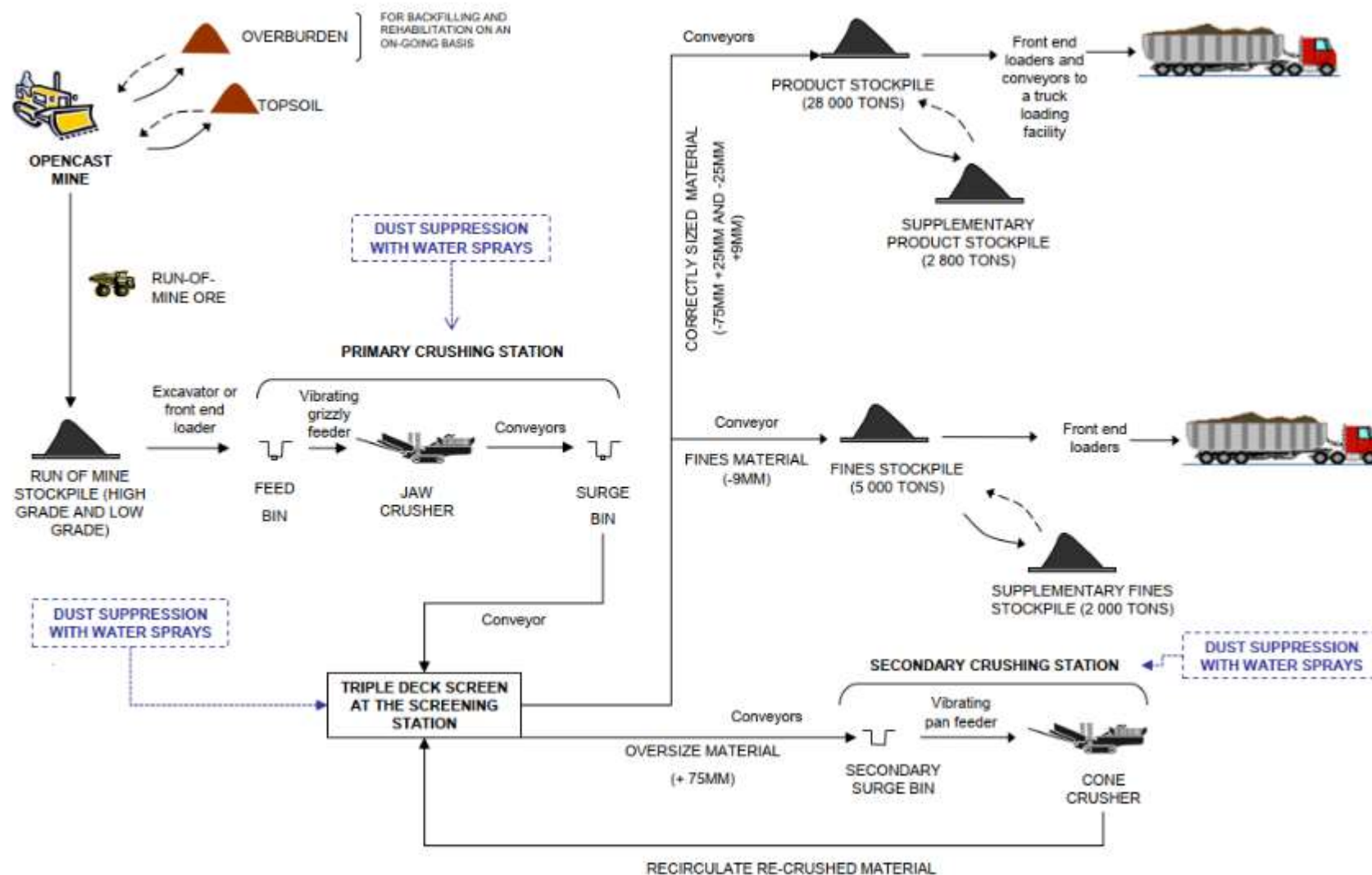


FIGURE 3: CONCEPTUAL PROCESS FLOW OF APPROVED MINING OPERATIONS (SLR, 2015)

4.2.4 Approved mine infrastructure and support services

An overview of the approved key infrastructure is provided as follows (the approved layout is illustrated in Figure 4):

- Plant Area (Primary and Secondary Crusher and Screening Plant);
- Open pit;
- Product and run-of-mine stockpiles;
- Topsoil stockpiles;
- WRDs;
- Stormwater management infrastructure (recycle water ponds, drains and clean water realignment berms);
- Internal haul roads, access roads and turning circles; and
- Support infrastructure:
 - Conveyors and weighbridge;
 - Water supply boreholes and water storage facilities (potable and process water);
 - Water treatment plant;
 - Sewage treatment plant;
 - Generators and mini-substation;
 - Waste yard;
 - Fuel storage, diesel bowzers and refuelling bays;
 - Truck staging area and truck loading facility;
 - Workshops and washbays;
 - Change houses;
 - Flammable stores;
 - Control room; and
 - Administrative block (offices; stores security gate and office; kitchen and canteen; training centre; mustering centre and clinic).

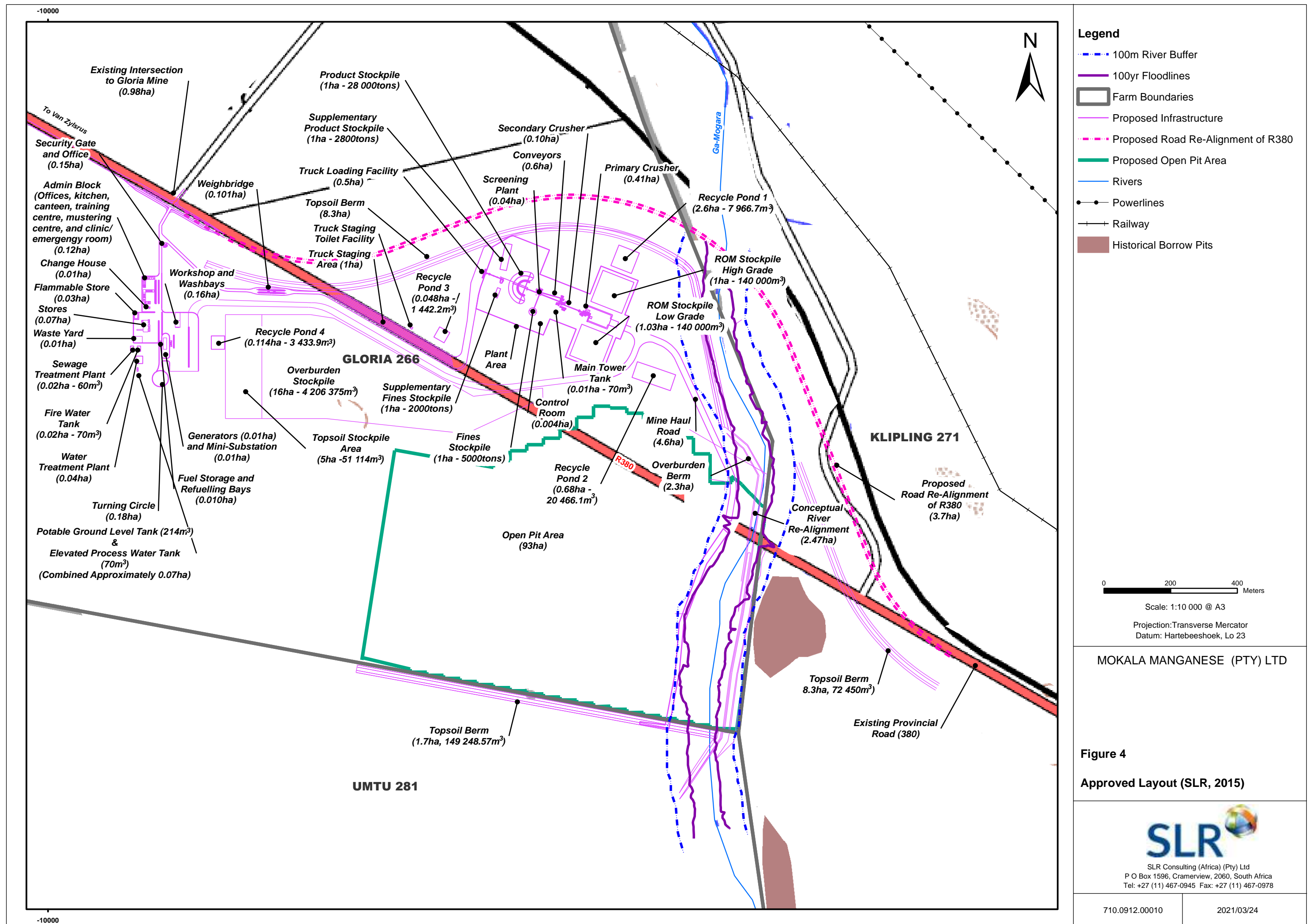


Figure 4
Approved Layout (SLR, 2015)

4.3 DESCRIPTION OF PROJECT

Mokala is now proposing to amend the approved mine layout to optimize their mining operations to make provision for proposed activity/infrastructure changes and infrastructure changes that have already taken place. In this regard, a layout illustrating the approved layout versus the layout changes is provided in Figure 5. A more detailed map illustrating the layout changes is included in Figure 6.

4.3.1 Layout/activities that have already taken place.

4.3.1.1 Reconfiguration of the plant area, ROM stockpiles and product stockpile

The approved 2015 EIA and EMP (SLR, 2015) makes provision for a plant area (which is comprised of the Primary Crusher, Secondary Crusher and Screening Plant), ROM stockpiles and product stockpiles. According to the approved 2015 EIA and EMP, these facilities would be located to the North of the approved open pit footprint (refer to Figure 4 and Figure 5).

An expansion of the open pit is proposed toward a northerly and westerly direction. Due to this proposed activity, reconfiguration of the plant area, ROM stockpiles and product stockpiles is required (refer to Figure 6).

4.3.1.2 The relocation of the ROM low grade product stockpile

The approved 2015 EIA and EMP (SLR, 2015) makes provision for the establishment of a ROM low grade stockpile North of the approved open pit footprint (refer to Figure 5). The ROM low-grade stockpile has been relocated because the proposed open pit expansion overlaps with the approved ROM low grade product stockpile footprint. Refer to Figure 6 for the current location of the ROM low grade stockpile.

4.3.1.3 The relocation of support infrastructure

The approved 2015 EIA and EMP (SLR, 2015) makes provision for the following support infrastructure (refer to Figure 6):

- water storage facilities (potable and process water);
- workshops and washbay;
- change houses;
- sewage treatment plant;
- water treatment plant;
- fuel storage;
- stores;
- waste storage; and
- administrative block:
 - offices;
 - kitchen and canteen;
 - training centre; and
 - mustering centre; and clinic.

The approved layout of the above listed activities is shown in Figure 5. The above listed support infrastructure has been relocated to cater for the proposed expansion of the open pit. The relocated position is illustrated in Figure 6.

4.3.1.4 The relocation of transportation related facilities/infrastructure

The approved 2015 EIA and EMP (SLR, 2015) makes provision for the following transportation facilities:

- internal haul roads, turning circle and upgrading the intersection to Gloria Mine;

- widening of existing gravel roads;
- realignment of the R380;
- loading, hauling and transportation of ROM, product and materials; and
- conveyors and weighbridge.

The approved internal haul roads, weighbridges, parking areas, truck loading and staging facility have been relocated to cater for the optimised mine layout. It is important to note that no changes to the realignment of the R380 and the upgrade of the mine intersection are anticipated.

4.3.1.5 The relocation of the approved WRD

The approved 2015 EIA and EMP (SLR, 2015) makes provision for a single WRD. The approved location of the WRD is shown in Figure 5. The approved WRD has been relocated to cater for the proposed expansion of the open pit (refer to Figure 6 for the current WRD position). The approved 2015 EIA and EMP (SLR, 2015) also makes provision of overburden berms situated along the approved river alignment. No changes to the overburden berms will be required for this project.

4.3.1.6 The relocation of the approved topsoil stockpiles

The approved 2015 EIA and EMP (SLR, 2015) makes provision for a designated topsoil stockpile area, a topsoil berm located along the R380 realignment route and a topsoil berm located on the southern edge of the open pit (refer to Figure 4). The topsoil berm located along the R380 realignment route has been established, however the remaining stockpiles have been relocated to cater for the changes and reconfiguration of the layout as discussed in the sections above.

4.3.2 Proposed activity/infrastructure changes

4.3.2.1 Expansion of the open pit

The approved 2015 EIA and EMP (SLR, 2015) makes provision for an open pit with a footprint of 93 ha. Following an updated resource plan it became apparent that the extent of the approved open pit needs to be expanded. In this regard, Mokala is proposing on expanding the open pit by approximately 80 ha in a northerly and westerly direction. The extent of the proposed open pit expansion is illustrated in Figure 6. With reference to Figure 6, within approximately 8 years the open pit would intersect with on-site surface support infrastructure. Once the open pit operations come into close proximity to the surface support infrastructure area, the intention is to relocate this infrastructure to a section of the backfilled open pit.

4.3.2.2 Increase in the capacity of the approved WRD and the establishment of an additional WRD

The approved 2015 EIA and EMP (SLR, 2015) authorises a WRD footprint of 16 ha with a capacity of approximately 4 206 375 m³. The location of the approved WRD is illustrated in Figure 5. Mokala is proposing on expanding the approved open pit footprint and as such additional waste rock storage space will be required to store additional waste rock stripped from the increased open pit footprint. Mokala is therefore proposing on increasing the capacity of the approved WRD to approximately 15 665 819 m³ with an additional footprint expansion of 28 ha.

In addition to the above, Mokala is also proposing on establishing an additional WRD to accommodate the additional waste rock tonnages. It is proposed that the additional WRD would be located to the west of the project area (refer to Figure 6) and will have a capacity of approximately 35 590 577 m³ with a footprint area of 83.08 ha. The western part of the project area is currently utilised by the Kalagadi Mine for game farming purposes. This area has been fenced off from the rest of the remaining extent of the farm Gloria 266. Mokala will need to enter into discussions with Kalagadi regarding this game farming area as Kalagadi would not be able to make use of this area if it is earmarked for the establishment of the new WRD.

4.3.2.3 Establishment of additional topsoil stockpiles

The approved 2015 EIA and EMPr (SLR, 2015) makes provision for topsoil stockpiles with a footprint of 5 ha and capacity of 51 114 m³. Provision has also been made for topsoil berms along the realigned R380 and on the southern edge of the open pit. The total volume of topsoil (stockpiles and berms) approved is 236 812.57 m³ covering a total topsoil footprint area of 15 ha.

The location of the approved topsoil stockpiles are illustrated in Figure 4. Mokala is proposing to expand the approved open pit footprint and as such additional topsoil storage space will be required to store topsoil stripped from the increased open pit footprint. The estimated additional footprint is 15 ha. The location of the additional topsoil stockpiles are illustrated in Figure 6.

4.3.2.4 Relocation of stormwater management infrastructure

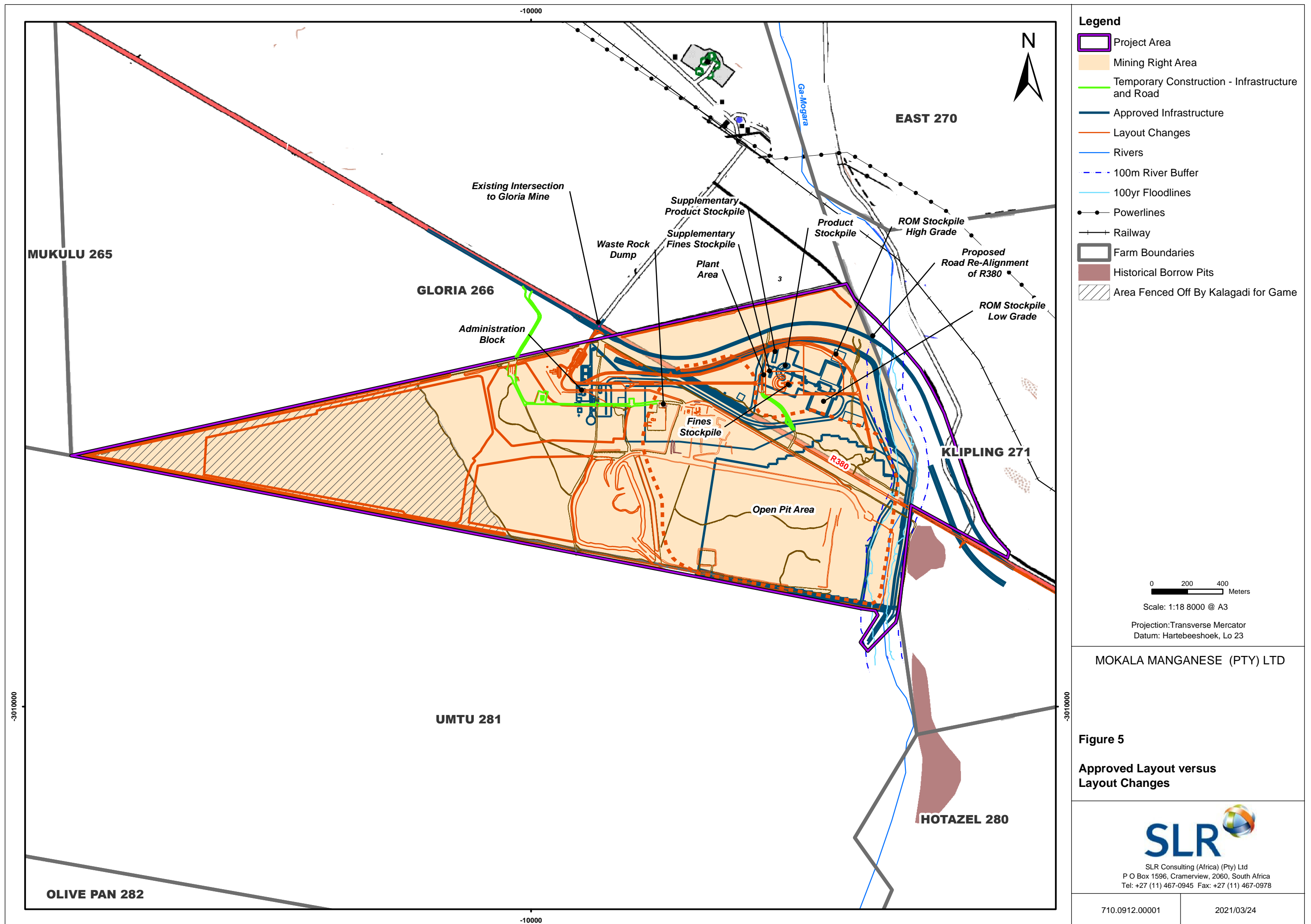
The approved 2015 EIA and EMPr (SLR, 2015) makes provision for the establishment of stormwater management facilities such as recycle water ponds, drains and clean water realignment berms as required in terms of GNR 704. The location of the approved stormwater infrastructure is shown in Figure 4. Due to the relocation of surface infrastructure the location of the approved stormwater management facilities will need to be re-evaluated. The locations will be determined during the EIA phase. It is understood from Mokala, that there is no intention of changing the capacities of the recycled water ponds.

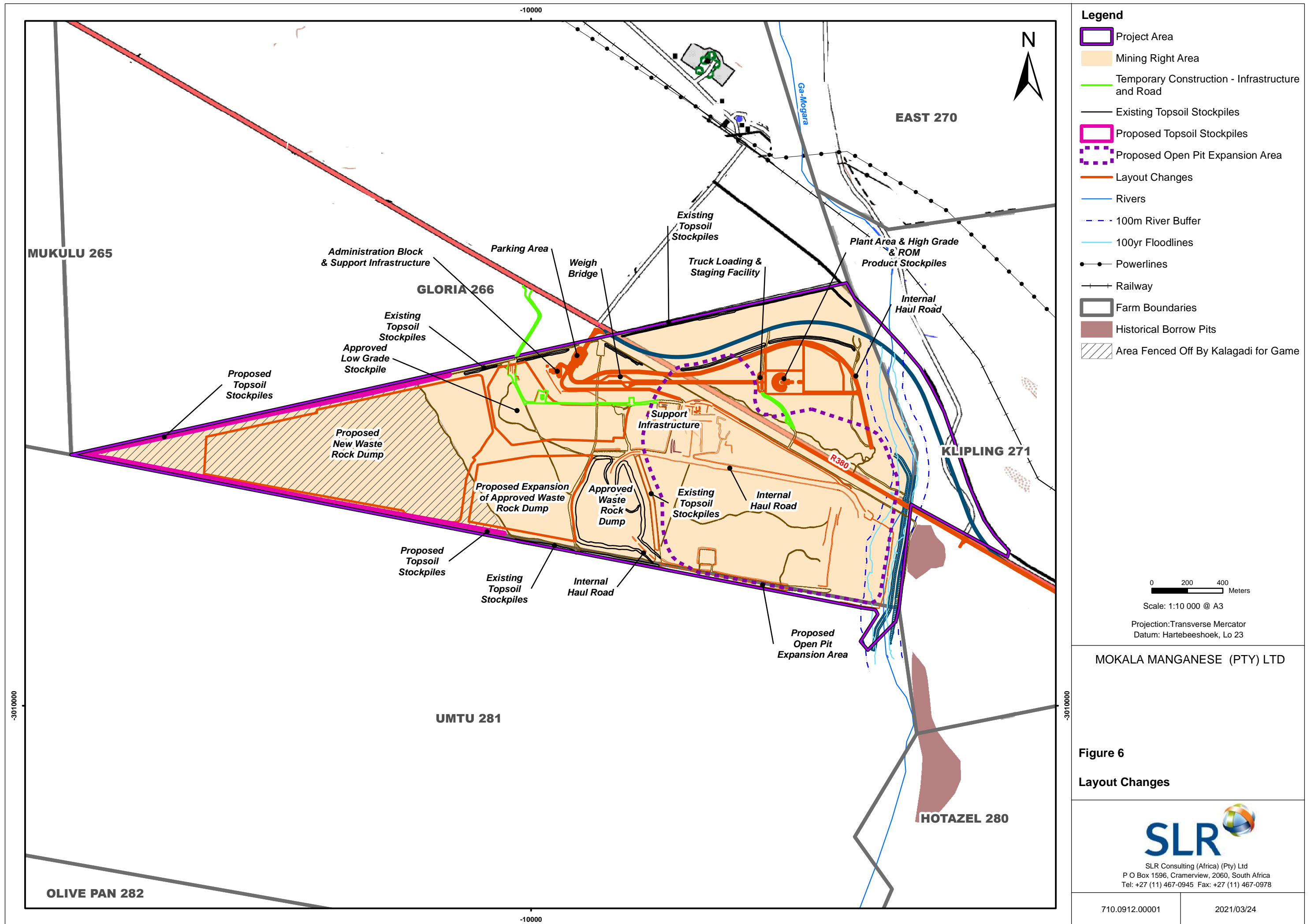
4.3.2.5 Increase in the capacity of product stockpiles (ROM stockpiles and product stockpiles)

The approved 2015 EIA and EMPr (SLR, 2015) makes provision for a ROM Low Grade stockpile and ROM High Grade stockpile. The location of the stockpiles is illustrated in Figure 5. The approved area for the ROM low grade stockpile is approximately 1.03 ha with a capacity of 140 000 m³. The approved area for the ROM high grade stockpile is approximately 1 ha with a capacity of 140 000 m³. Mokala now proposes an increase in the capacity of these stockpiles to accommodate the increase in the production tonnages. The increase in capacity of the product stockpiles will be confirmed during the EIA phase. The capacity will be dependent on project mining rates as well as consideration to available surface area.

