NON-TECHNICAL SUMMARY



Draft Environmental Impact Assessment and Environmental Management Programme for the Proposed Changes to Surface infrastructure at Mokala Mine, Northern Cape Province

JLK

INTRODUCTION

This Non-Technical Summary provides a synopsis of the Draft Environmental Impact Assessment (EIA) and Environmental Management Programme (EMPR) prepared for the Mokala Mine, Northern Cape Province. The EIA and EMPR will be submitted to the Department of Mineral Resources and Energy (DMRE) to inform them of the changes to the operation and associated amendments to the EMPR. The Non-Technical Summary is available in English, Afrikaans and Setswana and is being distributed to stakeholders as a basis for notification and comment.

Mokala Manganese (Pty) Ltd (Mokala) owns and operates the Mokala Manganese 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 4km north west of the town of Hotazel in the Joe Morolong Municipality of the Northern Cape Province (Figure 1).

The Mokala Mine is an approved open cast mining operation, which currently exploits the manganese ore body of the Kalahari Manganese Field, which lies at depths of 40 m -180 m below surface. Approved infrastructure comprises a dry crushing and screening plant; waste rock dumps (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.

The mine is in the operational phase, with the first blast and subsequent open cast strip mining activities beginning in late May 2021. The mine is concurrently constructing infrastructure authorised in the approved 2015 EIA and EMPr (SLR, December 2015). As part of their ongoing optimisation of mining operations Mokala proposes to amend their approved EIA and EMPr to include infrastructure changes to their surface layout which have already taken place. In addition, Mokala also proposes to establish additional surface infrastructure and undertake new activities which require environmental authorisation and an amendment to the approved EMPr.

PROJECT DESCRIPTION

The proposed new infrastructure changes that require authorisation through this process are shown in Figure 2 and Figure 4, and is listed below:

- The proposed expansion of the open pit.
- The proposed mining of the barrier pillar between the Kalagadi Mine and Mokala Mine

- The proposed increase in the capacity of the approved Waste Rock Dump (WRD).
- The establishment of an additional WRD to the western portion of the Mining Right Area (MRA).
- The proposed establishment of additional topsoil stockpiles.
- The proposed relocation of stormwater management infrastructure.
- The proposed increase in the capacity and footprint of product stockpiles (ROM and Low Grade, High Grade).
- The proposed establishment of an underground potable water pipeline (Sedibeng Water Supply) to the Mokala Mine.