4.3.2.6 Mining of the barrier pillar between the Kalagadi Mine and Mokala Mine

The Mokala mining right area borders the farm Umtu 281 to the south, which is owned by Kalagadi Manganese (Pty) Ltd. Kalagadi Manganese (Pty) Ltd owns and operates the Kalagadi Mine. Manganese ore of commercial value is located on the border of these two mines. Mokala and Kalagadi are proposing to establish a joint agreement to mine the boundary pillar. In this regard, an agreement between the two parties will need to be in place outlining how the resources will be mined and stockpiled and how waste rock will be stockpiled, and the area rehabilitated.





5 POLICY AND LEGISLATIVE CONTEXT

In accordance with the NEMA EIA Regulations (GNR 982 of 2014, as amended), all legislation and guidelines that have been considered in the Scoping phase must be documented. Table 5-1 below provides a summary of the applicable legal framework that has been and will be considered in the assessment process.

TABLE 5-1: LEGAL FRAMEWORK

Applicable legislation	Reference where applied	Applicability to the project
The South African Constitution, 1996	All	The project must comply with South African constitutional and common law by conducting its construction and operational activities with due diligence and care for the rights of others. Section 24 (a) of the South African Constitution states that everyone has the right to an environment that is not harmful to their health and well-being. This provision supersedes all other legislation.
MPRDA and associated Regulations	Introduction and Section 5.1.1	A Section 102 application was prepared by Mokala and was submitted to the DMRE on the 16 March 2021 via the South African Mineral Resources Administration System (SAMRAD).
NEMA and associated Regulations	Introduction, Sections 4.1 and 5.2	An integrated EA and WML application was prepared by SLR and was submitted to the DMRE on 16 March 2021 via SAMRAD.
NEM:WA and associated regulations.	Introduction, Sections 4.1 and 5.2	
NWA and associated Regulations	Section 5.4	An application to amend the IWUL will be prepared by SLR and submitted to the DHSWS during the EIA phase.
National Environmental Management: Air Quality Act (No. 39 of 2004) (NEM:AQA) and associated Regulations.	Section 5.5 and Section	The project will result in the release of air emissions. Air emissions was thus considered as part of project planning.
National Environmental Management: Biodiversity Act (No. 10 of 2004) (NEM:BA) and associated Regulations.	Section 0 and Section 9.4.	Biodiversity was considered as part of project planning. In this regard, the project may require the removal of protected trees and plants in terms of the NFA and the CARA and as such may require the necessary tree removal permits. As part of the project, a Biodiversity Study will be prepared. The related terms of reference are included in Section 9.4.
Conservation of Agricultural Resources Act (No. 43 of 1983) (CARA)		
National Forest Act (No. 84 of 1998) (NFA)		
North West Biodiversity Management Act (No. 4 of 2016).		
National Heritage Resources Act (No. 25 of 1999) (NHRA).	Section 8.5.2.1 and 9.4	The project will entail the change of character of a site exceeding 5 000 m ² . Heritage/cultural and palaeontological resources were therefore considered as part of project planning. As part of the project a Heritage/cultural Study and a Palaeontological

Applicable legislation	Reference where applied	Applicability to the project
		Assessment will be prepared. The related terms of reference are included in Section 9.4.

5.1 MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 28 OF 2002 (MPRDA)

The MPRDA governs the acquisition, use and disposal of mineral and petroleum resources in South Africa. The MPRDA promotes equitable access to the nation's mineral and petroleum resources. The objectives of the Act, amongst others, are to promote economic growth and mineral and petroleum resources development in the Republic, particularly development of downstream industries through provision of feedstock and development of mining and petroleum inputs industries and also to promote employment and advance the social and economic welfare of all South Africans.

Chapter 4 of the Act provides a framework to regulate the application for mining, prospecting, and closure rights. Section 24(4) of NEMA provides the minimum requirements for procedures for the investigation, assessment, management, and communication of the potential impacts. With the establishment of the "One Environmental System" in 2014, the DMRE must apply the range of environmental principles included in Chapter 2 of NEMA when taking decisions that significantly affect the environment. To give effect to the general objectives of Integrated Environmental Management (IEM), the potential impacts on the environment of listed or specified activities must be considered, investigated, assessed, and reported on to the competent authority.

In addition, Section 102 of the MPRDA governs the amendment of rights, permits, mine work programmes and EAs and management programmes. In terms of the Act, these may not be amended or varied without the written consent of the Minister. The project will require an amendment to the approved EMP. It follows that a Section 102 Amendment will be applied for in terms of the MPRDA.

5.1.1 MPRDA Regulations, 2004

The MPRDA Regulations, 2004 (as amended by GNR No. 420 of 27 March 2020), promulgated in terms of Section 107 of the MPRDA, provide for a range of matters relating to the administration of the Act. Part 1 details regulations for the lodgement of applications, Part 2 deals with Social and Labour plans while Part 3 sets out environmental regulations for mineral development. The recent amendment in March 2020 removed the great majority of the environmental provisions from the Regulations. These Regulations had not been practicably implementable since the December 2014 introduction of the "One Environmental System" and the amendment of the overriding legislation (MPRDA and NEMA).

5.2 NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 107 OF 1998 (NEMA)

The NEMA establishes principles and provides a regulatory framework for decision-making on matters affecting the environment. All organs of state must apply the range of environmental principles included in Section 2 of NEMA when taking decisions that significantly affect the environment. Included amongst the key principles is that all development must be socially, economically, and environmentally sustainable and that environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural, and social interests equitably. The participation of I&APs is stipulated, as is that decisions must consider the interests, needs and values of all I&APs.

Chapter 5 of NEMA provides a framework for the integration of environmental issues into the planning, design, decision-making and implementation of plans and development proposals. Section 24 provides a framework for granting of EAs. To give effect to the general objectives of IEM, the potential impacts on the environment of listed or specified activities must be considered, investigated, assessed, and reported on to the competent authority. Section 24(4) provides the minimum requirements for procedures for the investigation, assessment,

management, and communication of the potential impacts. In terms of the management of impacts on the environment, Section 24N details the requirements for an EMPr.

5.2.1 NEMA EIA Regulations (GNR 982 of 2014, as amended)

The EIA Regulations, 2014, as amended promulgated in terms of Chapter 5 of NEMA, provide for the control over certain listed activities. These listed activities are detailed in Listing Notice 1 (as amended by GNR No. 327 of 7 April 2017), Listing Notice 2 (as amended by GNR No. 325 of 7 April 2017) and Listing Notice 3 (as amended by GNR No. 324 of 7 April 2017). The undertaking of activities specified in the Listing Notices is prohibited until EA has been obtained from the competent authority. Such EA, which may be granted subject to conditions, will only be considered once there has been compliance with the NEMA EIA Regulations (GNR 982 of 2014, as amended).

The NEMA EIA Regulations (GNR 982 of 2014, as amended) set out the procedures and documentation that need to be complied with when applying for EA. A Basic Assessment process must be applied to an application if the authorisation applied for is in respect of an activity or activities listed in Listing Notices 1 and/or 3 and a S&EIA process must be applied to an application if the authorisation applied for is in respect of an activity or activities listed in Listing Notice 2.

The project will trigger activities specified in Listing Notice 1 and Listing Notice 2 (refer to Table 4-1) and therefore a S&EIA process is required in order for the DMRE to consider the application in terms of NEMA. As the DMRE is the competent authority for the NEMA and NEM:WA activities, Mokala will apply for an integrated EA, as provided for in section 24L of the NEMA.

5.2.2 Regulations Pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production Operations, 2015

The purpose of the Regulations Pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production Operations (GNR 1147 of 2015, as amended) is to regulate the determination and making of financial provision as contemplated in the Act for the costs associated with the undertaking of management, rehabilitation and remediation of environmental impacts from prospecting, exploration, mining or production operations through the lifespan of such operations and latent or residual environmental impacts that may become known in the future.

The compilation of a financial provision report in support of the project forms part of the plan of study as outlined in Section 9.4.

5.2.3 National Guideline on Minimum Information Requirements for Preparing EIAs for Mining Activities that Require EA, 2018

The Minister of Environmental Affairs gave a notice (GNR 86 of 2018) of intent to publish National Guidelines on minimum information requirements for preparing EIAs for mining activities that require EA. The purpose of the guideline is to allow for a more standardised approach during the compilation of EIAs for mining activities. This guideline remains in draft format.

5.3 NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 59 OF 2008 (NEM:WA)

The NEM:WA regulates all aspects of waste management and has an emphasis on waste avoidance and minimisation. NEM:WA creates a system for listing and licensing waste management activities which may have a detrimental effect on the environment. A waste management activity identified in terms of the NEM:WA may not commence, be undertaken or conducted except in accordance with published standards or a Waste Management Licence.

Listed waste management activities are included in GNR 921 of November 2013, as amended. Category A and Category B listed waste management activities above certain thresholds are subject to a process of impact

assessment and licensing. Category C listed waste management activities do not require a waste management licence but are subject to the provisions of National Norms and Standards (GN R 926, November 2013). The assessment and reporting process in support of a Waste Management Licence application must be undertaken in accordance with the NEMA EIA Regulations (GNR. 982) of 2014, as amended). These Regulations define the requirements for the submission; processing, consideration and decision of applications authorisation of listed activities. Activities listed in Category A require a Basic Assessment process, while activities listed in Category B require a S&EIA process in order for authorities to consider an application in terms of NEM:WA. The project activities trigger waste management listed activities under Category A and B (refer to Table 4-1), requiring a waste management licence. As the DMRE is the competent authority for the NEMA and NEM:WA activities, Mokala will apply for an integrated EA, as provided for in section 24L of the NEMA.

5.3.1 Planning, management and reporting of residue stockpiles and residue deposits (GNR. 632 of 2015), as amended

The regulations set out the requirements that need to be followed in the planning and management of residue stockpiles and residue deposits from a prospecting, mining, exploration or production operation. The identification and assessment of environmental impacts arising from the establishment of residue stockpiles and residue deposits must be done as part of the environmental impact assessment conducted in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998). The WRD is considered a residue stockpile and deposit. As such the extension of the approved WRD and establishment of an additional WRD needs to comply with these regulations.

5.4 NATIONAL WATER ACT, 36 OF 1998 (NWA)

The NWA provides a legal framework for the effective and sustainable management of water resources in South Africa. It serves to protect, use, develop, conserve, manage and control water resources as a whole, promoting the integrated management of water resources with the participation of all stakeholders. The mining sector is also regulated by the restrictions stipulated in regulation GNR. 704 of June 1999 which deals with mine waste or residue.

This Act also provides national norms and standards, and the requirement for authorisation (either a Water Use Licence or General Authorisation) of water uses listed in Section 21 of the Act. The project includes water uses identified in terms of Section 21 of the NWA. These include:

- Section 21 (a) - Taking of water from water resource;
- Section 21 (b) – Storing water;
- Section 21 (c) - Impeding or diverting the flow of water in a watercourse;
- Section 21 (g) - Disposing of waste in a manner which may detrimentally impact a water resource;
- Section 21 (i) - Altering the bed, banks, course, or characteristics of a watercourse; and
- Section 21 (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.

An amendment to the existing IWUL will be undertaken as part of a separate process with the DHSWS.

5.4.1 Regulations on the use of Water for Mining and Related Activities, 1999

GNR. 704 of June 1999, was established to provide regulations on the use of water for mining and related activities aimed at the protection of water resources. The main principle conditions of GNR. 704 of June 1999 applicable to this project are:

- Condition 6 which describes the capacity requirements of clean and dirty water systems. Clean and dirty water systems must be kept separate and must be designed, constructed, maintained and operated to ensure conveyance of flows of a 1:50 year recurrence event. Clean and dirty water systems should not

spill into each other more frequently than once in 50 years. Any dirty water dams should have a minimum freeboard of 0.8 m above full supply level.

- Condition 7 which describes the measures which must be taken to protect water resources. All dirty water or substances which may cause pollution should be prevented from entering a water resource (by spillage, seepage, erosion etc.) and ensure that water used in any process is recycled as far as practicable.

5.4.2 Regulations Regarding the Procedural Requirements for Water Use Licence Applications and Appeals, 2017

These Regulations, published in terms of the NWA (GNR 267), prescribe the procedure and requirements for water use licence applications as contemplated in sections 41 of the NWA; as well as an appeal in terms of section 41(6) of the NWA. The water use licence application process requires:

- a pre-application enquiry meeting with the responsible authority;
- the making of an application in the prescribed form, with documents relevant to a particular water use application;
- conducting a site inspection;
- a public participation process; and
- assessment and consideration of the technical documents by the responsible authority.

As mentioned previously, a separate water use licence application process will be undertaken in consultation with the DHSWS and will be undertaken in accordance to these Regulations.

5.5 NATIONAL ENVIRONMENTAL MANAGEMENT: AIR QUALITY ACT, 34 OF 2004 (NEM:AQA)

The NEM:AQA regulates all aspects of air quality, including: prevention of pollution and environmental degradation; providing for national norms and standards (through a National Framework for Air Quality Management) regulating air quality monitoring, management and control; and licencing of activities that result in atmospheric emissions and have or may have a significant detrimental effect on the environment.

5.5.1 Listed activities and Minimum Emission Standards

In terms of Section 22 of NEM:AQA no person may conduct an activity releasing emissions (GNR No. 893, 22 November 2013) without an Atmospheric Emissions Licence (AEL). However, the project does not trigger any activities sets out in the notice and thus there is no requirement for an AEL.

5.5.2 National Dust Control Regulations, 2013

The National Dust Control Regulations (NDCR) (GNR 827) were gazetted on 1 November 2013. The purpose of the regulations is to prescribe general measures for the control of dust in all areas including residential and light commercial areas. The regulations provide a guideline for monitoring and measuring dust fall. Dust fall is assessed for nuisance impact and not an inhalation health impact.

The project entails materials handling and will lead to the release of dust. Potential dust emissions from the proposed activities/infrastructure will be assessed against the NDCR and the existing monitoring programme will be updated (where relevant) to cater for the proposed activities/infrastructure changes and changes already on site.

5.6 NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY ACT, 10 OF 2004 (NEM:BA)

The NEM:BA provides for the management and conservation of South Africa's biodiversity and the protection of species and ecosystems that warrant national protection. NEM:BA regulates the carrying out of restricted activities, without a permit, that may harm listed threatened or protected species or activities that encourage the spread of alien or invasive species and makes provision for the publication of bioregional plans and the listing

of ecosystems and species that are threatened or in need of protection. Bioregional plans should be considered by competent authorities in their decision making regarding an application for EA.

5.6.1 Alien and Invasive Species Regulations, 2014 and Lists

Alien and Invasive Species Regulations (GNR 598 of 2014) as well as the Alien and Invasive Species List (GNR 864 of 2016) have been published to regulate the monitoring, control and eradication of listed invasive species. All landowners on whose land alien and invasive species occur must make the necessary arrangements to be compliant with these Regulations. These will guide the EMP for the project.

5.7 CONSERVATION OF AGRICULTURAL RESOURCES ACT (NO. 43 OF 1893) (CARA)

The CARA provides for control over the utilization of natural agricultural resources to ensure the conservation of soil, water resources and vegetation. In this regard, the CARA includes provisions for the combating of weeds and invader plants, as well as associated issues. The provisions of CARA will be considered in conjunction with the provisions of the NEM:BA, to ensure conservation of biodiversity, soil, water resources and vegetation.

5.8 NATIONAL FORESTS ACT, 84 OF 1998 (NFA)

The NFA provides for the sustainable management and development of forests for the benefit of all, including providing special measures for the protection of certain forests and trees. In terms of Section 15(1) of the Act, no person may cut, disturb, damage or destroy any protected tree, except under a licence.

Should any protected tree species be identified within the proposed activity/infrastructure areas, an application for a permit to remove these trees will be applied for. Protected trees will be identified through a specialist study that will be commissioned during the EIA phase.

5.9 NATIONAL HERITAGE RESOURCES ACT, 25 OF 1999 (NHRA)

The NHRA provides for the identification, assessment and management of the heritage resources of South Africa. The Act lists development activities that would require authorisation by the responsible heritage resources authority. The Act requires that a person who intends to undertake a listed activity notify the relevant provincial heritage authority at the earliest stages of initiating such a development. The relevant provincial heritage authority would then in turn, notify the person whether a Heritage Impact Assessment (HIA) should be submitted. However, according to Section 38(8) of the NHRA, a separate report would not be necessary if an evaluation of the impact of such development on heritage resources is required in terms of the Environment Conservation Act (No. 73 of 1989) (now replaced by NEMA) or any other applicable legislation.

Section 38(8) of the NHRA, also states that a palaeontologist must obtain a permit in terms of Section 35(4) before and fossils are collected. If heritage resources are proved to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required. Mitigation can only be carried out after the archaeologist or palaeontologist obtains a permit in terms of section 35 of the NHRA.

The decision-making authority should, however, ensure that the heritage evaluation fulfils the requirements of the NHRA and consider in its decision-making any comments and recommendations made by the relevant heritage resources authority.

The proposed activities/infrastructure will entail the establishment of additional infrastructure on undisturbed land. According to Section 38 of the National Heritage, Resources Act No. 25 of 1999 (NHRA), a heritage impact assessment process must be followed where any development or activity will change the character of a site and which exceeds 5 000 m². This is applicable to the proposed project due to the clearance of more than 20 ha of land to accommodate the establishment of an additional WRD as well as the expansion of the open pit. The proposed covers an area which exceeds 5 000 m². In this regard, the provisions of the NHRA have been considered and a HIA and Palaeontological Assessment will be undertaken for the project. The Reports will be

submitted to the South African Heritage Resources Agency (SAHRA) for their comment via the South African Heritage Resources Information System (SAHRIS).

5.10 GUIDELINES, POLICIES, PLANS AND FRAMEWORKS

The guidelines, policies and plans listed in Table 5-2 below have been considered during the Scoping phase of the S&EIA process.

TABLE 5-2: GUIDELINES AND POLICY FRAMEWORK

Guideline	Governing body	Relevance
National Development Plan 2030 (NDP)	National Planning Commission	The NDP is the overarching development planning policy for the country, to which all other development planning, in particular spatial planning must be aligned. The NDP outline South Africa's Vision, and provides the Framework for eliminating poverty and reducing inequality by 2030.
New Growth Path (2011) (NGP)	Department of Economic Development	The NGP reflects the commitment of Government to prioritise employment creation in all economic policies and sets out the key drivers and sectors for employment which will be the focus of Government.
Northern Cape Provincial Spatial Development Framework (NCPSPF, 2012)	Department of Rural Development and Land Reform	The NCPSPF is needed for coherent prioritisation of projects within a spatial economic framework that takes cognisance of environmental realities and the imperative to create a developmental state. The NCPSPF was designed as an integrated planning and management tool to facilitate on-going sustainable development through the province. The Northern Cape PSDF recognises the importance of the mining sector in the province's economic growth. However, it also aims to manage any direct detrimental impacts of resource use and promote positive socio-economic conditions once the resource use has reached its productive life cycle.
Northern Cape Provincial Growth and Development Strategy 2009 – 2014 (NCPGDS)	Northern Cape Provincial Government	The Northern Cape Provincial Growth and Development Strategy (NCPGDS) provides a collaborative framework to drive and ensure effective and coordinated public service delivery and implementation in the Province. The purpose is to promote the provincial economy and reduce poverty, whilst improving social development.
Joe Morolong Local Municipal Integrated Development Plan (IDP) and Spatial Development Framework (SDF)	Joe Morolong Local Municipality	The Joe Morolong Local Municipality IDP and SDF are strategic instrument guiding all planning, management, investment and development within the local municipality in order to provide best solutions towards sustainable development.
Public participation guideline in terms of NEMA (2017)	DEFF	The purpose of this guideline is to ensure that an adequate public participation process is undertaken during the S&EIA process.
Guideline on need and desirability (2017)	DEFF	This guideline informs the consideration of the need and desirability aspects of the proposed project.
NFEPA 2011	DHSWS	

Guideline	Governing body	Relevance
Northern Cape Critical Biodiversity Areas (CBAs) (2016)	South African National Botanical Institute (SANBI)	Biodiversity was considered as part of project planning. Consideration was given to various national and provincial databases to determine potential presence and conservation sensitivity.
South Africa Conservation Areas Database (2017) (SACAD)		
South Africa Protected Area Database (2017) (SAPAD)		
Mining and Biodiversity Guideline (2013)		
Important Bird and Biodiversity Areas	Birdlife International	
National Biodiversity Assessment	DEFF	
National Protected Areas Expansion Strategy, 2008 (NPAES)		
National Threatened Ecosystems (2011)		
Best Practice Guidelines (BPGs) for the mining industry including: BPG G1: Stormwater Management. BPG A4: Pollution Control Dams. BPG G2: Water and Salt Balances.	DHSWS	These local and international standards provide best practice for the prediction, prevention and management of water in mining. These standards will be considered during the Hydrology Study.
South African National Standard (SANS). Drinking water standard SANS 241: 2015	South African Bureau of Standards	
Targeted Water Quality Range (TWQR) (DWA, 1996)	DHSWS	
Water Quality Resource Objectives for Catchment D41K as specified in the MMT Water Use Licence (WUL) (DWA, 2012).	DHSWS	
WHO Standard for drinking water	WHO	These international standards provide best practice for the prediction, prevention and management of mine drainage. These standards will be considered during the project.
IFC Mining Effluent (2007)	IFC	

Guideline	Governing body	Relevance
SANS 241 (2015) (Operational, Aesthetic, Acute health and Chronic	South African Bureau of Standards	These local and international standards provide best practice for the prediction of noise related impacts to third parties. These standards will be considered during the preparation of the Noise Study.
WHO guidelines for community noise, health)	WHO	
SANS 10103 (2008)	South African Bureau of Standards	
IFC General EHS Guidelines on noise	IFC	
Quality of Domestic Water Supplies Volume 1: Assessment Guide, Second Edition, (1998)	DHSWS	Groundwater quality at Mokala is compared against these guidelines and standards.
South African Water Quality Guidelines – Volume 1 Domestic Use (1993 and 1996)	DHSWS	
SANS for drinking water (SANS 241:2015)	South African Bureau of Standards	
National Ambient Air Quality Standards (NAAQS) for PM10, SO2, NO2, ozone (O3), CO, lead (Pb) and benzene (2009). PM2.5 in 2012	DEFF	These local and international standards provide best practice for the measurement and prediction of dust related impacts to third parties. These standards will be considered during the preparation of the Air Quality Study.
Covid-19 Directions	Department of Social Development	These Directions informed the form and levels of public participation possible within the restrictions related to the National State of Disaster.

6 NEEDS AND DESIRABILITY

This Section aims to provide an overview of the need and desirability of the project with the strategic context of national development policy and planning, broader societal needs and regional and local planning, as well as the NEMA principles and sustainable development. More detail pertaining to the need and desirability will be provided in the EIA and EMPr.

6.1 BACKGROUND

The DEA guideline on needs and desirability (GNR 891, 20 October 2014) notes that while addressing the growth of the national economy through the implementation of various national policies and strategies, it is also essential that these policies take cognisance of strategic concerns such as climate change, food security, as well as the sustainability in supply of natural resources and the status of our ecosystem services. In 2017, the DEA published an updated guideline on project need and desirability, although this is yet to be formally gazetted. The 2017 guideline on need and desirability provides that addressing the need and desirability of a development is a way of ensuring sustainability – in other words, that a development is ecologically sound and socially and economically justifiable.

When considering how the development may affect or promote justifiable economic and social development, the relevant spatial plans must be considered, including Municipal IDPs, SDF and Environmental Management Frameworks (EMF). The assessment reports need to provide information as to how the development will address the socio-economic impacts of the development, and whether there would be any socio-economic impact resulting from the development on people's environmental rights. Considering the need and desirability of a development entails the balancing of these factors. Consistent with the aim and purpose of the EIA, the concept of "need and desirability" relates to, amongst others, the nature, scale, and location of the development being proposed, as well as the wise use of land and natural resources.

The National Strategy for Sustainable Development and Action Plan 2011 - 2014 (NSSD 1) (2011) states the following:

- In the first instance, it recognises that the maintenance of healthy ecosystems and natural resources are preconditions for human wellbeing. In the second instance, it recognises that there are limits to the goods and services that can be provided. In other words, ecological sustainability acknowledges that human beings are part of nature and not a separate entity.
- What is needed and desired for a specific area should primarily be strategically and democratically determined beyond the spatial extent of individual EIAs. The strategic context for informing need and desirability may therefore firstly be addressed and determined during the formulation of the sustainable development vision, goals and objectives of Municipal IDPs and SDFs during which collaborative and participative processes play an integral part, and are given effect to, in the democratic processes at local government level.
- When formulating project proposals and when evaluating project specific applications, the strategic context of such applications and the broader societal needs and the public interest should be considered. In an effort to better address these considerations and their associated cumulative impacts, the NEMA also provides for the compilation of information and maps that specify the attributes of the environment in particular geographical areas, including the sensitivity, extent, interrelationship and significance of such attributes which must be considered. Whether a proposed activity will be in line with or deviate from the plan, framework or strategy per se is not the issue, but rather the ecological, social and economic impacts that will result because of the alignment or deviation. As such, the EIA must specifically provide information on these impacts in order to be able to consider the merits of the specific application. Where a proposed activity deviates from a plan, framework or strategy, the burden of proof falls on the applicant (and the EAP) to show why the impacts associated with the deviation might be justifiable. The need and desirability of the development must be measured against the abovementioned contents of the IDP, SDF and EMF for the area, and the sustainable development vision, goals and

objectives formulated in, and the desired spatial form and pattern of land use reflected in, the area's IDP and SDF. While project-level EIA decision-making therefore must help us stay on course by finding the alternative that will take us closer to the desired aim/goal, it is through Integrated Development Planning (and the SDF process) that the desired destination is firstly to be considered and the map drawn of how to get there.

6.2 NATIONAL POLICY AND PLANNING FRAMEWORK

This section aims to provide an overview of the national and regional policy and planning context relating to the mining sector within South Africa and Northern Cape.

6.2.1 National Development Plan 2030 (NDP)

The NDP aims to ensure that all South Africans attain a decent standard of living through the elimination of poverty and reduction of inequality by 2030. The core elements of a decent standard of living identified in the plan are:

- housing, water, electricity and sanitation;
- safe and reliable public transport;
- quality education and skills development;
- safety and security;
- quality health care;
- social protection;
- employment;
- recreation and leisure;
- clean environment; and
- adequate nutrition.

The NDP provides the context for all growth in South Africa, with the overarching aim of eradicating poverty and inequality between people in South Africa through the promotion of development. The NDP provides a broad strategic framework, setting out an overarching approach to confronting poverty and inequality based on six focused and interlinked priorities.

One of the key priorities is “faster and more inclusive economic growth”. In order to transform the economy and create sustainable expansion for job creation, an average economic growth exceeding 5% per annum is required. The NDP sets out that transforming the economy also requires changing patterns of ownership and control. It is also acknowledged that environmental challenges are in conflict with some of these development initiatives. As such, it is emphasised that there is also a need to:

- protect the natural environment;
- enhance the resilience of people and the economy to climate change;
- reduce carbon emissions in line with international commitments;
- make significant strides toward becoming a zero-waste economy; and
- reduce greenhouse gas emissions and improve energy efficiency.

6.2.2 New Growth Path 2010

South Africa has embarked on a new economic growth path in a bid to create 5 million jobs and reduce unemployment from 25% to 15% over the next ten (10) years. The plan aims to address unemployment, inequality, and poverty by unlocking employment opportunities in South Africa's private sector and identifies seven job drivers. These job drivers have the responsibility to create jobs on a large scale. The seven key economic sectors or “job drivers” for job creation are listed below:

- infrastructure development and extension: Public works and housing projects;

- agricultural development with a focus on rural development and specifically
 - Agro-Processing;
 - mining value chains;
 - manufacturing and industrial development;
 - knowledge and green economy;
 - tourism and services; and
 - informal sector of economy.

The New Growth Path reflects the commitment of Government to prioritise employment creation in all economic policies and sets out the key drivers and sectors for employment which will be the focus of Government. Mining is identified as a key sector for prioritisation in order to drive economic growth and create jobs.

6.2.3 National Strategy for Sustainable Development and Action Plan

The National Strategy for Sustainable Development and Action Plan 2011 - 2014 (NSSD 1) (2011) states the following:

- In the first instance, it recognises that the maintenance of healthy ecosystems and natural resources are preconditions for human wellbeing. In the second instance, it recognises that there are limits to the goods and services that can be provided. In other words, ecological sustainability acknowledges that human beings are part of nature and not a separate entity.
- What is needed and desired for a specific area should primarily be strategically and democratically determined beyond the spatial extent of individual EIAs. The strategic context for informing need and desirability may therefore firstly be addressed and determined during the formulation of the sustainable development vision, goals and objectives of Municipal IDPs and SDFs during which collaborative and participative processes play an integral part, and are given effect to, in the democratic processes at local government level.
- When formulating project proposals and when evaluating project specific applications, the strategic context of such applications and the broader societal needs and the public interest should be considered. In an effort to better address these considerations and their associated cumulative impacts, the NEMA also provides for the compilation of information and maps that specify the attributes of the environment in particular geographical areas, including the sensitivity, extent, interrelationship and significance of such attributes which must be taken into account. Whether a proposed activity will be in line with or deviate from the plan, framework, or strategy per se is not the issue, but rather the ecological, social and economic impacts that will result because of the alignment or deviation.

As such, the EIA must specifically provide information on these impacts in order to be able to consider the merits of the specific application. Where a proposed activity deviates from a plan, framework or strategy, the burden of proof falls on the applicant (and the EAP) to show why the impacts associated with the deviation might be justifiable. The need and desirability of the development must be measured against the abovementioned contents of the IDP, SDF and EMF for the area, and the sustainable development vision, goals and objectives formulated in, and the desired spatial form and pattern of land use reflected in, the area's IDP and SDF. While project-level EIA decision-making therefore must help us stay on course by finding the alternative that will take us closer to the desired aim/goal, it is through Integrated Development Planning (and the SDF process) that the desired destination is firstly to be considered and the map drawn of how to get there.

6.3 REGIONAL AND LOCAL POLICY AND PLANNING

This section aims to provide an overview of the regional and local policy and planning context relating to the proposed project.

6.3.1 Northern Cape Provincial Spatial Development Framework 2018

The reviewed Northern Cape PSDF 2018 identifies the PSDF as an enabling mechanism to comply with the National Spatial Development framework. The PSDF functions as an innovative strategy that will apply sustainability principles to all spheres of land use management throughout the Northern Cape and which is to facilitate practical results, as it relates to the eradication of poverty and inequality and the protection of the integrity of the environment. In short, the PSDF is to serve as a mechanism towards enhancing the future of the Northern Cape and its people.

Five growth and development strategies are proposed to assist the province and municipalities in managing future growth of settlements. These strategies are listed below:

- Strategy 1: A Diversification and Maintenance Strategy for settlements with a Low Social Need and High Development Potential (60% of the provincial population);
- Strategy 2: A Growth Management Strategy for settlements with a High Social Need and High Development Potential. (20% of the provincial population);
- Strategy 3: A Migration and Maintenance Strategy for settlements with a High Social Need and Low Development Potential. (10% of the provincial population);
- Strategy 4: A Sustainable Livelihood Strategy for settlements with Low Social Need and Low Development Potential (10% of the provincial population); and
- Strategy 5: Mining development management strategy.

In addition, the PSDF identifies five zones of development in the province, these zones are listed below:

- manufacturing;
- agriculture;
- administrative;
- transportation; and
- logistics.

The project will optimize the mining related activities at Mokala and provide economic opportunities derived from wages, taxes, and profits. Indirect economic benefits associated with the project are derived from the procurement of goods and services and the spending power of employees.

6.3.2 The Northern Cape Provincial Growth and Development Strategy 2009 – 2014

The primary purpose of the Northern Cape Provincial Growth and Development Strategy (NCPGDS) is to provide a collaborative framework within which to drive and ensure effective and coordinated delivery and implementation in the Province. It provides the public and private sector and parastatals, as well as labour and civil society, with a strategic focus derived through consensus, to harness their collective efforts in promoting economic growth and social development. The vision of the NCPGDS is to build a prosperous, sustainable growing provincial economy to reduce poverty and improve social development for a caring society by promoting growth, diversification, and diversification of local economy as well as eradication of poverty through social development.

The project will continue to contribute to poverty eradication by provide economic opportunities in the broader area.

6.3.3 John Taolo Gaetsewe District Spatial Development Framework 2012

The John Taolo Gaetsewe District SDF is a mid to higher level strategic spatial framework that provides the municipality sphere with objectives as set out in the national and provincial spheres regarding sustainable development, natural resources management, regional economic investment, job creation and eradication of poverty. This SDF also provide an indicative framework informed by provincial and national analyses within which the more detailed spatial development planning of local municipalities can be located for the following:

- infrastructure investment and development spending in regionally significant nodes and corridors;
- integrated rural development;
- economic sectors to be targeted; and
- environmental management.

The project will boost economic development by generating direct and indirect economic opportunities thus aligning with the objectives of the SDF.

6.3.4 Joe Morolong Integrated Development Plan 2012

The Joe Morolong IPD outlines 5 development objectives for the municipality including expansion of mining activities to benefit communities while also minimising its negative environmental impacts, development of economic centres around current small towns, development of human development hubs in high density areas, introduction of agricultural growth and development (including agro-processing) high density rural areas and retention of tourism initiatives (game farming) around low density rural areas. The Provincial SDF identifies eco-tourism, agriculture, mining and community services as main economic sectors within the Joe Morolong Municipality.

The project will boost economic development by generating direct and indirect economic opportunities thus aligning with the objectives of the IDP.

6.4 ENSURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES

Mining is a necessary activity in order to extract natural resources necessary for manufacturing and development. Manganese is primarily used by the steel industry in deoxidizing and desulfurizing additives and as an alloying constituent. As such it is in high demand. Due to the nature of mining projects, impacts on biodiversity and the role that it plays in the ecosystem are inevitable.

The project has the potential to directly disturb vegetation, vertebrates and invertebrates. Previous studies have identified areas of high biodiversity sensitivity as well as protected tree species *Vachellia erioloba* (Camel Thorn), *Vachellia haematoxylon* (Grey Camel Thorn) around the perimeter of the Mokala Mine. The layout and activity changes at Mokala are likely to constitute a significant disturbance to biodiversity. The project has the potential to directly disturb soils, vegetation, and fauna. The disturbances also have the potential to allow proliferation of alien and invasive plants. In addition, the changes may further disrupt the ecological functions and ecosystem services derived from the site.

Biodiversity and soil studies would be necessary to determine the sensitivity of the project area and potential impacts of the project changes. The biophysical impacts of the project will be further investigated in the EIA phase. Measures to enhance the benefits and mitigate the impacts to these resources will be included in the EIA Report.

6.5 PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT

According to DMR (now DMRE) (2011) “South Africa has been a resource economy in excess of a century”. An independent evaluation of South Africa’s non-energy in-situ mineral wealth is estimated at US\$2.5 trillion (Citibank report, May 2010), making the country the wealthiest mining jurisdiction. However, a considerable amount of South Africa’s mineral resources are exported as raw ores or only partially processed. Although South Africa has steadily improved its ratio of beneficiated to primary products exported since the 1970s, these ratios are still well below the potential suggested by the quality and quantity of its mineral resource’s endowment.

The Government’s industrialisation policy calls for a paradigm shift in mineral development, strategic investment in assets to maximise long-term growth beneficiation projects, enhance value of exports, increase sources for consumption of local content, and create opportunities for sustainable jobs. Minerals are a vital input to an

industrialisation programme, which is intended to accelerate manufacturing in South Africa (for local consumption and export). Competitive access to minerals for local beneficiation is one of the key success factors for the country's industrialisation initiative."

The Kalahari Manganese Field contains approximately 80% of the world's known high-grade manganese ore reserves. Mining of the manganese results in the production of ore for sale, creates sustainable jobs and supports economic activity. The export of ore generates foreign income. Direct economic benefits from Mokala are derived from wages, taxes and profits. Indirect economic benefits are derived from the procurement of goods and services and the spending power of employees. Further to this, through employment, employees of the mine are afforded the opportunity to further their education through the skills development plan of the mine's social and labour plan. The benefits not only contribute to the country's GDP but result in significant contributions to the economies and people of the Northern Cape Province, and specifically the Taolo Gaetsewe District.

Community/society priorities are officially expressed through public documents including the provincial growth and development strategy and spatial development framework documents. In this regard, the priorities of the Joe Morolong Local Municipality's IDP and the John Taolo Gaetsewe District Municipality's SDF (May 2016) are mainly focused around the reduction of unemployment and halving poverty, as well as establishing affordable accommodation in towns experiencing rapid expansion by investing in key sectors and developing and upgrading basic service delivery and infrastructure. In order to achieve this, development must be channelled into specific nodes and corridors (John Taolo Gaetsewe District Municipality, 2016). One of the Key Focus Areas for economic growth is the Gamagara Development Corridor, within which the Mokala is located (Figure 7).

The socio-economic impacts of the project will be assessed in the EIA phase. Measures to enhance the benefits and mitigate the impacts to these resources will be included in the EIA Report.

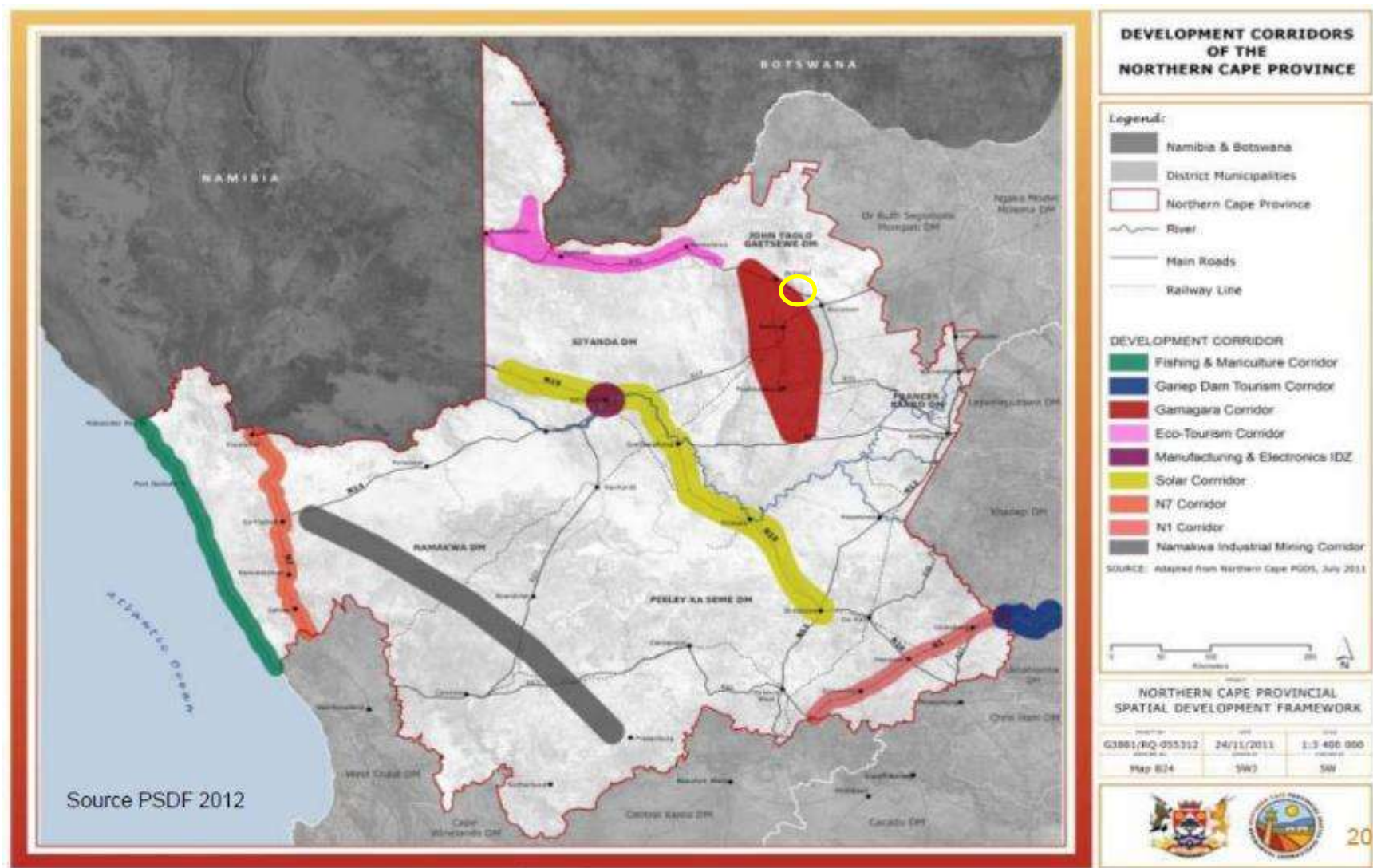


FIGURE 7: DEVELOPMENT CORRIDORS OF THE NORTHERN CAPE SOURCE: NPSDF, 2012 (MOKALA LOCATION SHOWN BY YELLOW CIRCLE)

7 PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED

The listed activities being applied for are detailed in Section 4.1. These activities span across the construction and operational phase of the mine. The facilities that will be developed will exist/be operated for the life of mine as support to the mine's day to day operations. The Integrated Environmental Authorisation is therefore required for the Life of mine. The remaining life of mine is estimated at 15 years.

8 PROCESS FOLLOWED TO REACH THE PROPOSED PREFERRED ALTERNATIVE

This section describes the alternatives that are available for consideration (if applicable) and provides a background where no reasonable or feasible alternatives exists for a layout and activity change.

8.1 DETAILS OF THE ALTERNATIVES NOT CONSIDERED

8.1.1 Technology alternatives

The project activities deal with the amendment of approved surface layout, and the establishment of additional infrastructure. It follows that a reconfiguration of the approved layout does not require any technology alternatives. The establishment of additional infrastructure in aligned with the approved mining operations and technologies. Technology alternatives are therefore not applicable.

8.1.2 Layout alternatives

8.1.2.1 Layout and activity changes already taken place

Layout alternatives are not considered for activity/infrastructure changes that have already taken place. These include the following:

- the reconfiguration of plant area, ROM and high-grade product stockpiles to accommodate the expansion of the open pit;
- the relocation of the low-grade product stockpile;
- the relocation of support infrastructure (water storage facilities (potable and process water)), workshops and washbay, change houses, sewage; treatment plant, water treatment plant, fuel storage, administrative block (offices, kitchen, canteen, training centre, mustering centre, clinic), stores and waste storage);
- relocation of transportation related facilities/infrastructure (internal haul road, weighbridges, parking areas, truck loading and staging facility);
- the relocation of the approved WRD to accommodate the expansion of the open pit; and
- the relocation of the approved topsoil stockpiles.

8.1.2.2 Expansion of the open pit

Resource extraction is limited to the local geology and location of a targeted resource. The approved Mokala mining operations was dependent of the location of the manganese ore body of the Kalahari Manganese field. The proposed pit expansion is therefore also dictated by the existing location of the approved pit. It follows that there are no layout alternatives possible for this activity.

8.1.2.3 Increase in the capacity of the approved WRD and the establishment of an WRD

The approved WRD is already established and in operation. The approved WRD requires an increase in capacity to accommodate the current mining rates. It follows that the position is fixed, and no layout alternatives could be considered. The mining right and project areas are illustrated in Figure 2 and shows that the project area has significant space constraints. As such the location of the additional WRD is dictated by the space available within the project area. In addition, the proposed location of the new WRD is also situated close to the existing WRD. This will allow for optimisation of operation and reduce transportation distances for off-loading. It therefore follows that no layout alternatives were considered.

8.1.2.4 Increase in approved capacity of stockpiles (ROM stockpiles and product stockpile)

Mokala is proposing to increase the capacity of the approved ROM stockpiles and product stockpiles to accommodate the increase in production tonnages. No layout alternatives could be considered because the activity is dictated by the planned location of the stockpiles.

8.1.2.5 The proposed establishment of additional topsoil stockpiles

Mokala is proposing to expand the approved open pit footprint and as such additional topsoil storage space will be required to store topsoil stripped from the increased open pit footprint. The Mokala project area is constrained in terms of available space. No layout alternatives were considered because of the limited space available.

8.1.2.6 The relocation of stormwater management infrastructure

The details of stormwater infrastructure which requires relocation has not yet been defined. It is anticipated that the layout of stormwater infrastructure will be finalised during the EIA phase. No site layout alternatives will be considered as the position of the stormwater infrastructure is defined by the location of dirty water areas at the mine

8.1.2.7 The proposed mining of the barrier pillar between the Kalagadi Mine and Mokala Mine

No alternative layout was considered for the mining of the boundary pillar between the Kalagadi Mine and Mokala Mine. This is because mining activities are dictated by the location of the manganese ore body.

8.1.3 The “No-go” alternative

The assessment of this alternative requires a comparison between the options of proceeding with a project with that of not proceeding with the project. The “No-go” alternative will be considered in the EIA phase.

8.2 DETAILS OF THE ALTERNATIVES CONSIDERED

Section 8.1 outlines the motivation for no alternatives being considered for the project activities.

8.3 DETAILS OF THE PUBLIC PARTICIPATION PROCESS

This section describes the public participation process undertaken in line with Section 6 of the NEMA EIA Regulations (GNR 982 of 2014, as amended). The public participation process also caters for legal requirements as set out in the Regulations Regarding the Procedural Requirements for Water Use Licence Applications (GNR 267 of 2017).

The aim of the public participation process is to co-ordinate a process through which I&APs are informed of the project and environmental assessment process and are provided with an opportunity to provide input into the project plan, the assessment and proposed mitigation measures. The public participation completed to date for the scoping phase of the project including the planned public participation for the project is tabulated below. The planned public participation process for the EIA phase is included in Section 9.8.