POLICY AND LEGISLATIVE CONTEXT

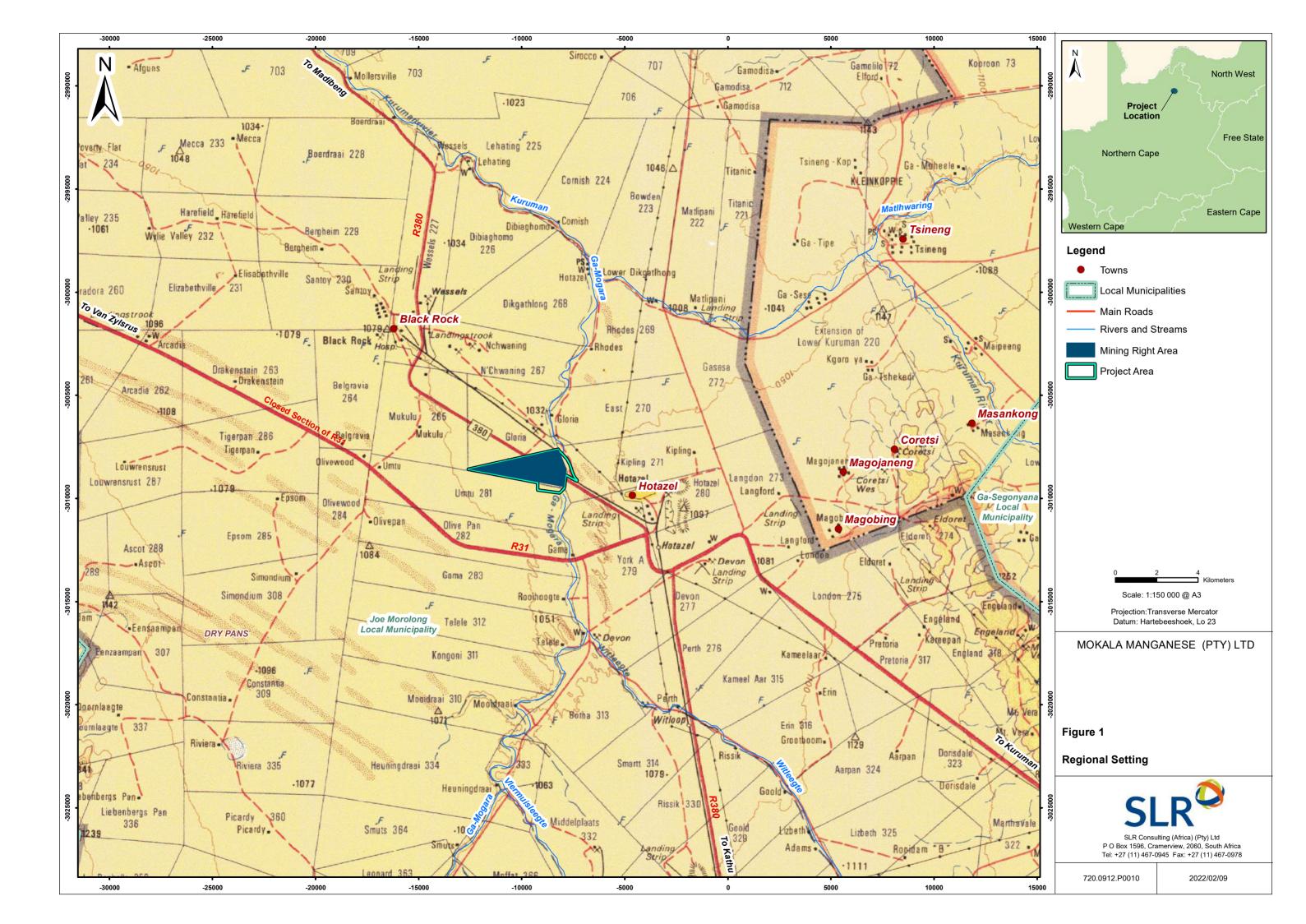
The proposed activities are listed under the NEMA and the NEM: WA. Under both NEMA and NEM: WA, activities are prohibited from commencing until written authorisation is obtained from the competent authority, which in this case is the Northern Cape Province office of the DMRE. Section 102 of the MPRDA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