The proposed approach may be altered after authority review of the Scoping Report to accommodate for any comments or concerns received by I&APs.

TABLE 8-1: SCOPING PHASE PUBLIC PARTICIPATION PROCESS

	Task	Description
Public Participation Process completed to date	Application Phase	
	Environmental authorisation application submission	The integrated NEMA/NEM:WA Environmental Authorisation application was submitted to the DMRE on 16 March 2021.
	Notification of I&APs	
	Desktop social scan	<p>The identification of I&APs was achieved by undertaking a desktop social scan. This consisted of an update to the existing I&AP database and verification of I&APs' details. This entailed:</p> <ul style="list-style-type: none"> the verification of the relevant surrounding landowners, land occupiers, relevant ward councillor, municipalities, organs of state, commenting authorities and other I&APs; verification of contact details for I&APs on the existing database; and verification of appropriate communication structures. <p>A copy of the project database is provided in Appendix C.</p>
	Land claims commissioner consultation	The Department of Rural Development and Land Reform (DRDLR) (Land Claims Commissioner) in Northern Cape was contacted to confirm if there are any land claims on the remaining extent of the farm Gloria 266. To date, no response has been received from the Land Claims Commissioner, as such this response will be included in the EIA phase.
	Background Information Document (BID) distribution	<p>A BID in English, Afrikaans and Setswana was compiled by SLR. The BID provided:</p> <ul style="list-style-type: none"> information about the proposed project; information about the baseline environment of the project area; information about the environmental authorisation process; information pertaining to project alternatives that will be considered as part of the environmental authorisation process (if any); information regarding possible biophysical, cultural and socio-economic impacts associated with the proposed project activities; details pertaining to the public participation process; and information on how I&APs can have input into the environmental assessment process. <p>A registration and response form was attached to the BID, which provided I&APs with an opportunity to register and submit comments on the project. The BID was</p>

	Task	Description
		distributed electronically (email) to all I&APs registered on the project database. Copies of the BID were also made available on the SLR website (at https://slrconsulting.com/za/slr-documents/) and the data-free website (at slrpublicdocs.datafree.com). Emails and text messages containing a link to the SLR website and SLR data-free website, were sent to all I&APs registered on the project database. A copy of the BID including the proof of distribution is provided in Appendix C.
	Site notices	Laminated A2 site notices (in English, Setswana and Afrikaans) were placed at key conspicuous positions in and around the Mokala Mine, as well as in the nearby towns. A photographic record of the placement of the site notices will be included in the final Scoping Report.
	Placement of newspaper advertisements	Newspaper advertisements notifying the public of the project were published in the Noordkaap Bulletin and Kathu Gazette. The proof of publication is included in Appendix C.
Planned public participation process	Public and commenting authorities meetings (Virtual)	
	General public and commenting authorities meeting	Due to COVID restrictions pertaining to social distancing, it is not recommended that Public Meetings are not held, rather virtual meetings will be arranged.
	Review of the Scoping Report	
	I&AP review of Scoping Report	The Scoping Report will be made available for review and comment for 30 days. A NTS of the Scoping Report (English, Afrikaans and Setswana) will be made available to all I&APs registered on the I&AP database via email, and post. In addition to this electronic copies will be made available on the SLR website (at https://slrconsulting.com/za/slr-documents/) and the data-free website (at slrpublicdocs.datafree.co). Emails and text messages containing a link to the SLR website and SLR data-free website, will also sent to all I&APs registered on the project database.
	Following the review of the Scoping Report	The Scoping Report will be updated to include all comments received during the review and comment period. This updated report will be submitted the DMRE for decision making purposes.

8.4 SUMMARY OF ISSUES RAISED BY I&APS

This section provides a summary of the issues and concerns raised by I&APs as part of the public participation process. To date, there have been no issues and concerns raised by I&APs. If relevant, this section will be updated to include any comments received during the review of the Scoping Report which will be submitted to the DMRE for consideration.

8.5 ENVIRONMENTAL ATTRIBUTES ASSOCIATED WITH THE SITE

The baseline information is aimed at providing the reader with a perspective on the existing status of the biophysical, cultural and socio-economic environment. Baseline information for this Scoping Report draws extensively on information contained in reports from previous studies conducted at the Mokala Mine. More detailed information will be provided in the EIA report, once the specialist studies commissioned for this project have been concluded.

8.5.1 Baseline biophysical environment affected by the project

All data in this section is sourced from the approved 2015 EIA and EMPr and associated specialist studies for the Development of the Proposed Mokala Manganese Mine (SLR, 2015). It is important to note that majority of the specialist studies undertaken for the approved 2015 EIA and EMPr, focussed on the eastern section of the Mokala Mine site. Given the homogenous nature of the site, information pertaining to the western section of the mine site is based on extrapolated information. As part of the project, specialist investigation covering the western section of the Mokala Mine will be undertaken.

8.5.1.1 Geology

INTRODUCTION

The geology of an area provides information on the presence of mineral resources (and informs the mine plan), the geochemistry and related potential for contamination from mined material and the presence of geological structures (such as faults and dykes) that act as barriers or conduits (preferential flow paths) for groundwater flow. Geological processes also influence soils forms (section 8.5.1.4), the type and nature of groundwater aquifers (section 8.5.1.7) and the potential for palaeontological resources (section 8.5.2.1).

DESCRIPTION

Regional geology

The world's largest land based sedimentary manganese deposit is contained in the Kalahari Manganese Field, situated 47 km north-west of Kuruman in the Northern Cape. The Kalahari Manganese Field comprises five erosional, or structurally preserved, relics of the manganese bearing Hotazel Formation of the Paleoproterozoic Transvaal Supergroup. These include the Mamatwan-Wessels deposit (also known as the main Kalahari Basin), the Avontuur and the Leinster deposits, and the Hotazel and Langdon Annex/Devon deposits.

Within the main Kalahari Basin (from which the resources will be mined) is the largest of the five deposits in the Kalahari Manganese Field, comprising a basin with a strike length of approximately 56 km and a width varying between 5 and 20 km.

Local geology

The Mokala Mine is located on the south-western outer rim of the Kalahari Manganese Field. Mokala is exploiting the manganese from the Hotazel Formation (Transvaal Supergroup). At the mine site, the Hotazel Formation is unconformably overlain by Early Permian Dwyka diamictite (tillite) of the Karoo Supergroup or Cenozoic Kalahari calcrete, clay and windblown sand. The general stratigraphy at the Mokala Mine consists of the following:

- Kalahari Formation (or "beds"), consisting of sand, clay and limestone;

- Dwyka Formation, consisting of tillite (a sedimentary rock derived from glacial deposits and consisting of rock fragments in a clay-rich matrix);
- Mooidraai Formation, consisting of dolomite;
- Hotazel Formation which consists of Banded Iron Formation (BIF). The ore is contained within a mineralised zone which is made up of three manganese rich zones; the Upper Manganese Ore Body (UMO), the Middle Manganese Ore Body (MMO) and the Lower Manganese Ore Body (LMO); and
- Ongeluk Formation, consisting of basaltic lava.

The geological setting is included in Figure 8 below.

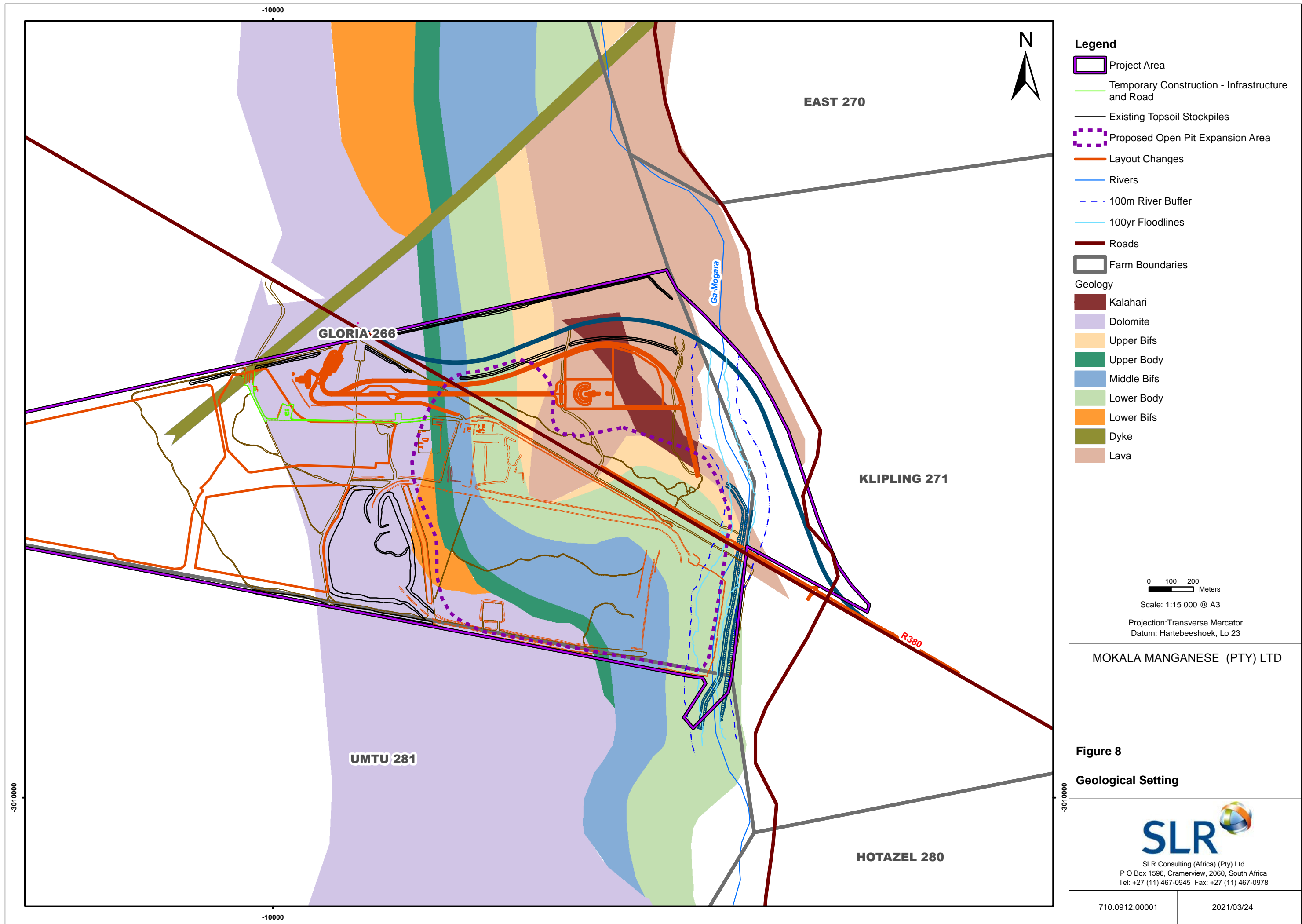
Structural features

Dykes can be considered to be preferential path flows. A dyke is located to the west of the Mokala area (as illustrated in Figure 8).

Geochemistry

Acid Base Accounting (ABA) is an internationally accepted analytical procedure that was developed to screen the acid-producing and acid-neutralizing potential of rocks. As part of the approved 2015 EIA and EMP process, ABA was undertaken on samples of Waste Rock. The ABA results showed that the total sulphur content and more importantly the sulphide sulphur content of all samples are low. The low sulphide sulphur content suggests the potential to generate acid is negligible. In addition, the neutralising potential ratio (NPR) of all samples is above 2, (minimum NPR 392), which implies all lithologies have sufficient neutralising potential to offset the low acid potential. The paste pH for all samples was neutral to alkaline and indicated that there is little potential for the generation of short-term acidity. In addition, the mineralogy of the sampled rocks is dominated by calcite (CaCO_3) and quartz which is a source of neutralising potential and may be expected to buffer mine water at neutral pH.

Based on the Synthetic Precipitation Leaching Procedure (SPLP) tests, undertaken on waste rock during the approved 2015 EIA and EMP process, results elements that exceed the South African National Standards (SANS) 241 (2011) Drinking Water limits, include aluminium, manganese, nitrate and total dissolved solids (TDS).



8.5.1.2 Topography

INTRODUCTION

The presence of project infrastructure and mining activities has the potential to change the natural topography of a site. A change in topography has the potential to influence surface water flow, the location of soils, the visual character of a landscape and the safety of third parties and animals.

DESCRIPTION

In general the area is relatively flat with a gentle slope towards the east where the Ga-Mogara Rievr flows along the eastern boundary. The elevation on site varies from 1087 m to 1107 m above mean sea level (mamsl). An analysis of topographical data indicated a slope of less than 1:10 over most of the Mokala Mine area.

It is important to note that the natural topography at the mine has been altered due to the presence of existing mining activities and infrastructure.

8.5.1.3 Climatic conditions

INTRODUCTION

Climate can influence the potential for environmental impacts and related mine design. Specific issues due to climatic conditions include:

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

DESCRIPTION

Regional climate

The Mokala Mine falls within the Northern Steppe Climatic Zone, as defined by the South African Weather Bureau. This is a semi-arid region characterised by seasonal rainfall, hot temperatures in summer, and colder temperatures in winter.

Rainfall, evaporation, and rainfall depths

The Mokala Mine is characterised by hot summers and cool winters with rain generally occurring in the form of thunderstorms. The WR2005 data indicated that the mean annual precipitation (MAP) for the quaternary catchment D41K is low (344 mm), however, records show that on occasion the rainfall can be significantly higher than this.

The Mokala Mine lies within evaporation zone 8A, which has a total mean annual evaporation (MAE) of 2 351 mm which is significantly higher than the MAP resulting in a very dry area.

Temperature

Monthly mean, maximum and minimum temperatures for the Mokala Mine site, as recorded in 2015, are included in Table 8-2 below. Temperatures ranged between -0.6 °C and 35 °C. During the day, temperatures increase to reach a maximum at around 15:00 in the afternoon. Ambient air temperature decreases to reach a minimum at around 06:00, just before sunrise.

TABLE 8-2: MONTHLY TEMPERATURE DATA

Months	Minimum (°C)	Maximum (°C)	Average (°C)
January	15.3	35.0	26.4
February	14.1	34.1	25.8
March	10.1	32.5	24.5
April	4.4	29.9	18.7
May	2.4	26.9	15.4
June	-0.6	22.3	10.8
July	1.0	21.7	11.4
August	0.4	28.3	13.1
September	2.1	27.8	16.8
October	6.7	32.3	20.5
November	8.8	34.7	23.3
December	11.9	35.0	25.2

Wind

Wind direction at the Mokala Mine site is dominated by winds from the north, northeast and east, with an average wind speed of 3.4 m/s. The strongest winds (more than 6 m/s) were also from the east and northeast and occurred mostly during the day (06:00 to 18:00). Calm conditions occurred 8.55 % of the time. A distinct increase in winds from the south occurred at night (18:00 to 06:00).

Wind direction at the Mokala Mine site shows considerable seasonal differences. During summer, autumn and winter the dominant winds are from the east, northeast and south, while in spring, the southerly winds dominate.

8.5.1.4 Soils and land capability

INTRODUCTION

Soils are a significant component of most ecosystems. As an ecological driver soil is the medium in which most vegetation grows and a range of vertebrates and invertebrates exist. In the context of mining operations, soil is even more significant as mining is a temporary land use where after rehabilitation, soil availability is the key factor to the establishment of post closure land capability and use.

The land capability classification is based on the soil properties and related potential to support various land use activities. Mining operations have the potential to significantly transform the land capability.

DESCRIPTION

Soil forms and chemistry

Soil forms located at the Mokala Mine site include Clovelly, Molopo, Witbank, Brandvlei and Kinkelbos. The pH of these soils types ranged from 5.5 to 6.5 and can be described as moderately acid to neutral with low phosphorus levels as expected for natural, unfertilized veld conditions in South Africa (1 to 2 mg/kg).

The majority of the Mokala Mine site consists of deep, well-drained soil where a thick sandy covering of yellow-brown apedal soil covers a carbonate horizon. These soils are very sandy, and the texture consists of more than 90% sand fraction. As a result of the well-drained soil horizons under dry climatic conditions, the organic carbon content of the topsoil is relatively low at 1.46%.

The soils located within the Ga-Mogara drainage channel had a clayey-sand texture consisting of 18 to 24% clay particles and 72 to 80% sand particles. This slows down the water infiltration rate resulting in higher organic carbon content in the topsoil layer (2.70%). As a result of slow, vertical soil-water movement in the riverbed soil profiles, cations of magnesium, calcium and potassium becomes mobile and accumulate in soil surface horizons, especially with the high evaporation rate experienced in the area. It follows that cation levels are extremely high.

It is important to note that the natural soil types at the mine has been altered due to the presence of existing mining activities and infrastructure.

Agricultural potential

Soil forms located at the Mokala Mine site have limited to no agricultural potential (crop production) as the soils are sandy and will therefore drain rapidly. In addition to this, the hot, dry climate is not suitable for dry crop production. As such, agricultural potential at the Mokala Mine site is limited to grazing.

Land Capability and Land Potential

Three different land capability classes were identified at the Mokala Mine site. These classes are as follows:

- the deeper soils of the Clovelly soil form have grazing land capability;
- the Brandvlei, Molopo and Witbank soil forms have wilderness land capability as a result of the shallow soil depth; and
- the Kinkelbos soil form is associated with wetland type capabilities. It is however important to note, that even though a soil form may have wetland capabilities this does not classify a feature as a wetland. In this regard no wetland-based plant species are located at the Mokala Mine site and the area does not indicate significant hydromorphic properties. Based on results from the 2015 EIA and EMPr process no wetlands are present at the Mokala Mine site.

8.5.1.5 Biodiversity

INTRODUCTION

In the broadest sense, biodiversity provides value for ecosystem functionality, aesthetic, spiritual, cultural, and recreational reasons. The known value of biodiversity and ecosystems relate to soil formation and fertility maintenance; primary production through photosynthesis; provision of food and fuel; provision of shelter and building materials; regulation of water flows and water quality; regulation and purification of atmospheric gases; moderation of climate and weather; control of pests and diseases; and maintenance of genetic resources.

As a baseline, this section provides an outline of terrestrial biodiversity occurring on site and the status of the identified species as well as highlighting the occurrence of sensitive ecological environments including sensitive/endangered species (if present) that require protection and/or additional management actions should they be disturbed.

DESCRIPTION

Flora (Terrestrial biodiversity)

The Mokala Mine site falls within the Kathu Bushveld and the Gordonia Duneveld. The Kathu Bushveld can be described as an open savannah which consists of prominent tree species such as *Vachellia erioloba* (Camel Thorn) and *Boscia albitrunca* (Shepards Tree). The shrub layer is dominated by *Senegalia mellifera* (Black thorn), formerly known as *Acacia mellifera*, *Diospyros lycioides* (Blue bush) and *Lycium hirsutum* (River Honey-thorn).

The Gordonia Duneveld consists of undulating dunes which is characterised by open shrubland with grasslands on the dune ridges. *Vachellia haematoxylon* (Grey camel thorn) are predominately located on the dune slopes while *Senegalia mellifera* (Black thorn) is prominent on the lower slopes. *Rhigozum trichotomum* (Tree thorn) is found in the inter dunes.

Red data and protected species

Tree species located at the Mokala Mine site that are protected in terms of the National Forests Act of 1998 (Act 84 of 1998) include *Vachellia erioloba* (Camel Thorn) and the *Vachellia haematoxylon* (Grey Camel Thorn). These species are present throughout the Mokala Mine site although their density does vary across the site. Some of the *Vachellia erioloba* located on-site are more than 6 m high and have a stem diameter of approximately 20 cm while *Vachellia haematoxylon* are on average 2 m in height with a stem diameter of less than 10 cm. Other species listed in terms of the Northern Cape Nature Conservation Act No. 9 of 2009 that are likely to occur at the Mokala Mine site include *Harpagophytum procumbens* (Devils Claw), *Moraea longistyla*, (Goldblatt), *Moraea pallida* (Yellow Tulip), and *Babiana hypogaea* (Geelbobbbejaantjie).

Both the *Vachellia haematoxylon* (Grey Camel Thorn) and the *Vachellia erioloba* (Camel Thorn) have been re-established as a Least Concern (LC) population in terms of the International Union for Conservation of Nature (IUCN) Red data species list.

Alien and invasive floral species

The following alien and invasive species are likely to be found at the Mokala Mine site and need to be controlled accordingly:

- *Argemone mexicana* (Mexican Poppy);
- *Argemone ochroleuca* (White Flowered Mexican Poppy);
- *Prosopis cf. glandulosa* (Mesquite);
- *Prosopis velutina* (Mesquite); and
- *Datura stramonium* (Thorn apple).

Ecological sensitivity

The Mokala Mine site falls within the Griqualand West Centre of Endemism which is an area with a high concentration of plant species with very restricted distribution. The Griqualand West Centre of Endemism is one of the 85 centres of endemism and one of 14 centres in southern Africa and are of global conservation significance. According to the South African Journal of Botany (2019) findings suggest that at least 23 plant species have their natural distribution ranges restricted to the Griqualand West region. These endemics represent 1.4% of the region's flora.

Aquifer Dependent Ecosystems (ADE) are located within the Mokala Mine area and are ecosystems which depend on groundwater. Deep rooted species such as the *Vachellia Erioloba* (Camel thorn), *Vachellia haematoxylon* (Grey Camel Thorn), *Rhus Lancea*, *Tamarix usneoides* and *Euclea pseudebenus* may be associated with ADE's, unfortunately there is very little information available on how ADE plants access groundwater and at what depth. ADE's particularly in arid ecosystems provide habitats for an array of species and are considered important in ecological processes and making resources available to biodiversity in the area that would otherwise not be available.

In terms of the mining and biodiversity guideline the Mokala Mine area does not fall into any biodiversity priority areas and is therefore not deemed a risk for mining. In addition, the Mokala Mine site is not considered a threatened ecosystem and does not fall within a National Freshwater Ecosystem Priority Area (NFEPA) nor does it fall within a Critical Biodiversity Area (CBA) in terms of the South African National Botanical Institute (SANBI) database.

The overall sensitivity of the Mokala Mine site ranges between medium to low. The area at the Mokala Mine site that is considered to be of a high sensitivity includes the Ga-Mogara drainage channel. The Present Ecological State (PES) of the Ga-Mogara drainage channel is classified as C, which means it is moderately modified, some loss and change of natural habitat and biota has occurred, but the basic ecosystem functions are still predominantly unchanged. The ecological importance (EI) of the Ga-Mogara drainage channel is an expression of its importance to the maintenance of biological diversity and ecological functioning on local and wider scales and this is considered to be moderate for this section of the Ga-Mogara. Ecological sensitivity (ES) refers to the

system's ability to resist disturbance and its capability to recover from disturbance once it has occurred. The ES for this section of the Ga-Moraga is considered to be very low.

It is important to note that the natural terrestrial biodiversity of the site has been influenced by the presence of existing activities and infrastructure.