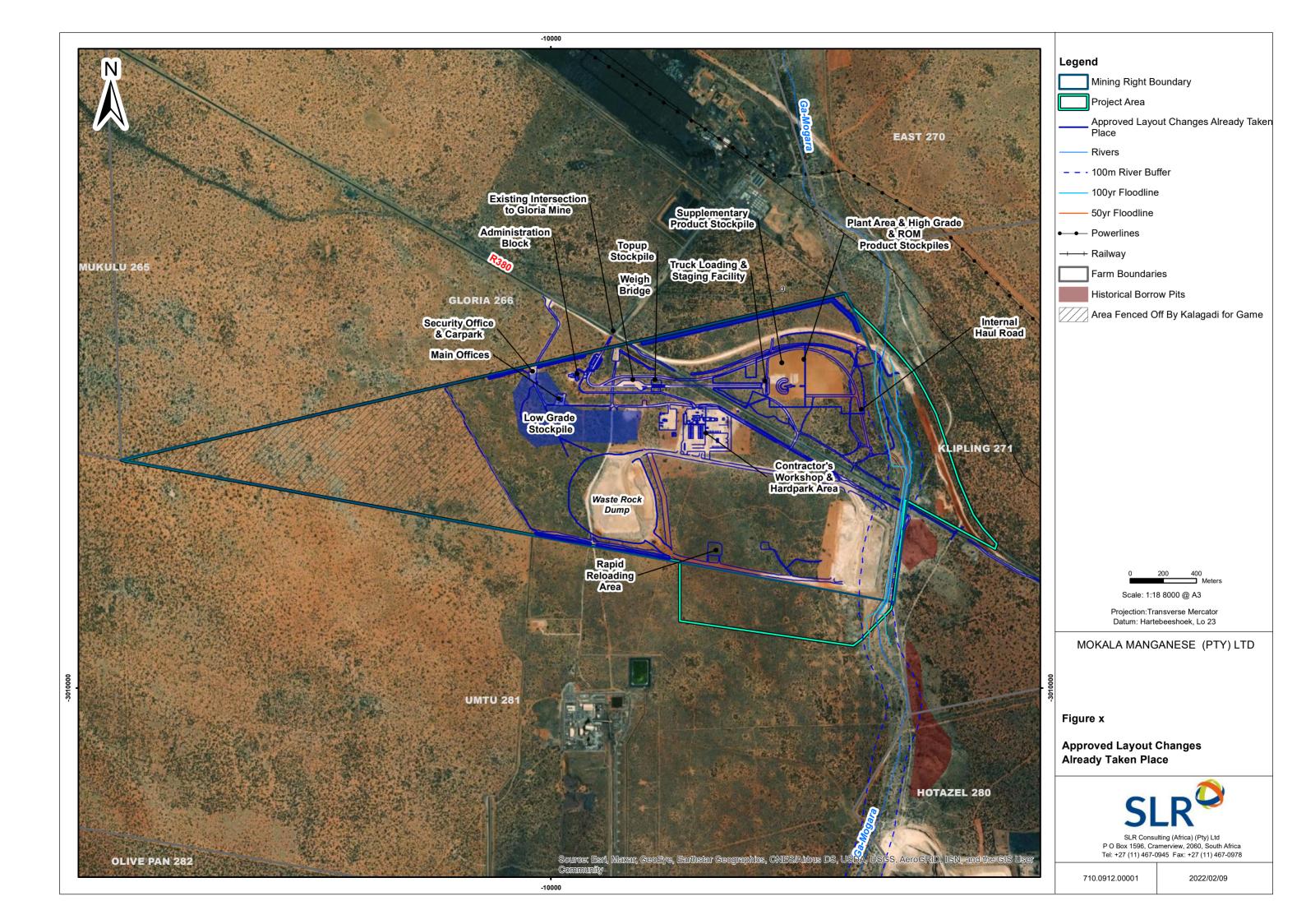
The MPRDA, NEMA and NEM: WA requires that an applicant submit the relevant environmental reports required in terms of NEMA. The NEMA Environmental Impact Assessment (EIA) Regulations (GNR 982 of 2014, as amended), promulgated in terms of NEMA set out the assessment process and reporting requirements where authorisation is required.