Faunal habitat and Species

Farming practises and mining activities surrounding the Mokala Mine site have disturbed the local faunal population. Similarly, the existing activities and infrastructure at the Mokala mine has disturbed the local faunal population. It follows that very few faunal species are present on site and in the general area. Bird species that were observed on-site during the 2015 EIA and EMPr process include the Diederik Cuckoo, European Bea-Eater, White Throated Swallow, Red Faced Mousebird, Fork tailed Drongo, Ashy Tit, Redeyed Bulbul, and Clapper lark. Evidence of burrowing animals such as Suricate, White-tailed Mongoose, ground squirrels and warthog were observed within the proposed project site.

No red data faunal species were observed on-site during the 2015 EIA and EMPr process. Species of conservation concern that are, however, likely to occur at the Mokala Mine site are listed in Table 8-3 and Table 8-4.

TABLE 8-3: BIRD SPECIES OF CONSERVATION CONCERN LIKELY TO OCCUR AT THE MOKALA MINE SITE

Common name	Scientific name	Conservation status*	Potential for occurrence within the proposed project area
Martial Eagle	<i>Polemaetus bellicosus</i>	Vulnerable	High - Nesting habitat in the Mixed Savannah vegetation type
Secretary bird	<i>Sagittarius serpentarius</i>	Near threatened	High – Patches of open savannah will accommodate this species.
African Whitebacked Vulture	<i>Gyps africanus</i>	Vulnerable	High -No nest sites were recorded within the proposed project area, however the presence of large <i>Vachellia erioloba</i> trees present ideal nesting habitats for these birds.
Kori Bustard	<i>Ardeotis kori</i>	Vulnerable	Medium – Moderate to high shrub density throughout the proposed project area
Black stork	<i>Ciconia bigra</i>	Near threatened	Low – No suitable habitat on site, may occur during periods of high rainfall
Lesser Kestrel	<i>Falco naumanni</i>	Vulnerable	Low - Area too densely wooded for ideal habitat.
Bateleur	<i>Terathopus ecaudatus</i>	Vulnerable	Medium – Some suitable habitat on site
Lappetfaced Vulture	<i>Torgos tracheliotos</i>	Vulnerable	High - Suitable habitat within the Mixed Savannah vegetation type

TABLE 8-4: MAMMAL SPECIES OF CONSERVATION CONCERN POTENTIALLY OCCURRING AT THE MOKALA MINE SITE

Common name	Scientific name	Conservation status*	Potential for occurrence within the proposed project area
Dent's Horseshoe Bat	<i>Rhinolophus denti</i>	Near threatened	Very little –The landscape in the area is flat and does not offer suitable roosting habitat for this species, it is unlikely that this species would colonised at the Mokala Mine.

Common name	Scientific name	Conservation status*	Potential for occurrence within the proposed project area
Honey badger	<i>Mellivora capensis</i>	Near threatened	High– Suitable habitat within the Mokala Mine site.
Schreiber's long-fingered bat	<i>Miniopterus schreibersii</i>	Near threatened	Very little – No caves occur within the Mokala Mine site. In addition, as the landscape in the area is generally flat sand veld and does not offer suitable roosting habitat for this species, it is unlikely that this species would have colonised the area.
South African Hedgehog	<i>Atelerix frontalis</i>	Near threatened	High to Medium – Suitable habitat available.

8.5.1.6 Surface water

INTRODUCTION

Surface water resources include drainage patterns and paths of preferential flow of stormwater runoff. Water quality and quantity are key indicators of the resource value and status and can have significant effect on downstream hydrology, aquatic ecology and suitability for use. Mine related activities have the potential to influence the natural drainage of surface water through the collection of run-off from stormwater management infrastructure and collection in the open pit. The project also has the potential to result in the contamination of the surface water resources through seepage and/or runoff from waste rock dumps and operational areas.

DESCRIPTION

Regional Hydrology

South Africa is divided into 19 water management areas (WMAs) (National Water Resource Strategy, 2004), managed by separate water boards. Each of the WMAs is made up of quaternary catchments which relate to the drainage regions of South Africa. The Mokala Mine falls within the Lower Vaal WMA. The major rivers associated with this water management area include the Molopo River, Harts River and the Vaal River which ultimately drain into the Orange River. The Mokala Mine falls within the quaternary catchment D41K which has a gross total catchment area of 4 216 km², with a net mean annual runoff (MAR) of 1.92 million cubic meters (mcm). The major river within quaternary catchments D41K is the Ga-Mogara drainage channel which is located on the eastern boundary of the Mokala Mine. The Ga-Mogara drainage channel forms a tributary of the Kuruman River which flows west joining the Molopo River approximately 250 km from the confluence of the Ga-Mogara and Kuruman River.

Local hydrology

The non-perennial Ga-Mogara drainage channel is located on the eastern boundary of the Mokala Mine. Any natural runoff from the mine will drain in an easterly direction towards the Ga-Mogara drainage channel. Several minor non-perennial rivers form tributaries of the Ga-Mogara drainage channel in the broader Hotazel area; these include the Dooimansholte, Ga-Mmatshphe, Vlermuisleegte, Witleegte Rivers and various other unknown non-perennial rivers. Due to the ephemeral nature of the Ga-Mogara drainage channel, there is no third-party reliance on surface water and no wetlands are present within or immediately adjacent to the project area. As part of the Mokala project, the drainage channel is being temporarily realigned.

8.5.1.7 Groundwater

INTRODUCTION

Groundwater is defined as water which is located beneath the ground surface in soil/rock pore spaces and in the fractures of lithological formations and is a valuable resource. In arid areas groundwater is frequently the sole source of water and thus essential to agriculture and other development. Groundwater quality and quantity are key indicators of the resource value and status and can have significant effect on the suitability and availability for use. Mine related activities have the potential to influence the quality and availability of groundwater through seepage of contaminants that may reach underlying aquifers and through abstraction of water.

DESCRIPTION

Two distinct aquifers are present at the Mokala Mine site namely a shallow unconfined Kalahari aquifer and a deep confined fractured aquifer. Based on the DWA Aquifer Classification map, the Mokala Mine falls in the "poor" aquifer region. This is defined as a "low to negligible yielding aquifer system of moderate to poor water quality". This refers to the shallow Kalahari bed aquifer, however, the yield in the deeper aquifer is also expected to be low.

The regional average water levels in the D41K catchment are 40m below ground level. In general, the regional groundwater flow reflects topography, with groundwater flow from high lying areas in the direction of low-lying drainage features. Water levels associated with the Mokala mine deepen towards the west and are shallower towards the east of the Ga-Mogara drainage channel where the Kalahari is underlain by lava or the Ongeluk Formation.

8.5.1.8 Air Quality

INTRODUCTION

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

DESCRIPTION

Ambient air quality within the region

Current mining activities at the Mokala Mine and other mines in the area, as well as livestock farming contribute to baseline pollutant concentrations via the following sources:

- Mining sources: Particulates represent the main pollutant of concern at mining operations, whether it is underground or opencast. The amount of dust emitted by these activities depends on the physical characteristics of the material, the way in which the material is handled and the weather conditions. Current mining operations in relatively close proximity to the proposed project area include Kalagadi, Mamatwan, Black Rock, Gloria, Wessels, N'Chwaning, Tshipi Borwa Mine, UMK and Kudumane.
- Unpaved and paved roads: Emissions from unpaved roads constitute a major source of emissions to the atmosphere in the South African context. Dust emissions from unpaved roads vary in relation to the vehicle traffic and the silt loading on the roads. Emission from paved roads are significantly less than those originating from unpaved roads, however, they do contribute to the particulate load of the atmosphere. Particulate emissions occur whenever vehicles travel over a paved surface. The fugitive dust emissions are due to the re-suspension of loose material on the road surface.
- Wind erosion and open areas: Windblown dust generates from natural and anthropogenic sources. Erodible surfaces may occur as a result of agriculture and/or grazing activities.
- Vehicle tailpipe emissions: Emissions resulting from motor vehicles can be grouped into primary and secondary pollutants. While primary pollutants are emitted directly into the atmosphere, secondary pollutants form in the atmosphere as a result of chemical reactions. Significant primary pollutants emitted from combustion engines include carbon dioxide (CO₂), carbon (C), sulphur dioxide (SO₂), oxides

of nitrogen (mainly NO), particulates and lead. Secondary pollutants include NO₂, photochemical oxidants such as ozone, sulphur acid, sulphates, nitric acid, and nitrate aerosols (particulate matter). Transport in the vicinity of the proposed project area is via trucks and private vehicles along the R380 (public) road, which are the main sources of vehicle tailpipe emissions.

Potential air receptors

Potential air receptors surrounding the Mokala Mine include:

- the Hotazel town situated approximately 4 km south east;
- the Black Rock mining community located approximately 8 km north west;
- the Gloria Mine village located approximately 1.3 km north;
- the Black Rock mine village located approximately 5 km north west of the proposed project area
- the Kalagadi Mine located approximately 700 m to the south;
- isolated farmstead located approximately 5.3 km south west;
- isolated farmstead located approximately 5 km north;
- isolated farmstead located approximately 5 km west;
- isolated homestead located approximately 6.5 km west; and
- isolated farmstead located approximately 6.2 km north east.

In addition to the above, the Hotazel Town Planning Board plan on extending the Hotazel residential area onto the farms Hotazel 280 and Kipling 281 in a westerly and northerly direction respectively.

Dustfallout monitoring

Mokala currently undertakes dust fallout monitoring at eight dust fallout monitoring sites in and around the Mokala project area during August 2020 to January 2021. Dust fallout results were compared against the National Dust Control Regulations (NDCR).

Exceedances from the NDCR limits for non-residential areas was observed in October 2020 – January 2021 for dust fallout monitoring sites located along the southern perimeter (boundary of the open pit and adjacent to the WRD) of the Mokala project area. The highest dust fallout rates were observed near the open pit area in December 2020 (reaching 1531.01mg/m².day). The NDCR limit for non-residential areas was exceeded in August 2020 for a monitoring point located outside and north of the Mokala project area. Dust fallout monitoring continue on a monthly basis at Mokala.

8.5.1.9 Noise

INTRODUCTION

Noise generating activities associated with the project could cause an increase in ambient noise levels in and around the mining area. This may cause a disturbance to nearby receptors.

DESCRIPTION

Current Ambient Noise

The Mokala Mine has the potential to increase disturbing noise levels on-site and within the surrounding areas. It is, however, important to note that the current mining activities at the Mokala Mine as well as surrounding mines (Kudumane Manganese Mine, Kalagadi Manganese Mine and Gloria Manganese Mine) including traffic along the R380 already generate some noise in the vicinity.

Potential noise sensitive receptors

An increase in ambient noise levels is unlikely to extend more than 5 km from the source. It follows that potential noise receptors that are located within a 5 km radius from the Mokala Mine include the following:

- The Hotazel town situated approximately 4 km south east;

- The Gloria Mine village located approximately 1.3 km north; and
- The Kalagadi Mine located approximately 700 m to the south.

8.5.1.10 Visual aspects

INTRODUCTION

The visual character of an area is determined by considering landscape character, scenic quality, sensitivity of the visual resource, sense of place and visual receptors. Mining related infrastructure and activities have the potential to alter the visual aspects in a project area and the surrounding areas.

DESCRIPTION

Landscape character

In general the area is characterised as a flat, open area with semi-arid vegetation and ephemeral drainage lines. Livestock and game farms and associated isolated farmsteads are typical in this region. To the south, north and south east of the Mokala Mine site the landscape is characterised by scattered operational and closed mining operations and support infrastructure such as rail and road networks, powerlines, and the residential and business centre of Hotazel. The landscape character of the Mokala Mine site has been influenced by existing mining activities and infrastructure.

Scenic quality

The scenic quality of the Mokala Mine site and surrounding area is linked to the type of landscapes that occur within an area. In this regard, scenic quality can range from high to low as follows:

- High – these include the natural features such as mountains and koppies and drainage systems;
- Moderate – these include agricultural activities, smallholdings, and recreational areas; and
- Low – these include towns, communities, roads, railway line, industries, and existing mines.

Numerous mining related structures dominate the landscape to the north, south east and south of the Mokala Mine area and the R380 and Telkom lines traverse the Mokala Mine site. The Ga-Mogara drainage channel has also been realigned (engineered realignment). The scenic quality of the area is therefore low.

Sensitivity of Visual Resource

It follows that the highest value visual resource described above is also the most sensitive to change. In contrast, areas, which are not considered to have a high scenic value, are expected to be the least sensitive to change such as the mining and infrastructure areas.

Sense of place

The sense of place results from the combined influence of landscape diversity and distinctive features. The primary informant of these qualities is the spatial form and character of the natural landscape taken together with the cultural transformations and traditions associated with the historic use and habitation of the area. The proposed site is located within a “mining belt”. The mining activity, and the infrastructure that supports these mines, dominates the agricultural type landscape characteristics of the area to the north, south and southeast of the proposed project area. The fact that the project will take place within the context of these existing mining activities, gives the immediate study area a relatively weak sense of place (when the viewer is within the mining belt). However, seen in context with the site surrounded by large open spaces of arid vegetation the harsh nature of the mining activities is “softened”. When the viewer views the area from outside the “mining belt”, the larger area has a stronger sense of place.

Visual receptors

When viewed from the perspective of tourists and residences within the area, mining activities could be associated with a sense of disenchantment. People who benefit from the mine (employees, contractors, service

providers etc.) may not experience this disenchantment but rather see the mine with a sense of excitement and anticipation. It follows that the sensitive viewers are a combination of landowners/land users on surrounding farms and possibly the residents of the Gloria mine village and the Hotazel village, albeit that this is a mining village.

8.5.2 Baseline cultural environment affected by the project

8.5.2.1 Heritage / Cultural and Palaeontological Resources

INTRODUCTION

This section describes the existing status of the heritage and cultural environment that may be affected by the project. Heritage (and cultural) resources include all human-made phenomena and intangible products that are the result of the human mind. Natural, technological, or industrial features may also be part of heritage resources as places that have made an outstanding contribution to the cultures, traditions and lifestyles of the people or groups of people of South Africa.

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

DESCRIPTION

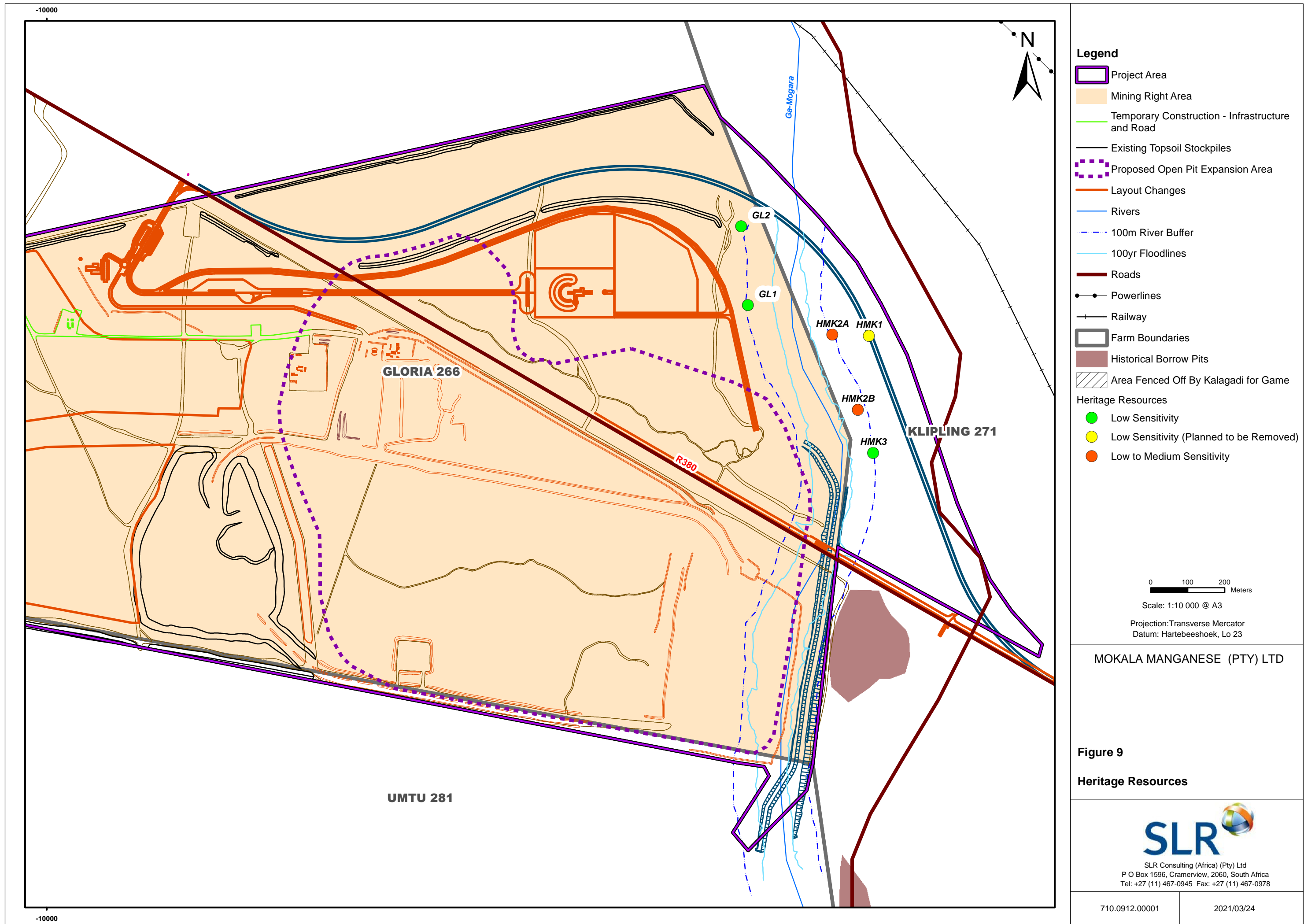
Resources of historical importance are mostly restricted to relatively recent farming and mining activities. Stone Age artefacts also occur in the region (particularly near drainage lines) due to the historical presence of southern African hunter gatherer communities typical of the arid Northern Cape landscape. A number of heritage resources were identified at the Mokala Mine site as indicated in Table 8-5. The location of the heritage sites are illustrated in Figure 9. The significance of each site as per the SAHRA classification standards is also provided in Table 8-5 below. It is important to note that heritage site HMK1 is in the process of being removed, to allow for the realignment of the R380. This process has been managed with input from an appropriately qualified heritage specialist to ensure that the necessary permit are obtained.

TABLE 8-5: HERITAGE RESOURCES LOCATED WITHIN AT THE MOKALA MINE SITE

Site identification	Description	Significance
GL1	Middle stone age site: Low density scatter of lithics consisting of side scrapers and triangular flakes.	Low heritage significance
GL 2	Middle stone age site: Low density scatter of lithics consisting of side scrapers and triangular flakes.	Low heritage significance
HMK 1	Middle stone age and late stone age: Low density scatter of lithics manufactured from hornfels and jasper material and is generally rough flakes	Low heritage significance
HMK 2	Middle and late stone age: Site extends approximately 220 m and as such is illustrated as HKM2 a and KHM2 b on Figure 9. Site included lithics consisting of raw materials such as red and brown jasper as well as quartzite and quartz	Low to medium heritage significance
HKM3	Middle stone age: Low density scatter of lithics	Low heritage significance

The palaeontological sensitivity of the area is found to be low, however, there is a possibility that the Hotazel Formation manganese ore body could contain stromatolites. Taking this into consideration it is possible that

fossil resources may be found at the Mokala Mine site. These resources are protected by the National Heritage Resources Act (No. 25 of 1999) and may not be affected (demolished, altered, renovated, removed) without approval.



8.5.3 Baseline socio-economic environment affected by the project

8.5.3.1 Socio-economic

INTRODUCTION

Typically mining projects have the potential to result in both positive and negative socio-economic impacts. The positive impacts are usually economic in nature with projects contributing directly towards employment, procurement, skills development, and taxes on a local, regional, and national scale. In addition, projects indirectly contribute to economic growth in the national, local and regional economies. The negative impacts can be both social and economic in nature and related to the influx of people seeking job opportunities (with related social ills and pressures on existing services) and a change to existing land uses (with related changes to social structures and way of life).

DESCRIPTION

The Mokala Mine is located in the John Taolo Gaetsewe District Municipality and Joe Morolong Local Municipality of the Northern Cape Province. The nearest community to the mine is the town Hotazel, located approximately 4 km south east of the mine.

The Hotazel community has a very low population of 1 755 people when compared to the local municipality population of 89 531 and the Northern Cape Province population of 1 145 861. This provides an indication of the remoteness of the project area.

In general, statistics throughout the identified regions indicate poor educational profiles. Significant numbers of the population within the municipalities and province have received no schooling or only limited primary education. The average number across the regions profiled of people completing high school education were relatively consistent; however, there is greater disparity when considering Grade 12 education, further education and training and tertiary education. The education profile within Hotazel is more positive in terms of the percentage of the population that have received further education and tertiary education when compared to the province and district and local municipalities.

The majority of the population within the Northern Cape, John Taolo Gaetsewe District Municipality and Joe Morolong Local Municipality are not economically active, while 48% of the Hotazel population is employed. There is a large dependency on subsistence agriculture, the public sector, seasonal workers and employment in the mining sector.

The population profile of the Northern Cape Province, John Taolo Gaetsewe District Municipality and Joe Morolong Local Municipality demonstrates a consistent average household size of four people per household despite the significant decline in population numbers between the regional levels. The local community of Hotazel has an average of three members per household. These results are relatively typical of rural or semi-rural developing communities, however the low household density within Hotazel may be attributed to the fact that the town is largely a mining community established for and servicing surrounding mines.

The most dominant type of dwelling utilized within the Northern Cape Province, the John Taolo Gaetsewe District Municipality, the Joe Morolong Local Municipality and Hotazel is a formally constructed house or brick structure. Traditional dwellings (e.g. huts/structures made of traditional material) are the second highest used dwelling type in the district and local municipalities with informal dwellings (e.g. shacks) being the second highest dwelling type within the Northern Cape Province. No traditional dwellings are located within the town of Hotazel; rather the second highest used dwelling type is flats.

In general, despite the relatively formalized housing infrastructure, basic services infrastructure appears to be far less formalized when considering the province and municipalities as a whole. In general, Hotazel is well formalised in terms of basic services. This may be attributed to the Hotazel area being more urbanized having been developed and supported by surrounding mines in recent years.

8.5.3.2 Traffic

INTRODUCTION

Traffic from mining projects has the potential to affect the capacity of existing road networks, as well as result in public road safety issues.

DESCRIPTION

The Mokala Mins is located approximately 4 km north west of the town Hotazel. The R380 from which access to the town Hotazel is obtained, traverses the Mokala Mine site. This road is currently being re-aligned. The R380 is currently still in use, while the newly diverted section of the R380 is being completed. The location of the realigned R380 is illustrated on Figure 5.

A network of roads surrounding the proposed project area include:

- the tarred R31 between Kuruman and Van Zylsrus;
- the D3336 road which runs through the project area (linking the R31 and the project site). A portion of this road has been closed;
- the D3340 dirt road which branches off the D3336 road to the south of the site and runs past UMK mine towards the R380; and
- various un-tarred farm access roads.

Based on information sourced from traffic counts undertaken at intersections along the R380 road during the 2015 EIA and EMPr process, the peak-hour traffic flow at the relevant intersections shows a general increase in traffic volumes during the morning (PM) peak period. With numerous mining operations located within the general Hotazel area, a greater number of trucks transporting ore from mines and/or trucks arriving at mines to collect ore was noted in the peak-morning hours.