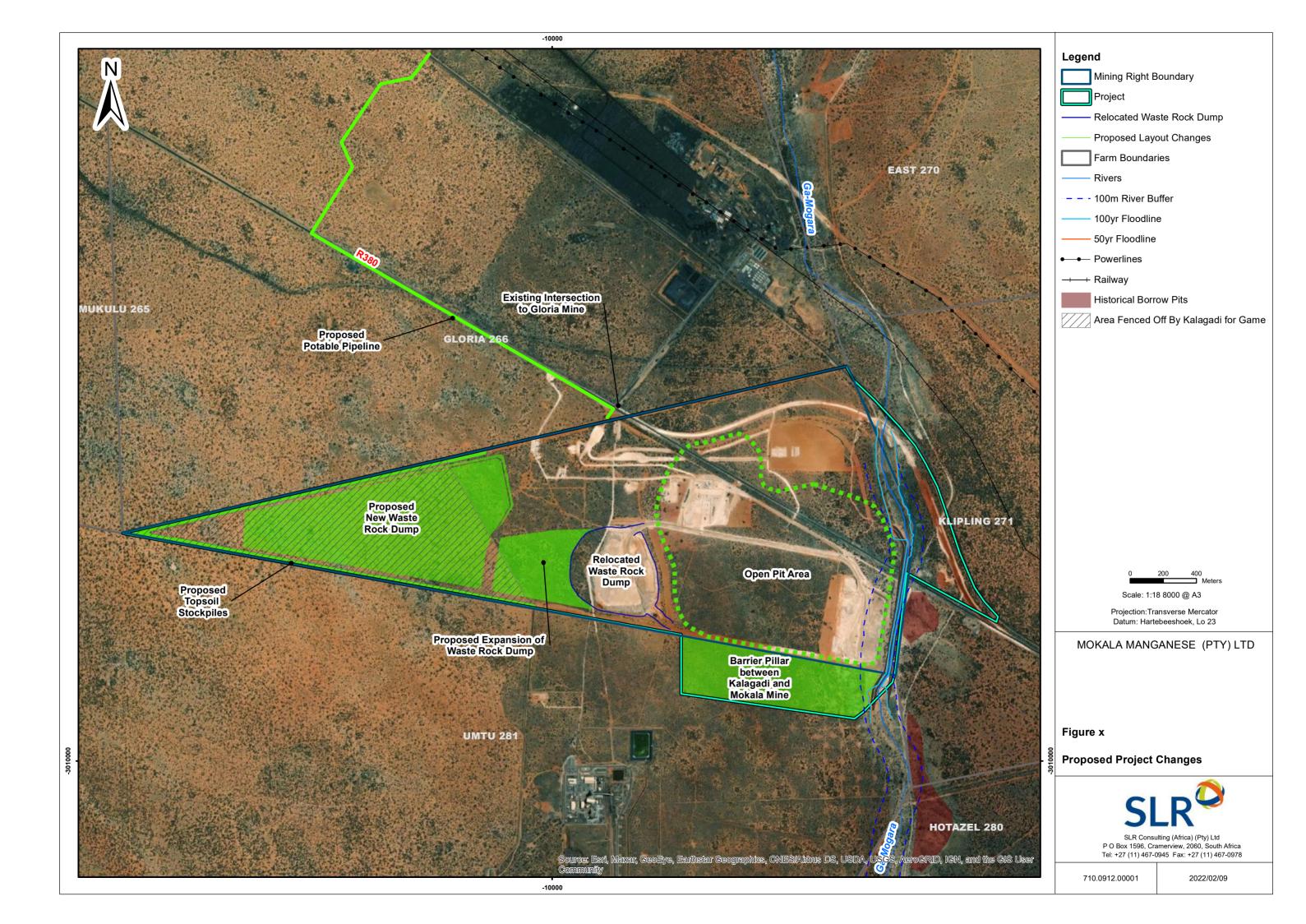
The project requires an integrated environmental authorisation process to be undertaken and for it to meet the requirements of:

- 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 (Scoping and EIA process (S&EIA) to cater for new listed activities in the NEMA EIA Regulations (GNR 982 of 2014, as amended).

A Scoping and EIA process, conducted in terms of the EIA Regulations, 2014 is required to inform the DMRE's decision making. The EIA and EMPR Reports consider the potential issues relating to the proposed activities, assess and rate the significant of the potential impacts, and provide mitigation recommendations and an environmental management plan for implementation to minimise the environmental and social impacts.







NEED & DESIRABILITY OF THE PROJECT

The key components of the Need and Desirability Guideline are:

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) and *Vachellia haematoxylon* (Grey Camel Thorn) within the developmental footprint 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 were deemed necessary to determine the sensitivity of the project area and potential impacts of the project changes. The biophysical impacts of the project were investigated in the EIA phase. Measures to enhance the benefits and mitigate the impacts to these resources is included in the EIA report.

Promoting Justifiable Economic and Social Development

According to DMRE (2011) "South Africa has been a resource economy in excess of a century". An independent evaluation of South Africa's non-energy insitu 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 is 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 (KMF) 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 JMLM's IDP and the JTGDM's SDF (May 2016) are mainly focused on 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 (JTGDM, 2016). One of the Key Focus Areas for economic growth is the Gamagara Development Corridor, within which the Mokala mine is located. The socio-economic impacts of the project were assessed as part of this EA process. Measures to enhance the benefits and mitigate the impacts to these resources are included in the report.

DESCRIPTION OF THE ENVIRONMENT BEING AFFECTED Physical Environment

The proposed project area falls within an area typical of the central Kalahari Desert and within the Northern Steppe Climatic Zone. This is a semi-arid region characterised by seasonal rainfall, hot temperatures in summer, and colder temperatures in winter. Temperatures typically range between -0.6 °C and 35 °C, although lower temperatures have been recorded. The topography of the mining right area is relatively flat with a gentle slope towards the east and has been altered through existing mining operations. This eastern section falls relatively steeply towards the Ga-Mogara River

which is a non-perennial river that forms the eastern boundary of the project area.