8.5.3.3 Current land uses

INTRODUCTION

Mining-related activities have the potential to affect land uses both within the mine area and in the surrounding areas. This can be caused by physical land transformation and through direct or secondary impacts. The key related potential environmental impacts are loss of soil, loss of biodiversity, air pollution, noise pollution, pollution of water and visual impacts.

DESCRIPTION

Mining and Prospecting Rights

Mokala currently holds a Mining Right (reference NC30/5/1/2/2/10090 MR) over the remaining extent of the farm Gloria 266.

Kalagadi Manganese (Pty) Ltd currently holds a Mining Right over the farm Umtu 281 and Assmang (Pty) Ltd currently holds a Mining Right over portion 1 of the farm Gloria 266. Kudumane Manganese (Pty) Ltd holds a Mining Right on the farms Kipling 271 and Hotazel 280.

Landowners associated with the Mokala Mine

The surface right owners and adjacent landowners to the Mokala Mine are tabulated below.

TABLE 8-6: LAND OWNERSHIP ASSOCIATED WITH THE MOKALA MINE PROJECT AREA

Portion	Landowner
Gloria 266	
Portion 1	Assmang (Pty) Ltd

Remaining Extent	Ntsimbintle Mining (Pty) Ltd	
Kipling 271		
Portion 0	Assmang (Pty) Ltd	T953/1968
Umtu 281		
Portion 0	Kalakadi Manganese (Pty) Ltd	T2793/2010

TABLE 8-7: LAND OWNERSHIP ADJACENT TO THE MOKALA MINE PROJECT AREA

Portion	Landowner	Title deed number
East 270		
Portion 1	Sitatunga Properties (Pty) Ltd	T3031/2019
Portion 2	Nicolaas Jacobus Pretorius	T3469/2013
Remaining Extent		T791/2002
Gasesa 272		
Portion 1	Tsineng Communal Property Association	T175/2010
Hotazel 280		
Portion 1	Kerkraad van die N G Gemeente Kalahari te Hotazel	T170/1985
Portion 2	Telkom SA Ltd	T1414/1991
Portion 3	Samancor Manganese (Pty) Ltd	T643/2009
Remaining Extent	Hotazel Manganese Mines (Pty) Ltd	T3049/2010
Langdon 273		
Portion 0	Moshaweng Local Municipality	T613/2007
Mukulu 265		
Portion 0	Assmang (Pty) Ltd	T288/1956
N'Chwaning 267		
Portion 3	Assmang (Pty) Ltd	T2144/2015
Portion 6	Republic of South Africa	T1761/1989
Remaining Extent	Engela Elizabeth Reynecke	T1492/1970
Olive Pan 282		
Portion 1	Lourika Delaport	T767/2018
Remaining Extent	Kalagadi Manganese (Pty) Ltd	T2793/2010
Olivewood 284		
Portion 0	Jacobus Johannes Francois Theart	T421/1993

Land claims

The Department of Rural Development and Land Reform: Land Claims Commissioner was contacted to confirm if any land claims have been lodged on the farms on which the project activities are located. No reply has been received from the DRDLR as yet. Once received, all communication will be included in the EIA report.

Land use within the Mokala Mine project area

Land uses at the Mokala Mine site includes mining activities and infrastructure associated with the Mokala operations. These activities are currently limited to the eastern section of the mine site. The western side of the Mokala Mine (still on the remaining extent of the farm Gloria 266), is currently utilised for game farming by Kalagadi Mine. This area has been fenced off from the rest of the remaining extent of the farm Gloria 266. Mokala will need to enter into discussion with Kalagadi regarding this game area, as this area has been earmarked for the development of the additional WRD.

Mining companies with existing and/or proposed operations located within the Mokala project area include:

- Assmang (Pty) Ltd (Gloria Mine) – Located on Portion 1 of the farm Gloria 266;
- Kalagadi Manganese (Pty) Ltd (Kalagadi Mine) – Located on the farm Umtu 281; and
- Kudumane Manganese (Pty) Ltd (Kudumane Mine) – Located on the farm Kipling 271.

Mokala currently utilises:

- a small portion of portion 1 of the farm Gloria 266 as the main entrance to the mine;
- a small portion of the farm Umtu 281 for the Ga-Mogara drainage channel realignment; and
- a small portion of the farm Kipling 271 for the realignment of the R380.

Agreements are in place between Mokala and these neighbouring mines for the use of these above listed properties.

A Telkom line currently runs parallel to the R380 and is not located within an existing servitude. Mokala is in the process of diverting this Telkom line to follow the R380 realignment route.

Land use surrounding the Mokala Mine project area

Land use surrounding the Mokala Mine project area includes mining activities and infrastructure associated with active and dormant mines, road and rail networks, powerlines, communities/towns and isolated farmsteads. More detail is provided below.

Mines surrounding the proposed project area

Mining operations located further afield from the Mokala project area includes:

- Tshipi é Ntle Manganese Mining (Pty) Ltd (Tshipi Borwa Mine) – Located approximately 20 km south south east;
- Sebilu Resources (Pty) Ltd (Sebilu Mine) – Located approximately 18 km south;
- South32 (Wessels Mine) – Located approximately 8 km north north west;
- Assmang (Pty) Ltd (Nchawaning/Black Rock Mine) – Located approximately 9 km north west;
- The old Hotazel Mine (dormant/closed) – Located approximately 10 km south east;
- The old Black Rock Mine (dormant/closed) – Located approximately 8 km north;
- The old Perth Mine (dormant/closed) – Located approximately 12 km south east;
- The old Smartt Mine (dormant/closed) – Located approximately 14 km south east;
- The old Middelplaats Mine (dormant/closed) – Located approximately 19 km south;
- The old Adams Mine (dormant/closed) – Located approximately 24 km south east;
- The old Devon Mine (dormant/closed) – Located approximately 10.7 km south east; and
- The old York Mine (dormant/closed) – Located approximately 12.2 km south.

Existing operating mines in the area has resulted in the escalation of land value in the region over the past few years. It is however important to note, that post closure, agricultural activities can be resumed, and the property value can therefore be restored but will likely be a lower value due to past mining activities.

Regional powerline infrastructure

A regional powerline is located approximately 800 m north east of the Mokala project area.

Regional railway infrastructure

A railway line connecting Kathu, Hotazel and Black Rock runs along the east of the Mokala Project area and is located within an existing servitude.

Local Road Network

A network of roads surrounding the Mokala Mine area include:

- the tarred R31 between Kuruman and Van Zylsrus;
- the R380 between Black Rock and Hotazel;
- the D3336 road which runs through the project area (linking the R31 and the project site). A portion of this road has been closed;
- the D3340 dirt road which branches off the D3336 road to the south of the site and runs past UMK mine towards the R380; and
- various un-tarred farm access roads.

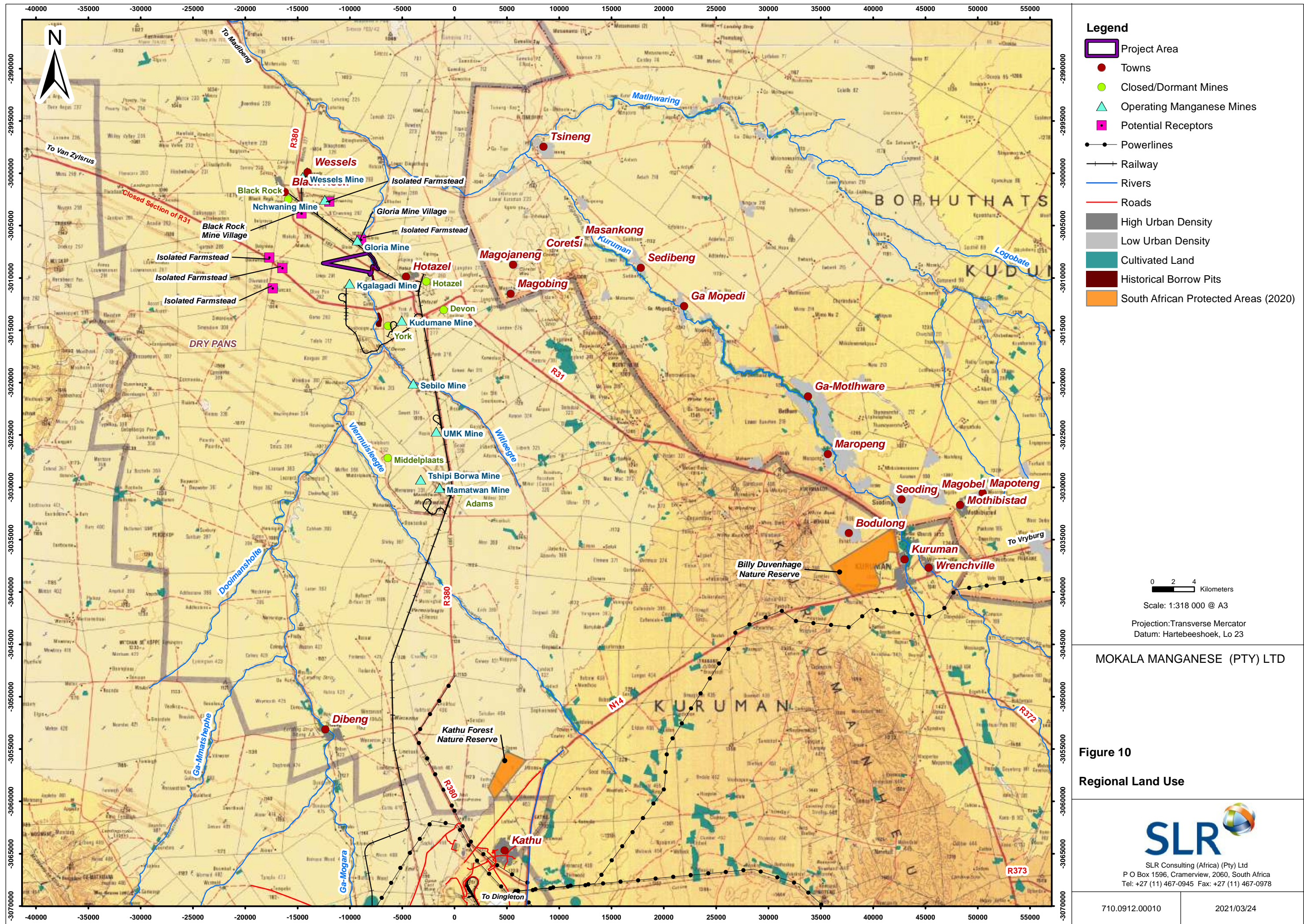
Communities/towns and isolated farmsteads

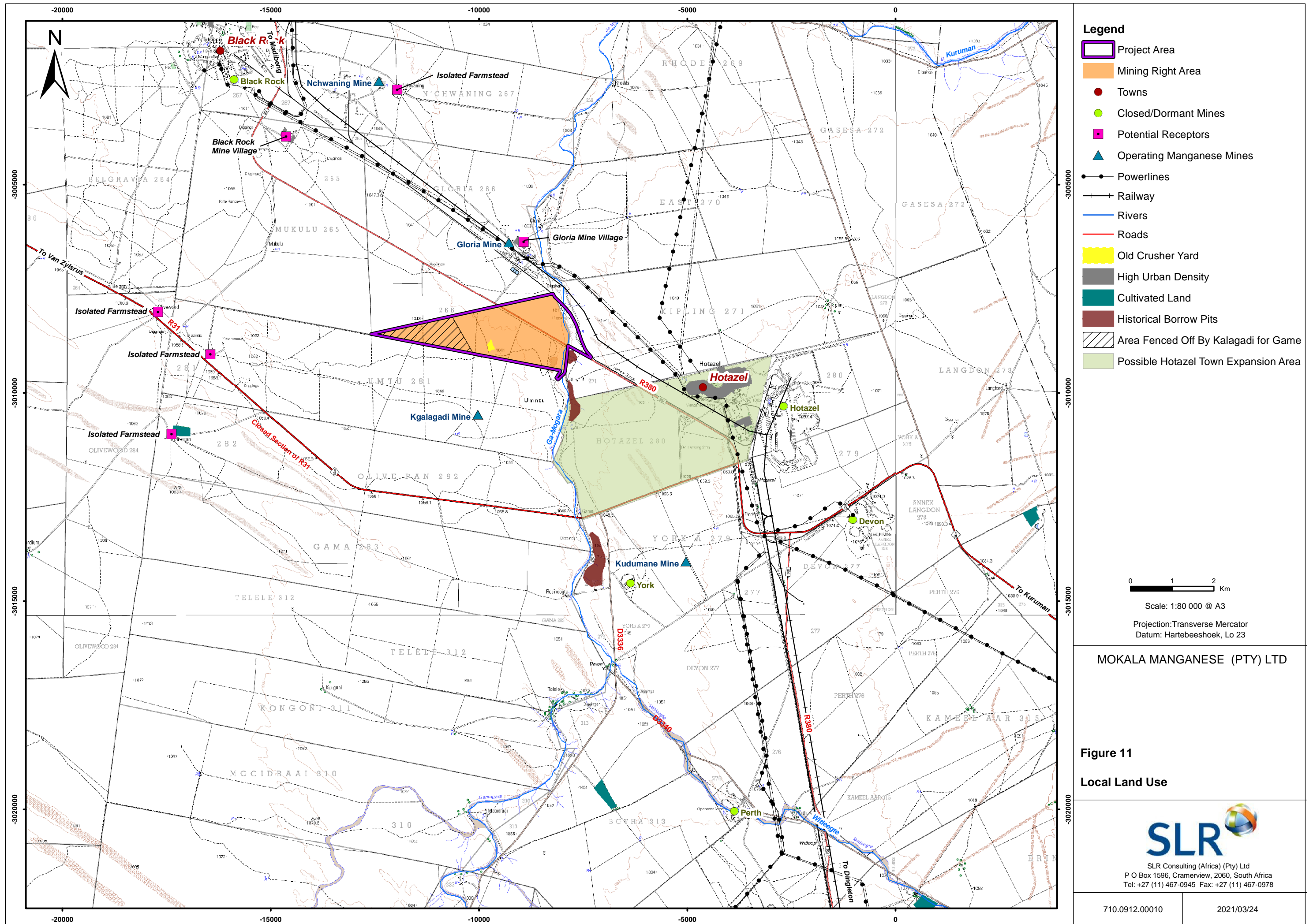
The nearest residential areas to the Mokala Mine area include the following:

- the Hotazel town situated approximately 4 km south east from the boundary of the proposed project area;
- the Black Rock community located approximately 8 km north west from the boundary of the proposed project area;
- Gloria Mine village located approximately 1.3k m north of the proposed project area;
- Black Rock mine village located approximately 5 km north west of the proposed project area;
- isolated farmstead located approximately 5.3 km south west from the boundary of the proposed project site;
- isolated farmstead located approximately 5 km north from the boundary of the proposed project site;
- isolated farmstead located approximately 5 km west from the boundary of the proposed project area;
- isolated homestead located approximately 6.5 km west from the boundary of the proposed project area;
- isolated farmstead located approximately 6.2 km north east from the boundary of the proposed project site;
- the town Kuruman located approximately 57 km to the south east from the boundary of the proposed project area; and
- the town Kathu located approximately 63 km to the south from the boundary of the proposed project area.

The Hotazel Town Planning Board plan on extending the Hotazel residential area onto the farms Hotazel 280 and Kipling 281 in a westerly and northerly direction respectively. It must be noted that the expansion plan will have to take into consideration all surrounding land uses including the Kudumane mine plan for the same properties. In this regard the closest potential mining operations would be the Kudumane operations.

No informal settlements are located in immediate proximity to the Mokala Mine site.





8.5.4 Description of specific environmental features and infrastructure on the site

The environmental features in the project area are described in section 8.5 above, however the notable environmental feature include:

- The Ga-Mogara drainage channel located on the eastern boundary of the Mokala Mine. The Ga-Mogara drainage channel was realigned. The realigned location is illustrated on Figure 5.
- The game area located to the west of the Mokala Mine, which is owned by Kalagadi Manganese (Pty) Ltd.
- The R380 that current still traverses the Mokala Mine site and the newly constructed (although not yet utilised) realigned R380.

8.5.5 Environment and current land use map

A map illustrating the environmental sensitivities and land use is included in Figure 9 to Figure 11.

8.6 IMPACTS AND RISKS WHICH HAVE INFORMED THE IDENTIFICATION OF EACH ALTERNATIVE

No alternatives were considered for the project, and therefore this section is not applicable. Refer to section 8.1 for more information.

8.7 METHODOLOGY USED IN DETERMINING THE SIGNIFICANCE OF ENVIRONMENTAL IMPACTS

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

TABLE 8-8: SLR IMPACT ASSESSMENT METHODOLOGY

PART A: DEFINITIONS AND CRITERIA*		
Definition of SIGNIFICANCE		Significance = consequence x probability
Definition of CONSEQUENCE		Consequence is a function of intensity, spatial extent and duration
Criteria for ranking of the INTENSITY of environmental impacts	VH	Severe change, disturbance or degradation. Associated with severe consequences. May result in severe illness, injury or death. Targets, limits and thresholds of concern continually exceeded. Substantial intervention will be required. Vigorous/widespread community mobilization against project can be expected. May result in legal action if impact occurs.
	H	Prominent change, disturbance or degradation. Associated with real and substantial consequences. May result in illness or injury. Targets, limits and thresholds of concern regularly exceeded. Will definitely require intervention. Threats of community action. Regular complaints can be expected when the impact takes place.
	M	Moderate change, disturbance or discomfort. Associated with real but not substantial consequences. Targets, limits and thresholds of concern may occasionally be exceeded. Likely to require some intervention. Occasional complaints can be expected.
	L	Minor (Slight) change, disturbance or nuisance. Associated with minor consequences or deterioration. Targets, limits and thresholds of concern rarely exceeded. Require only minor interventions or clean-up actions. Sporadic complaints could be expected.
	VL	Negligible change, disturbance or nuisance. Associated with very minor consequences or deterioration. Targets, limits and thresholds of concern never exceeded. No interventions or clean-up actions required. No complaints anticipated.
	VL+	Negligible change or improvement. Almost no benefits. Change not measurable/will remain in the current range.
	L+	Minor change or improvement. Minor benefits. Change not measurable/will remain in the current range. Few people will experience benefits.
	M+	Moderate change or improvement. Real but not substantial benefits. Will be within or marginally better than the current conditions. Small number of people will experience benefits.
	H+	Prominent change or improvement. Real and substantial benefits. Will be better than current conditions. Many people will experience benefits. General community support.
	VH+	Substantial, large-scale change or improvement. Considerable and widespread benefit. Will be much better than the current conditions. Favourable publicity and/or widespread support expected.
Criteria for ranking the DURATION of impacts	VL	Very short, always less than a year. Quickly reversible
	L	Short-term, occurs for more than 1 but less than 5 years. Reversible over time.
	M	Medium-term, 5 to 10 years.
	H	Long term, between 10 and 20 years (likely to cease at the end of the operational life of activity).
	VH	Very long, permanent, +20 years (Irreversible, Beyond closure).

PART A: DEFINITIONS AND CRITERIA*

Criteria for ranking the EXTENT of impacts	VL	A part of the site/property.
	L	Whole site.
	M	Beyond the site boundary, affecting immediate neighbours.
	H	Local area, extending far beyond site boundary.
	VH	Regional/National

PART B: DETERMINING CONSEQUENCE

INTENSITY = VL

DURATION	Very long	VH	Low	Low	Medium	Medium	High
	Long term	H	Low	Low	Low	Medium	Medium
	Medium term	M	Very Low	Low	Low	Low	Medium
	Short term	L	Very low	Very Low	Low	Low	Low
	Very short	VL	Very low	Very Low	Very Low	Low	Low

INTENSITY = L

DURATION	Very long	VH	Medium	Medium	Medium	High	High
	Long term	H	Low	Medium	Medium	Medium	High
	Medium term	M	Low	Low	Medium	Medium	Medium
	Short term	L	Low	Low	Low	Medium	Medium
	Very short	VL	Very low	Low	Low	Low	Medium

INTENSITY = M

DURATION	Very long	VH	Medium	High	High	High	Very High
	Long term	H	Medium	Medium	Medium	High	High
	Medium term	M	Medium	Medium	Medium	High	High
	Short term	L	Low	Medium	Medium	Medium	High
	Very short	VL	Low	Low	Low	Medium	Medium

INTENSITY = H

DURATION	Very long	VH	High	High	High	Very High	Very High
	Long term	H	Medium	High	High	High	Very High
	Medium term	M	Medium	Medium	High	High	High
	Short term	L	Medium	Medium	Medium	High	High
	Very short	VL	Low	Medium	Medium	Medium	High

INTENSITY = VH

DURATION	Very long	VH	High	High	Very High	Very High	Very High
	Long term	H	High	High	High	Very High	Very High
	Medium term	M	Medium	High	High	High	Very High
	Short term	L	Medium	Medium	High	High	High
	Very short	VL	Low	Medium	Medium	High	High

VL	L	M	H	VH
A part of the site/property	Whole site	Beyond the site, affecting neighbours	Extending far beyond site but localised	Regional/National
EXTENT				

PART C: DETERMINING SIGNIFICANCE

PART A: DEFINITIONS AND CRITERIA*							
PROBABILITY (of exposure to impacts)	Definite/ Continuous	VH	Medium	Medium	High	Very High	Very High
	Probable	H	Low	Medium	Medium	High	Very High
	Possible/ frequent	M	Low	Low	Medium	Medium	High
	Conceivable	L	Very Low	Low	Low	Medium	Medium
	Unlikely/ improbable	VL	Negligible	Very Low	Low	Low	Medium
			VL	L	M	H	VH
CONSEQUENCE							

PART D: INTERPRETATION OF SIGNIFICANCE	
Significance	Decision guideline
Very High	Potential fatal flaw unless mitigated to lower significance.
High	It must have an influence on the decision. Substantial mitigation will be required.
Medium	It should have an influence on the decision. Mitigation will be required.
Low	Unlikely that it will have a real influence on the decision. Limited mitigation is likely required.
Very Low	It will not have an influence on the decision. Does not require any mitigation
Negligible	Inconsequential, not requiring any consideration.

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

8.8 POSITIVE AND NEGATIVE IMPACTS OF THE PROJECT ACTIVITIES AND ALTERNATIVES

Potential biophysical, cultural and social impacts that have been identified during the scoping process are discussed under the various environmental component headings in this section. These discussions should be read with the corresponding descriptions of the baseline environment in Section 8.5.1 of the Scoping Report. In accordance with the DMRE report template this section requires a discussion of the potential impacts taking into consideration any project related alternatives (no alternatives assessed for this project). The potential impacts associated with the project phases (construction, operations, decommissioning and closure) have been identified and described. *In the absence of specialist studies, the assessment conclusions are conservative. It follows that the assessment provided below is a preliminary assessment which will be refined/ amended in the EIA phase with specialist input, as appropriate.* The section below also references studies that are required to provide the necessary additional information to assess the impacts during the EIA phase.

8.8.1 Potential biophysical impacts

8.8.1.1 Issue: Loss of soil and land capability through physical disturbance

PROJECT PHASES IN WHICH IMPACT COULD OCCUR

Construction	Operational	Decommissioning	Closure

* The crosshatch is the phase in which the impact is likely to occur.

DISCUSSION

Topsoil is a resource of high value as it is a non-renewable growth medium containing a gene bank of vegetation seeds and other organisms. Soil resources can be lost through physical disturbance such as removal, erosion and compaction which can result in a loss of soil functionality as an ecological driver.

Activity/infrastructure changes that have already taken place have resulted in the physical disturbance of soil resources.

Proposed activity/infrastructure changes will require the clearing of additional areas. All of these activities have the potential to result in a further loss of soil resources and related land capability through physical destruction. The conservation of topsoil, sound soil management practises and focused use during rehabilitation are critically important in achieving a sustainable post-closure land use.

In the absence of soil conservation and management measures and a rehabilitation plan that supports the post closure land use, the intensity of the potential impact associated with the project is expected to be medium to high. Without mitigation the loss of soil and related land capability would definitely occur and would extend beyond the life of the mine (but would be localised within the project area). When considering all project components collectively the unmitigated significance scenario is expected to be medium to high. This impact significance could be reduced to low to medium with the implementation of mitigation measures focused on minimising impacts during operations and remedying any negative impacts at closure. A rehabilitation plan would need to be implemented to minimise long term impacts post closure.

The additional work required to address this issue is described in Section 9.4 of this Scoping Report.

8.8.1.2 Issue: Loss of soil and land capability through contamination

PROJECT PHASES IN WHICH IMPACT COULD OCCUR

Construction	Operational	Decommissioning	Closure

DISCUSSION

Soil is a valuable resource that supports a variety of ecological functions. Mining projects in general have the potential to damage soil resources through contamination. A loss of soil resources would result in a decrease in the natural rehabilitation and future land use potential of any land. The project includes a number of likely contamination sources in all phases that have the potential to contaminate soil resources. Contaminants could include accidental spills of hydrocarbons, dirty stormwater and hazardous wastes, silt from exposed surfaces and run-off from WRDs and product/ ROM stockpiles. The activity/infrastructure changes that have already taken place present numerous contamination sources. The proposed activity/infrastructure will present additional sources of contamination, albeit these do not differ from current on-site sources.

In the absence of pollution containment and spill management measures the intensity of the potential impact is expected to be medium. Without mitigation the loss of soil and related land capability through contamination would definitely occur and could remain long after closure. The unmitigated significance scenario is expected to be medium. In the mitigated scenario that focuses on avoiding impacts through containment of potential contamination at source and implementation of spill management procedures, the significance could be reduced to low.

The additional work required to address this issue is described in Section 9.4 of this Scoping Report.

8.8.1.3 Issue: Physical destruction of biodiversity

PROJECT PHASES IN WHICH IMPACT COULD OCCUR

Construction	Operational	Decommissioning	Closure

DISCUSSION

The placement of mining infrastructure and activities in all phases has the potential to destroy biodiversity through the physical destruction of specific biodiversity areas, linkages between biodiversity areas and related species which are considered to be significant because of their status, and/or the role that they play in the ecosystem.

The project activity/infrastructure changes that have already taken place have contributed to the loss of biodiversity. The clearance of vegetation for the proposed activity/infrastructure would impact on additional vegetation and fauna (albeit limited). Various protected species have been recorded, in the Kathu Bushveld habitat unit and are found on the site, these include the *Vachellia erioloba* (Camel Thorn) and the *Vachellia haematoxylon* (Grey Camel Thorn).

In the absence of mitigation and a rehabilitation plan that supports the post closure land use, the intensity of potential impacts is expected to be medium to high. Given that biodiversity processes are not confined to the project area, the potential impact is likely to extend beyond the Mokala Mine project area boundary. Without mitigation the loss of biodiversity is definite and would extend beyond the life of the mine and therefore has a high significance. This impact significance could be slightly reduced with the implementation of mitigation measures focused on minimising impacts during operations and remedying any negative impacts at closure.

The additional work required to address this issue is described in Section 9.4 of this Scoping Report.

8.8.1.4 Issue: General disturbance of biodiversity

PROJECT PHASES IN WHICH IMPACT COULD OCCUR

Construction	Operational	Decommissioning	Closure

DISCUSSION

All project activities/infrastructure that have either already taken place or are proposed have the potential to directly disturb vegetation, vertebrates and invertebrates in all project phases. Potential disturbances may include:

- wildlife from the western section of the project area would need to be relocated;
- people may hunt/ gather various types of species for food, for sport, for firewood etc.
- people may illegally collect and remove vegetation, vertebrate and invertebrate species;
- excessive dust fallout from various dust sources may have adverse effects on the growth of some vegetation, and it may cause varying degrees of stress on the teeth of vertebrates that graze soiled vegetation
- erection of fences can impact on general feeding/ migration patterns
- noise and vibration pollution (from mining operations, vehicle movement and materials handling) may scare off vertebrates and invertebrates. In some instances, the animals may be deterred from passing close to noisy activities which can effectively block some of their migration paths. In other instances, vertebrates and invertebrates that rely on vibration and noise senses to locate for, and hunt, prey may be forced to leave the vicinity.
- an increased presence of vehicles in the area can result in road kills, especially if drivers speed;
- the presence of water containment facilities may lead to drowning of fauna; and
- an increase in pollution emissions and general litter may indirectly impact on the survival of individual plants, vertebrates and invertebrates.

In the absence of mitigation focussed on preventing or reducing the impact to acceptable levels, the intensity of the potential impact is expected to be medium, would definitely occur and could extend beyond the life of the mine. Therefore, in the unmitigated scenario, the significance of this potential impact is assumed to be medium. In the mitigated scenario, the significance can be reduced with a reduction in the probability of the impact.

The additional work required to address this issue is described in Section 9.4 of this Scoping Report.

8.8.1.5 Issue: Contamination of surface water resources affecting third party use

PROJECT PHASES IN WHICH IMPACT COULD OCCUR

Construction	Operational	Decommissioning	Closure

DISCUSSION

During all phases of the project potential contaminant sources exist. Runoff from exposed areas (i.e. stripped areas, ROM Low grade, ROM high grade, product stockpiles, WRDs, topsoil stockpiles, vehicle and fuel storage areas) could result in the transport of sediments and contaminants. Accidental spills of hydrocarbons, dirty stormwater and hazardous wastes could release contaminants that could reduce water quality.

The nearest watercourse to the Mokala Mine is the ephemeral Ga-Mogara River located on the eastern boundary of the Mokala Mine. Any natural runoff from the mine will drain in an easterly direction towards the Ga-Mogara drainage channel.

Due to the proximity of the open pit, haul roads and processing plant to the Ga-Mogara drainage channel, contaminants could reach surface water resources. It should however be noted that the Ga-Mogara drainage channel is non-perennial with long periods of no flow. There is a limited possibility that third parties and/or livestock use this contaminated water for drinking purposes as there is no third-party reliance of the Ga-Mogara drainage channel. In an unmitigated scenario the duration of any contamination is likely to be long term and would extend beyond the mine site which is a high intensity. The significance of project activities contributing to the contamination of surface water resources is therefore high. With mitigation the significance could be reduced to low as the probability of occurrence reduces.

The additional work required to verify the above is described in Section 9.4 of this Scoping Report.

8.8.1.6 Issue: Alteration of natural drainage patterns

PROJECT PHASES IN WHICH IMPACT COULD OCCUR

Construction	Operational	Decommissioning	Closure

DISCUSSION

Natural drainage across the Mokala Mine site is via sheet flow. The project infrastructure already established, and the proposed new infrastructure has the potential to alter drainage patterns by reducing the volume of run-off into the downstream catchment. The implementation of formal stormwater management infrastructure is required to meet the South African regulations requirements and would further reduce natural runoff to the environment.

In the absence of mitigation, the intensity is expected to be very low due to the high evaporation rates and low rainfall with the additional loss of run-off to the catchment expected to be negligible other than during storm events. The duration of any loss of runoff to the catchment would extend post-closure in the absence of rehabilitation. The probability of substantial runoff reduction to downstream systems in the unmitigated case is considered to be unlikely. The unmitigated significance of this impact is therefore expected to be low. Where the project plan considers the findings of specialist studies, applies the necessary mitigation to avoid, minimise or remedy impacts in line with the mitigation hierarchy and operates under a water use license, the significance of potential impacts can be further reduced.

The additional work required to address this issue is described in Section 9.4 of this Scoping Report.

8.8.1.7 Issue: Contamination of groundwater affecting third party use

PROJECT PHASES IN WHICH IMPACT COULD OCCUR

Construction	Operational	Decommissioning	Closure

DISCUSSION

There is the potential for groundwater contamination where contaminants can be connected to underlying aquifers. Certain project components have the potential to contaminate groundwater resources if materials are not adequately stored, handled and disposed of. Approved infrastructure particularly the WRD, ROM stockpiles

and product stockpiles constitute the main sources of groundwater contamination sources. The addition and expansion of WRDs and an increase in the capacity of the ROM low grade and high grade stockpiles could increase the source load. The proposed implementation of stormwater management infrastructure and containment of contaminated stormwater should reduce risks to groundwater through the containment of dirty water. As groundwater in the region is an important resource for domestic use the risk is heightened where external groundwater users are exposed to these contaminants.

In the absence of mitigation, the intensity could be expected to be high. Potential impacts could extend beyond the site boundary and beyond closure if contaminated groundwater resources are used by third party users for an extended period of time. Without mitigation the impact is conceivable, and the related significance is therefore expected to be medium. Where the project applies the necessary identified mitigation measures to avoid, minimise or remedy impacts in line with the mitigation hierarchy and operates under a water use license, the significance of potential impacts can be reduced.

The additional work required to address this issue is described in Section 9.4 of this Scoping Report.

8.8.1.8 Issue: Reduced groundwater availability due to dewatering

PROJECT PHASES IN WHICH IMPACT COULD OCCUR

Construction	Operational	Decommissioning	Closure
Not applicable		Not applicable	Not applicable

DISCUSSION

The approved open pit already presents the potential for a lowering of groundwater levels through dewatering. The dewatering associated with the proposed expansion of the open pit has the potential to increase the drawdown cone of depression due to an increase in dewatering volumes. Should groundwater users experience a reduction or loss in water supply the intensity of this dewatering would be considered high. The duration of the impact is linked to the duration of the activity which is expected to be for the remaining life of mine with the reduction of groundwater levels extending beyond the site boundary. Using a conservative approach in the absence of modelling, the probability of a reduction in groundwater levels to third party users is probable and as such the significance of the unmitigated scenario is high. The significance can be reduced to medium with implementation of mitigation measures.

The additional work required to address this issue is described in Section 9.4 of this Scoping Report.

8.8.1.9 Issue: Decrease in ambient air quality

PROJECT PHASES IN WHICH IMPACT COULD OCCUR

Construction	Operational	Decommissioning	Closure

DISCUSSION

The approved activities/infrastructure present emission sources that can have a negative impact on ambient air quality and surrounding land uses in all project phases. The proposed increased storage facilities (WRDs, ROM low grade and high grade stockpiles and topsoil stockpiles) could result in an increase in particulate emissions. Some of the materials are particularly fine, thereby having a higher risk of potential health impacts to third party receptors if airborne. Other emission sources associated with the proposed activities/infrastructure include additional land clearing for construction activities, wind erosion of these disturbed areas, vehicle movement

along unpaved roads and exhaust emissions. The main contaminants of concern, as a result of the project, include particulate matter (PM) and dust.

The closest potentially sensitive residential receptor is the town of Hotazel 4 km to the south east, the Gloria Mine village located approximately 1.3 km north and the planned Hotazel residential area extension onto the farms Hotazel 280 and Kipling 281 in a westerly and northerly direction respectively.

In the absence of mitigation measures that focus on the control of emissions at source and a rehabilitation plan that allows for stabilising and vegetating surfaces, the intensity is expected to be medium for all project components. Where third parties are exposed to project-related emissions, without mitigation, there could be related health and nuisance impacts. Air pollution impacts would extend beyond the site boundary with the potential to continue until all activities on site cease and rehabilitation is complete. Without mitigation the impact is possible, and the significance is therefore determined to be medium. With mitigation that focuses on controlling emissions sources, the significance could be reduced to low as the intensity, duration, extent and probability would reduce.

The additional work required to address this issue is described in Section 9.4 of this Scoping Report.

8.8.1.10 Issue: Increase in disturbing noise levels

PROJECT PHASES IN WHICH IMPACT COULD OCCUR

Construction	Operational	Decommissioning	Closure
			Not applicable

DISCUSSION

Mining projects in general have the potential to contribute to an increase in ambient noise levels during all phases prior to closure. For this project current ambient noise levels would be related to mining activities at Mokala Mine (and neighbouring mines), handling and processing of mineral resources, traffic on mine roads and the R380 and train noise. Project-related noise sources would include the movement of machinery and equipment as part of land clearing activities and construction, mining activities primarily be associated with the mining of the open pit, dumping and hauling of ROM and waste rock. The proposed activity/infrastructure present additional noise sources.

The closest potentially sensitive residential receptor is the town of Hotazel 4 km to the south east, the Gloria Mine village located approximately 1.3 km north and the planned Hotazel residential area extension onto the farms Hotazel 280 and Kipling 281 in a westerly and northerly direction respectively.

The impact of an intruding mining noise on the environment rarely extends over more than 5 km from the source. In the absence of mitigation measures that consider potential receptor sites in relation to project activities the intensity is expected to be medium due to the distance of receptors from the Mokala Mine. Noise pollution impacts would extend beyond the site boundary and would occur until decommissioning is complete. The likelihood of the impact occurring as a result of the project, in the unmitigated scenario, is possible and the related significance would therefore be medium. With mitigation that focuses on minimising impacts through the application of noise control measures, the significance could be reduced to low.

The additional work required to address this issue is described in Section 9.4 of this Scoping Report.

8.8.2 Potential cultural impacts

8.8.2.1 Issue: Loss of or damage to heritage and/or paleontological resources

PROJECT PHASES IN WHICH IMPACT COULD OCCUR

Construction	Operational	Decommissioning	Closure

DISCUSSION

The placement of infrastructure and mining activities in general, in all phases, have the potential to remove, damage or destroy heritage/cultural and palaeontological resources, either directly or indirectly, and result in the loss of the resource for future generations. Based on specialist work undertaken as part of the 2015 EIA and EMPr (SLR, 2015) as outlined in Section 8.5.2.1, it is unlikely that any heritage and palaeontological resources of high importance are associated with the proposed project components.

Even though it is unlikely that any loss of or damage to any of these resources would occur this has been preliminarily assessed as a precautionary approach. The intensity in the unmitigated scenario is considered to be low. The loss of resources would be limited to the footprint of operational activities but would be felt beyond the life of mine. The overall significance without mitigation is considered to be medium. With mitigation the significance can be reduced.

The additional work required to confirm the above is described in Section 9.4 of this Scoping Report.

8.8.3 Potential socio-economic impacts

8.8.3.1 Issue: Disturbance to third party road users by project related traffic

PROJECT PHASES IN WHICH IMPACT COULD OCCUR

Construction	Operational	Decommissioning	Closure
			Not applicable

DISCUSSION

The key potential traffic related impacts would be road capacity and public safety should additional traffic volumes result as a consequence of the project.

During the construction and decommissioning phases of the project there could be a slight increase in traffic, for example delivery of construction materials and contractors to the site. Generally, however the bulk of the project components have few requirements for external materials or labour. The volumes, frequency and duration of construction and decommissioning traffic is likely to be immaterial to the current baseline and any impact would be negligible.

During operations there is not expected to be any change to the current approved traffic volumes.

As there are only very minor changes to the current traffic levels the intensity is assumed to be very low, and of very short duration. Although the impact could occur beyond the site boundaries the probability is unlikely and as such the impact significance is considered to be insignificant.

As no substantial traffic related impacts are anticipated, a qualitative assessment will be undertaken as per Section 9.4.

8.8.3.2 Issue: Alteration of the visual environment affecting sense of place

PROJECT PHASES IN WHICH IMPACT COULD OCCUR

Construction	Operational	Decommissioning	Closure

DISCUSSION

Mining related activities and infrastructure have the potential to alter the visual environment and aesthetics of an area. Visual/aesthetic value is the emotional response derived from the experience of the environment with its natural attributes.

The activity/infrastructure changes that have already taken place have altered the visual character of the Mokala mine site. The establishment of certain proposed infrastructure has the potential to result in additional structures that have the potential to contribute to negative visual views. These include the new and extended WRDs, ROM low grade and high grade stockpiles and topsoil stockpiles. These structures would have a physical presence with the potential to contribute to a change in the character of the existing landscape. However, within the context of existing mining activities at the Mokala Mine, neighbouring mines and industries along the R380, the proposed infrastructure would not contrast strongly with existing activities or facilities. Other project components are expected to blend in with the existing mining activities and operations. The most prominent public views of the Mokala Mine are from the R380. The users of this roads are, however, likely to be sensitised to mining developments in this area. Other than for local road users, the visual exposure to the project would generally be from more distant views.

In the absence of mitigation measures that provide for rehabilitation, the intensity in the unmitigated scenario is expected to be low. Potential impacts would extend beyond the project area boundary to the visual receptors and would continue post-closure. The significance in the unmitigated scenario is expected to be medium. In the mitigated scenario the significance is expected to remain mediums, however at closure, when rehabilitation is completed in a manner that supports the post-closure land use, the significance could be reduced to low.

As no substantial impacts are anticipated a qualitative assessment will be undertaken as per Section 9.4 of this Scoping Report.

8.8.3.3 Issue: Positive socio-economic impact (economic impact)

PROJECT PHASES IN WHICH IMPACT COULD OCCUR

Construction	Operational	Decommissioning	Closure

DISCUSSION

Mining projects have the potential to have positive socio-economic impacts in all phases, which may benefit local, regional and national economies. The project changes will not result in the generation of additional job opportunities. The project as a whole will support and enable continuation of current operations at the Mokala Mine, which will in turn sustain economic and social development. This ensures continued contribution to the SA economy. As such, the direct increase in economic benefits due to the proposed project would be negligible.

The unmitigated enhanced intensity is likely to be very low and would occur over the short term having an impact on the local area. The probability is conceivable. The overall unmitigated enhanced significance is therefore very low. With the implementation of enhancement measures the significance could increase to low.

As no substantial socio-economic impacts are anticipated, a qualitative assessment is included in Section 9.4.

8.8.3.4 Issue: Negative socio-economic impact (inward migration)

PROJECT PHASES IN WHICH IMPACT COULD OCCUR

Construction	Operational	Decommissioning	Closure
			Not applicable

DISCUSSION

Mining projects tend to bring with them an expectation of employment. This expectation can lead to:

- an influx of people into the area in search of work, leading to informal settlements and associated problems of crime, disease, and social disruption;
- increased pressure on housing and related services (water, power, sanitation);
- reduced quality of life for surrounding landowners and land users influencing health and safety (noise, dust pollution, lowering of groundwater levels); and
- possible reduced property values.

Given the nature of mining projects, there is always the potential for the impact to occur. The intensity is likely to be low and could continue for the life of the mine. The overall unmitigated significance is considered to be low. With mitigation the significance could be further reduced.

As no substantial socio-economic impacts are anticipated, a qualitative assessment is included in Section 9.4.

8.8.3.5 Issue: Hazardous excavations and infrastructure that pose a safety risk to third parties and animals

PROJECT PHASES IN WHICH IMPACT COULD OCCUR

Construction	Operational	Decommissioning	Closure

DISCUSSION

The existing mining related activities and infrastructure has altered the natural topography and in turn creates the potential risk of injury and/or death to both third parties (people) and animals (livestock and wild animals). The activities/infrastructure changes that have taken place do not pose a change to this potential impact as the potential risk types have not changed and have only been reconfigured or relocated within the project area. The proposed activities/infrastructure will further alter the natural topography and will therefore present additional hazardous excavations and infrastructure that can pose a safety risk, albeit these will not differ from current on-site activities and infrastructure.

In the unmitigated scenario the intensity is considered to be high. The duration of the impact would be long term as death or permanent injury is a permanent impact which would extend beyond the mine boundary to the communities to which the injured people and/or animals belong. In the unmitigated scenario, without design and management interventions the impact is expected to be probably. With mitigation that focusses on infrastructure safety design and implementation as well as on limiting access to third parties and animals the probability of the impact occurring reduces. In the unmitigated scenario the significance is high and can be reduced to low with mitigation.

As no substantial changes to the impact are anticipated, a qualitative assessment will be undertaken as per Section 9.3.

8.8.3.6 Issue: Sterilisation of a mineral resource

PROJECT PHASES IN WHICH IMPACT COULD OCCUR

Construction	Operational	Decommissioning	Closure

DISCUSSION

Mineral resources can be sterilized and/or lost through the deposition of minerals onto waste disposal facilities such as the approved WRD and associated extension including the proposed additional WRD.

The intensity of sterilising mineral resources is considered to be high because of the associated potential economic value that is lost when sterilisation occurs. If sterilisation of a resources occurs it is likely that the related impact would extend beyond the life of mine and extend beyond the site boundary if one considers the economic nature of the impact.

Without mitigation the probability is definite, and the associated significance is very high. In the mitigated scenario, with planning and co-ordination to prevent the unacceptable sterilisation of resources the impact can be reduced.

This impact will be assessed qualitatively as per Section 9.3.

8.8.3.7 Issue: Change in current land use

PROJECT PHASES IN WHICH IMPACT COULD OCCUR

Construction	Operational	Decommissioning	Closure

DISCUSSION

Mining related activities and infrastructure have the potential to influence on-site and surrounding land uses. These land uses can be affected by hazardous excavations or infrastructure, land clearing, groundwater deterioration and lowering of availability, dust generation, noise pollution, traffic related safety impacts and the generation of negative visual views. Activities and infrastructure that have currently taken place have been limited to the eastern section of the mine site. With the proposed establishment of the new WRD, this will displace the Kalagadi game farming activities located to the west of the site. It is however important to note that the surface rights belong to Mokala. The project also has the potential impact surrounding land uses. The closest potentially sensitive residential receptor is the town of Hotazel 4 km to the south east, the Gloria Mine village located approximately 1.3 km north and the planned Hotazel residential area extension onto the farms Hotazel 280 and Kipling 281 in a westerly and northerly direction respectively.

Without mitigation, a change in land use has a high intensity and will extend beyond the mine site. In the unmitigated scenario, where environmental and social impacts are uncontrolled, the probability that land uses will be impacted is definite. With mitigation, the probability of the impact occurring reduces. The unmitigated significance is high. With mitigation this reduces to medium prior to closure and to low post closure.

The additional work required to address these issues will be assessed as part of qualitative assessment (Section 9.3) or through the individual specialist studies as described in Section 9.4 of this Scoping Report.

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

A preliminary list of the impacts identified by the EAP, as well as the possible management and mitigation measures is provided in Table 8-9. The level of residual risk after management or mitigation is also estimated. This will be refined during the EIA phase with specialist input as appropriate.