The regional average water levels in the D41K catchment are 40 metres below ground level (mbgl). Groundwater levels in existing exploration and groundwater boreholes which were monitored between January 2016 and January 2020. Borehole depths ranged between 53 mbgl and 298 mbgl. The average groundwater level was 53.37 mbgl. Groundwater levels are shallower in the eastern portion of the project area and deeper towards the west. In general, groundwater levels were relatively deep south of the Mokala Mine and shallower towards the north of the site. Majority of the groundwater in the broader region is used in the form of third-party boreholes. Use is primarily for livestock water, but also supplies potable water to local farms.

In terms of surface water, the proposed project area is influenced by four quaternary catchments D41K and is mainly drained by the Ga-Mogara River flowing north to join the Kuruman River which in turn flows in a westerly direction to join the Molopo River. Ga-Mmatshephe, Dooimansholte, Vermuisleegte, and Wilteegte rivers are tributaries of the Ga-Mogara River. The Ga-Mogara River is considered to be a non-perennial river. The last notable flows within Ga-Mogara River last occurred between 1974 - 1976 and 1988.

The Mokala Mine is located on the south-western outer rim of the Kalahari Manganese Field (KMF) and exploits manganese from the Hotazel Formation. The Formation consists of Banded Iron Formation (BIF), with the ore contained within a mineralised zone which is made up of three manganese rich zones; the Upper, Middle and Lower Manganese Ore Bodies. The lowermost unit is considered the most economically viable. A dyke is located to the west of the proposed project area however no surface infrastructure is planned to overlay the dyke.

Dominant soil forms located within the proposed project area comprise of Ermelo/Clovelly, Mispah/Glenrosa, Dundee (Ga-Mogara River) and Witbank/Grabouw forms. The Ermelo/Clovelly soil form covers an area of 164.05 ha and consists of a yellow brown apedal horizon. The Ermelo/Clovelly soils are located towards the west and south of the proposed project area. The Witbank/Grabouw soils comprise the largest area within the proposed project area, of 334.5 ha. These soils are found within the central and eastern regions of the project area and consists of soils that have been subjected to physical disturbance as a result of human interventions (transportation and deposition of earth material). The Mispah/Glenrosa soils comprises an area of 15.41 ha (2.95%) and is primarily located towards the

east of the proposed project area and is generally associated with poor physical properties for plant root system penetration and water infiltration. The least dominant soils within the proposed project area are the Dundee forms. The Dundee forms cover an area of 8.6 ha and is found toward the east of the proposed project area.

Approximately 32% of the land within the proposed project area is considered ideal for cultivation, while 64% is considered to have very poor land capability, due to anthropogenic influences, particularly mining. During the proposed project, large portions of arable soils will be stripped and stockpiled, thus presenting the potential for further reducing the fertility status of the soil.

Biological Environment

The Mokala Mine is located within the Savannah Biome in which the Kathu Bushveld and the *Gordonia* Duneveld vegetation types are prevalent. Five distinct vegetation communities identified within the proposed project area included the Mixed *Vachellia* Savannah, The Senegalia mellifera Woodland, *Vachellia haematoxylon* Savannah, *Tarchonanthus camphoratus* scrub and the Riverine vegetation community.

The following floral species of conservation concern (SCC), as per the national and provincial protected species regulations (NFA, NCNCA and the NEM: BA), were identified within the project footprint. SCC that has not been identified, but that have the potential to occur on site and/or have previously been recorded on site are underlined:

- Vachellia erioloba (protected as per the NFA);
- Vachellia haematoxylon (protected as per the NFA);
- Moraea longistyla (protected as per the NCNCA);
- Moraea pallida (protected as per the NCNCA);
- Babiana hypogaea (protected as per the NCNCA);
- Euphorbia wilmaniae (protected as per the NCNCA);
- Euphorbia duseimata (protected as per the NCNCA);
- Harpagophytum procumbents (protected as per the NCNCA and NEM: BA);
- Euphobia pseudotuberosa (protected as per the NCNCA);
- Lessertia frutescens (protected as per the NCNCA);
- Nerine laticoma (protected as per the NCNCA); and
- Psilocaulon junceum (protected as per the NCNCA).