TABLE 8-9: POSSIBLE MANAGEMENT ACTIONS AND THE ANTICIPATED LEVEL OF RISK

Activity	Potential impact	Potential mitigation type	Potential for residual risk
Layout/activity changes that have already taken place			
Reconfiguration of the plant area	<ul style="list-style-type: none"> Loss of soil resources through physical disturbance Loss of soil resources through contamination 	<ul style="list-style-type: none"> Continued implementation of soil conservation management plan and waste management plan 	Unlikely
Reconfigured ROM and high-grade product stockpiles	<ul style="list-style-type: none"> Physical destruction of biodiversity Contamination of surface water resources affecting third party use 	<ul style="list-style-type: none"> Continued implementation of biodiversity controls and management plan Continued use of stormwater controls and/or implementation of new controls 	Unlikely
Relocation of the low-grade stockpile	<ul style="list-style-type: none"> Alteration of natural drainage patterns affecting flow of water to downstream systems 	<ul style="list-style-type: none"> Continued use of groundwater controls and groundwater monitoring 	Unlikely
Relocation of support infrastructure	<ul style="list-style-type: none"> Contamination of groundwater affecting third party use Reduced ambient air quality 	<ul style="list-style-type: none"> Continued implementation of air emission controls and monitoring 	Unlikely
Relocation of transportation related facilities/infrastructure (internal haul road, weighbridges, parking areas, truck loading and staging facility)	<ul style="list-style-type: none"> Increase in disturbing noise levels affecting potential human receptors Alteration of the visual environment Loss of or damage to heritage and/or paleontological resources Change in land use affecting sense of place 	<ul style="list-style-type: none"> Continued implementation of noise controls Continued implementation of visual controls Implement chance find procedure Continued implementation of procurement and employment policies and procedures Continued use of access controls 	Unlikely
Relocation of approved WRD	<ul style="list-style-type: none"> Positive socio-economic impact (economic impact) Negative socio-economic impact (inward migration) Hazardous excavations and infrastructure that pose a safety risk to third parties and animals 	<ul style="list-style-type: none"> Closure planning to incorporate rehabilitation objectives Implementation of an emergency response procedures when required 	Possible for waste rock dumps that remain in perpetuity.
Relocation of approved topsoil stockpiles	<ul style="list-style-type: none"> Change in land use. 	<ul style="list-style-type: none"> Implementation of a grievance procedure 	Unlikely
Proposed layout/activity changes			

Activity	Potential impact	Potential mitigation type	Potential for residual risk
Expansion of existing WRD	<ul style="list-style-type: none"> Loss of soil resources through physical disturbance Loss of soil resources through contamination Physical destruction of biodiversity Contamination of surface water resources affecting third party use Alteration of natural drainage patterns affecting flow of water to downstream systems Contamination of groundwater affecting third party use Reduced ambient air quality Increase in disturbing noise levels affecting potential human receptors Alteration of the visual environment Loss of or damage to heritage and/or paleontological resources Change in land use affecting sense of place Positive socio-economic impact (economic impact) Negative socio-economic impact (inward migration) Hazardous excavations and infrastructure that pose a safety risk to third parties and animals Change in land use. 	<ul style="list-style-type: none"> Implementation of soil conservation management plan and waste management plan Implement biodiversity controls, management plan and monitoring Appropriate design and development of stormwater controls Appropriate design and development of groundwater controls and groundwater monitoring Continue implementing traffic safety programme Implement air emission controls and monitoring Implement noise controls Implement visual controls Avoidance of heritage resources Continued implementation of procurement and employment policies and procedures Closure planning to incorporate rehabilitation objectives Access control Implementation of an emergency response procedure when required Implementation of a grievance procedure 	Possible for waste rock dumps that remain in perpetuity.
New WRD			Unlikely provided backfilling is undertaken, and the area is rehabilitated.
Expansion of the open pit			Unlikely
New ROM stockpiles			Unlikely
Establishment of additional topsoil stockpiles			Unlikely
Relocation of stormwater management infrastructure			Unlikely
Increase in the capacity of product stockpiles			Unlikely
Mining of the barrier pillar between the Kalagadi Mine and Mokala Mine.			Unlikely provided backfilling is undertaken, and the area is rehabilitated.

8.10 OUTCOME OF THE SITE SELECTION MATRIX

This section is not applicable as no alternatives could be considered for the project. Refer to 8.1 for more information.

8.11 MOTIVATION WHERE NO ALTERNATIVE SITES WERE CONSIDERED

Section 8.1 provides motivation as to why no alternative sites are being considered.

8.12 THE PREFERRED ALTERNATIVE

No alternatives could be considered for the project. Refer to section 8.1 for more information regarding the motivation for no alternative considered. It follows that the preferred alternative applies to the project description detailed in section 4.1, section **Error! Reference source not found.** and section 4.3 .

9 PLAN OF STUDY FOR THE ENVIRONMENTAL IMPACT ASSESSMENT

This section describes the nature and extent of further investigations to be conducted by SLR in the EIA phase and sets out the proposed approach to the EIA phase.

9.1 EIA OBJECTIVES

The main objectives of the EIA phase will be to:

- assess the potential biophysical, cultural and socio-economic impacts of the project;
- liaise with I&APs, including relevant government departments on issues relating to the project to ensure compliance with existing guidelines and regulations;
- identify and describe procedures and measures that will mitigate potential negative impacts and enhance potential positive impacts;
- undertake consultation with I&APs and provide them with an opportunity to review and comment on the outcomes of the EIA process and acceptability of mitigation measures;
- develop an EMP and a conceptual rehabilitation plan; and
- provide measures for ongoing monitoring (including environmental audits) to ensure that the project plan and proposed mitigation measures are implemented as outlined in the detailed EIA.

9.2 ALTERNATIVES TO BE CONSIDERED

No alternatives are being considered for the project. Refer to section 8.1 for more information.

9.3 ASPECTS TO BE ASSESSED QUALITATIVELY

This section lists the environmental aspects that will be considered and qualitatively assessed by SLR in the EIA phase. These are as follows:

- Geology;
- Topography;
- Climate;
- Traffic;
- Noise (The DEFF screening tool indicates that a compliance statement is required by a noise specialist, which will be assessed qualitatively by a noise specialist);
- Social;
- Visual; and
- Land use.

The assessment of these aspects, and the determination of detailed management and mitigation measures will be undertaken by SLR and provided in the EIA report.

9.4 ASPECTS TO BE ASSESSED BY SPECIALISTS

SLR has identified specific specialist studies to support the EIA process. The specialists were chosen on the basis of SLR's knowledge of mining related projects and through the results of the Department of Environment, Forestry and Fisheries (DEFF) screening tool (see Section 11). Each specialist study will undertake the following steps:

- define the baseline environment through review of available information from past studies and additional field studies, where required;

- define relevant laws and regulations that apply to the specific specialist study;
- identify specific issues of concern through an understanding of the project and the sensitivity of the affected environment as well as review of all issues raised by I&APs;
- interact with other specialists, where required, to ensure the integration of issues of concern and appropriate assessment;
- assess the direct, indirect, and cumulative impacts;
- provide mitigation measures to reduce impacts to an acceptable level i.e. residual impact. Where necessary provide recommendations to address residual impacts i.e. biodiversity offsets; and
- where required, provide detailed monitoring plans.

The aspects to be assessed by the various specialists are included in Table 9-1 below.

All specialist studies will be aligned with Appendix 6 (content of specialist studies) of NEMA EIA Regulations (GNR 982 of 2014, as amended) or the DEFF protocols (refer to Section 11), whichever is relevant.

TABLE 9-1: PLAN OF STUDY FOR ASPECTS TO BE ASSESSED BY SPECIALISTS

Specialist Study		Plan of Study
Biophysical environment	Soil, Land Use, Land Capability and Land Potential Study	<p>The Soils, Land and Land Capability Study and will include the following:</p> <ul style="list-style-type: none"> • results of a desktop review of existing soil and land capability databases, to establish broad baseline conditions and to identify areas of environmental sensitivity and sensitive agricultural areas; • results of a field survey where soil samples will be collected within the project area and to classify the dominant soil types according to the South African Soil Classification System (Soil Classification Working Group, 2018); • illustrations of the spatial distribution of various soil types and land capability within the project area based on the results of the desktop review and the field survey; • an identification and assessment of potential impacts on the receiving environment as a result of the project activities; and • mitigation measures identified to manage the potential impacts.
	Biodiversity – Terrestrial Study	<p>The Terrestrial Study will include the following:</p> <ul style="list-style-type: none"> • results of a desktop review against all relevant biodiversity databases. This desktop review will: <ul style="list-style-type: none"> ○ provide faunal and floral inventories of species as encountered on site; ○ determine and describe habitats, communities and ecological state of the project area based on conservation importance and ecological sensitivity; ○ identify the likelihood of Red Data Listed (RDL) species as well as Species of Conservation Concern (SCC) to occur within the project area; and ○ identify and consider all sensitive landscapes and any other ecologically important features, if present. • results of a field survey that documents the floral and faunal species observed; • illustrations of the spatial distribution of various habitat types and ecological sensitivity within the project area based on the results of the desktop review and the field survey; • an identification and assessment of potential impacts on the receiving environment as a result of the project activities; and • mitigation measures and monitoring programme identified to manage the potential impacts.

Specialist Study		Plan of Study
	Biodiversity – Freshwater Ecological Study (Riparian and riverine zones)	<p>The Freshwater Ecological Study will provide a site verification and expert opinion on aquatic resources associated with the project area, which will include a wetland and risk assessment. The study will also provide additional mitigation requirements.</p> <p>The Freshwater Ecological Study will also support the IWUL application and will include the preparation of:</p> <ul style="list-style-type: none"> • watercourse stability planning (this is a new requirement from the DHSWS which is particularly to understand the risks associated with geomorphological stability given the realignment of the Ga-Magara drainage channel); • update of the Landscaping and plant species plan; and • update of the Rehabilitation and maintenance plan.
	Surface Water Study	<p>The Surface Water Study will include the following:</p> <ul style="list-style-type: none"> • results of a baseline and situational analysis that will provide information pertaining to: <ul style="list-style-type: none"> ○ rainfall, evaporation data and design storm intensities; ○ the baseline hydrology of the site; and ○ results of topographical conditions. • a conceptual stormwater management plan, including: <ul style="list-style-type: none"> ○ clean and dirty water classification, catchment delineation and stormwater routing; ○ hydraulic calculations through peak flow estimation for conveyance infrastructure and storage infrastructure; and ○ conceptual stormwater management plan. • a Dynamic Water Balance through a daily time step water balance model for the major water components of the mine; • an identification and assessment of potential impacts on the receiving environment as a result of the project activities; and • mitigation measures and monitoring programme identified to manage the potential impacts.
	Groundwater Study	<p>The Groundwater Study will include the following:</p> <ul style="list-style-type: none"> • results of a baseline and situational analysis of all hydrogeological data. • updated hydrosensus to determine: <ul style="list-style-type: none"> ○ GPS co-ordinates and elevation of existing boreholes, hand-dug wells and springs; ○ water levels of the boreholes, where accessible; ○ water strikes, where available; and ○ any other information regarding the water reliability or quality. • A conceptual and numerical groundwater flow and transport model update. The main objective will be the updating of the existing steady state and transient model for the Mokala Mine that can be used for scenario modelling such as: <ul style="list-style-type: none"> ○ groundwater inflow rate into open pit ○ groundwater dewatering and impact on groundwater levels (incl. surrounding receptors) ○ groundwater contamination risk posed by WRD. Consideration will also be given to the presence of the dyke located within the new WRD. ○ post-closure groundwater scenarios – groundwater level rebound and post-closure contaminant migration • development of a groundwater impact assessment and water management plan. • an identification and assessment of potential impacts on the receiving environment as a result of the project activities; and • mitigation measures and monitoring programme identified to manage the potential impacts.

Specialist Study		Plan of Study
Biophysical environment	Air Quality Study	<p>The Air Quality Study will include the following:</p> <ul style="list-style-type: none"> • results of a baseline and situational analysis through the review of available literature, meteorological; • update of Emissions Inventory data and monitoring data; • update of dispersion potential based on new meteorological data; • update of dispersion model and remodelling; • an identification and assessment of potential impacts, on the receiving environment and sensitive receptors as a result of the project activities; and • mitigation measures and monitoring programme identified to manage the potential impacts.
	Noise Study	<p>The Noise Study will include the following:</p> <ul style="list-style-type: none"> • results of a baseline and situational analysis through the review of available literature; • an identification and qualitative assessment of potential impacts, on the receiving environment and sensitive receptors as a result of the project activities; and • mitigation measures and monitoring programme identified to manage the potential impacts.
Cultural environment	Heritage Study	<p>The Heritage Study will include the following:</p> <ul style="list-style-type: none"> • results of a baseline and situational analysis through the review of available literature and field survey; • an identification and assessment of potential impacts, on heritage resources (if present) as a result of the project activities; and • mitigation measures identified to manage the potential impacts.
	Palaeontology Desktop Study	<p>The Palaeontological Desktop Study will include the results of a baseline and situational analysis through the review of available literature and databases. As per new requirements by SAHRA the provision of a fossil find procedure will be included.</p>
Rehabilitation	Financial Provision	<p>The Financial Provision Study will provide the closure liabilities estimate for the project in according to the requirements of GNR 1147. The study includes the following:</p> <ul style="list-style-type: none"> • an updated closure plan which will include: <ul style="list-style-type: none"> ○ the closure strategy, closure objectives and mechanisms, design principals and motivations for achieving the closure objective; ○ an environmental risk assessment; ○ an assessment of any long-term latent impacts and mitigation strategies (to be informed by specialist input); and ○ the planned closure monitoring, auditing and reporting procedures. • updated quantities and cost estimate associated with the closure activities as per the Financial Provisioning Regulations (GNR. 1147 of 2015) as amended; and • an updated preliminary annual rehabilitation plan.

9.5 METHOD OF ASSESSING THE ENVIRONMENTAL ASPECTS INCLUDING ALTERNATIVES

Refer to sections 8.7 and 9.4 for the method of assessing the environmental aspects.

9.6 METHOD OF ASSESSING IMPACT SIGNIFICANCE

Refer to Section 8.7 for the method of assessing impact significance.

9.7 CONSULTATION WITH THE COMPETENT AUTHORITY

The EIA and EMP, including comments received during the I&AP review process, will be prepared and submitted to the DMRE for their review and decision making.

9.8 PUBLIC PARTICIPATION PROCESS IN THE EIA PHASE

9.8.1 Notification of interested and affected parties

All registered I&APs included on the project database will be involved in the EIA process of the project. Notifications will be in the form of emails and bulk SMS notifications. The relevant I&APs identified for the project are listed below:

- Competent authority:
 - DMRE
- Commenting authorities:
 - Department of Human Settlement, Water and Sanitation;
 - Department of Environment and Conservation;
 - South African Heritage Resource Agency;
 - Department of Agriculture and Land Affairs ;
 - Department of Agriculture, Forestry and Fisheries;
 - The Northern Cape Department of Rural Development and Land Reform ;
 - Department of Public Works, Roads and Transport;
 - John Taolo Gaetseane District Municipality;
 - Joe Morolong Local Municipality; and
 - Ward councillor.
- Parastatals:
 - Telkom;
 - Transnet; and
 - Eskom.
- Non-government organisation
 - Kalagadi Water User Forum.
- Others:
 - Landowners and land users; and
 - Surrounding mines and industries.

9.8.2 Details of the public participation process to be followed

The table below outlines the details of the public participation process that will be followed during the EIA phase of the project.

TABLE 9-2: DETAILS OF THE PUBLIC PARTICIPATION PROCESS TO BE FOLLOWED DURING THE EIA PHASE

Task	Description
Scoping Report DMRE decision	
Notification of DMRE decision of the Scoping Report	All I&APs will be notified via email and SMS notifications of the DMRE's decision of the Scoping Report. Once the Scoping Report is accepted, the EIA phase can be initiated.
Review of the EIA and EMPr	
I&APs review of the EIA and EMPr	The EIA and EMPr will be made available for review and comment for 30 days. A NTS of the EIA and EMPr (English, Afrikaans and Setswana) will be made available to all I&APs registered on the I&AP database via email and post. In addition to this electronic copies will be made available on the SLR website (at https://slrconsulting.com/za/slr-documents/) and the data-free website (at slrpublicdocs.datafree.com). Emails and text messages containing a link to the SLR website and SLR data-free website, will also sent to all I&APs registered on the project database. A NTS of the EIA and EMPr, available in English, Afrikaans, and Setswana, will also be made available to all I&APs via email.
Following review of the EIA and EMPr	The EIA and EMPr will be updated to include all comments received during the review and commenting period. This updated report will be made available to the DMRE for decision making purposes.
Notify I&APs of the DMRE's decision.	Notify I&APs of the decision taken by DMR and applicable appeals processes.

9.8.3 Information to be provided to interested and affected parties

During the EIA phase of the project, I&APs will be provided with an opportunity to review the EIA and EMPr. The EIA and EMPr will include the following information:

- detailed description of the current biophysical, cultural and socio-economic environments;
- detailed description of the project including information pertaining to the scale, extent and duration of the project activities;
- details of authorisations required in terms of the MPRDA, NEMA, NEM:WA and NWA;
- responses to issues and comments received from I&APs, commenting authorities and the competent authority;
- copies of the specialist reports undertaken for the project;
- an assessment of the biophysical, cultural and socio-economic impacts identified during the EIA process, with input from I&APs, commenting authorities, the competent authorities and specialists; and
- an EMPr, with detailed management measures and mitigation to reduce and control identified impacts.

9.9 TASKS TO BE UNDERTAKEN DURING THE EIA PHASE

A description of the tasks that will be undertaken during the EIA phase is provided in Table 9-3 below. A preliminary schedule for the EIA phase that aligns with regulatory timeframes is also included.

TABLE 9-3: EIA TASKS AND TIMING

Phase	EAP activity	Opportunities for Public Participation		Schedule
		Competent Authority	I&AP's	
Specialist Input	EAP to manage specialist activities and receive inputs for EIA and EMPr.	-	-	April 2021 to May 2021
	Specialists to be kept informed of issues raised by I&APs throughout the EIA process.	-	-	
EIA Phase	Assess environmental impacts and compile EIA and EMPr.	-	-	May 2021 – June 2021
	Provide EIA report to I&APs and authorities for review.	Review of EIA and EMPr (30 days).	Review of EIA and EMPr (30 days).	July 2021 -August 2021
	Collate and respond to comments and finalise EIA Report.	-	-	August 2021
Competent Authority review	EIA and EMPr submitted to the DMRE for decision making purposes (106 days from acceptance of Scoping Report).	DMRE to acknowledge receipt of EIA and EMPr (10 days).	-	September 2021 – January 2022
		DMRE review (107 days).		
		Environmental Authorisation Granted / Refused.		
Decision	Notifications to I&AP's regarding environmental authorisation (granted or refused).	-	I&APs notifications within 14 days of receipt of DMRE decision.	January 2022

9.10 MEASURES TO AVOID, REVERSE, MITIGATE, OR MANAGE IDENTIFIED IMPACTS

Measures to avoid, reverse, mitigate or manage identified impacts are shown in Section 8.9. It should be noted that this table has been compiled with the information currently in hand. Input from specialist studies, comments and concerns raised by I&APs will provide more detail during the EIA phase.

10 OTHER INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

No additional requests for information have been received to date.

11 OTHER MATTERS REQUIRED IN TERMS OF SECTIONS 24(4)(A) & (B) OF THE ACT

11.1 SCREENING TOOL

It became compulsory to use the Department of Environment, Forestry and Fisheries (DEFF) online screening tool from the 4 October 2019. The report generated by the DEFF screening tool was attached to the NEMA Environmental Authorisation application for the project and is included in Appendix C. The screening tool report outlines specialist studies that need to be considered as part of the project. In this regard, the table below outlines the specialist studies identified in the screening tool report along with an explanation regarding the applicability of these specialist studies in relation to the project.

TABLE 11-1: DEFF SCREENING TOOL RESULTS

Theme	Sensitivity	Requirements
Agriculture	Medium sensitivity	A Soils and Land Capability Study will be undertaken for the project. This will address agricultural sensitivity. This study will be informed by site work.
Animal species Assessment	Medium sensitivity	A Biodiversity Study (Terrestrial, animal and plant species) will be undertaken for the project. This study will be informed by site work. A Freshwater Ecological Study will be undertaken for the project and will also support the IWUL application. This study will be informed by site work as well as previous assessments undertaken for Mokala.
Plant Species Assessment	Low	
Aquatic Biodiversity	Low	
Terrestrial biodiversity	Very high	
Archaeological and Cultural Heritage Impact Assessment	Very High	A Heritage/Cultural Study will be undertaken for the project. This study will be informed by site work.
Palaeontology	High	A Palaeontological Assessment will be undertaken for the project.
Civil Aviation	High	Not applicable to Mokala. The proposed project will not present any tall structures that could influence flight paths.
Defence	Low	Not applicable to Mokala. The mine is not located near any areas of defence.
Landscape/visual	Not specified in screening tool report.	A Visual Study is not deemed necessary for the project. The Mokala Mine is surrounded by mining operations to the North (Assmang Gloria Mine), South (Kalagadi Mine) and South East (Kudumane Mine). The project does not present infrastructure that differs from the surrounding environment. In addition to this, the nearest sensitive receptors are located approximately 3 km to the west of the site (isolated farmsteads) and the 4 km east of the site (the town of Hotazel).
Hydrology Assessment	Not specified in screening tool report.	A Hydrology Study will be undertaken for the project. This study will be informed by site work.
Noise Impact Assessment		A Noise Study will be undertaken for the project. This will be a qualitative assessment informed by available literature as well as previous work conducted at Mokala.
Traffic Assessment		The project is not associated with an increase in traffic volumes and as such this study is not applicable to this project.

Theme	Sensitivity	Requirements
Socio-economic Assessment		The project is not anticipated to influence current socio-economic conditions at the mine. It follows that a socio-economic assessment is not deemed applicable for the proposed project.
Air Quality Assessment		An Air Quality Study will be undertaken for the project. This will be informed by available information as well as previous studies undertaken for Mokala.
Ambient Air Quality Assessment		
Health Impact Assessment		The need for a health assessment associated with the proposed project is not deemed necessary. This may be considered depending on the findings of the Air Quality Study.

12 UNDERTAKING BY THE EAP

I, Natasha Smyth, the EAP responsible for compiling this report and Edward Perry, the project Reviewer/Director, undertake that:

- the information provided herein is correct;
- the comments and inputs from I&APs have been correctly recorded;
- information and responses provided to I&APs by the EAP is correct to the best of SLR's knowledge at the time of compiling the report; and
- the level of agreement with I&APs has been correctly recorded and reported.



Natasha Smyth
(Signature of Environmental
Assessment Practitioner)

25 March 2021

Date



Edward Perry
(Signature of Reviewer/Director)

25 March 2021

Date



Signature of Commissioner of Oaths

25-03-2021

Date

**OREN JAN VAN VREDE
COMMISSIONER OF OATHS
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13 REFERENCES

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APPENDIX A: EAP CV'S

APPENDIX B: DEFF SCREENING TOOL REPORT

APPENDIX C: PUBLIC PARTICIPATION RECORD

- Project database.
- Copy of the BID in English, Afrikaans and Setswana, and proof of distribution.
- Site notice (English, Afrikaans and Setswana).
- Advertisements placed in the Kathu Gazette and the Kalahari Bulletin in March 2020 and March 2021.

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