<u>Biological Sensitivity</u>: The mine and proposed project area does not fall within a NPAES focus area but is located near an area identified as a protected area for the eastern Kalahari bushveld. The proposed project area is not considered a threatened ecosystem in terms of NEM:BA and does not fall within a National Freshwater Ecosystem Priority Area (NFEPA). The proposed project area does not fall within a critical biodiversity area as identified in the Northern Cape

Critical Biodiversity Areas project 2016. The study site and surrounding area does not fall within an Important Bird and Biodiversity Area (IBA).

The project area falls within the poorly conserved Griqualand West Centre of Endemism (GWC), which is considered a priority in the Northern Cape. The Ga-Mogara river which runs along the eastern boundary falls within an ecological support area (ESA). The proposed project area does not fall within a River FEPA (Fresh Water Ecosystem Priority Area) but is located in an Upstream Management Area. There are no identified NFEPA wetlands within the MRA.

No faunal SCC were identified during the field investigations, but scat of Brown Hyena was noted on site. A list of mammal and bird SCC that have the potential to occur within the project area included the Rhinolophus denti, Mellivora capensis, Miniopterus schreibersii, Atelerix frontalis, Smutsia temminckii, Parahyaena brunnea, Polemaetus bellicosus, Sagittarius serpentarius, Gyps africanus, Ardeotis kori, Ciconia bigra, Terathopius ecaudatus and Torgos tracheliotos.

The Mokala Mine is situated in an area that, as a whole, has had a relatively low human presence due to the dryness of the region, and as such, if there were human settlements they tended to be located on or near watercourses. In this regard, archaeological artefacts have predominantly been located along the riverbanks of both the Kuruman and Ga-Mogara Rivers. Identified cultural/heritage resources within or in close proximity to the project area and that are not associated with the banks of the surrounding rivers include Middle Stone Age lithic artefacts. The Mokala Mine is underlain by Quaternary Kalahari Group aeolian sands, alluvium and calcrete and a small portion of surface limestone. There is a very small chance that fossils may occur in palaeopans or palaeo-springs; however, no such feature is visible. The area is already highly disturbed from existing mining operations. In this regard, it is unlikely that paleontological resources would be identified.

Socio-economic

The Mokala Mine is located within the John Taolo Gaetsewe District Municipality (JTGDM), the Kuruman Magisterial District and the Joe Morolong Local Municipality (JMLM) in the Northern Cape Province.

The JTGDM had a population of ~242 265 people in 2016. Population density is around 4.2 people per square kilometre. The JMLM had a population of ~84 200 people in 2016. Population density is around 8.8 people per square kilometre. More than 71% of the population live in formal households in JTGDM and 69% in JMLM. The language most spoken at home is Setswana in the JTGDM (75%) and in JMLM (92%). Close

to 32% of the JTGDM of the working age population are employed, whilst 16% are employed in JMLM.

The environmental sensitivity is shown in Figure 4.

ALTERNATIVES ANALYSIS

An assessment was undertaken to identify any alternatives that would be feasible for the proposed surface infrastructure changes.

The proposed project comprises of the relocation and reconfiguration of approved surface infrastructure which has already been undertaken. The proposed project also comprises of the proposed establishment of new infrastructure which are aligned with well-established mining operations and technologies. If follows that technology alternatives were not investigated.

Similarly, no location alternatives are possible as this is an operational mine and there is limited available surface area for new infrastructure. Equally, the activities are dependent on proximity to existing mine infrastructure and therefore would be required at a certain position on the mining rights area.

The No-Go option would mean that the efficacy of the mine would not be optimised, and the Life of Mine (LOM) may be reduced. This is especially pertinent to the following proposed activities:

- The proposed expansion of the open pit and mining of the barrier pillar; and
- The proposed extension and capacity upgrades of the product stockpiles.

Furthermore, the no-go option will prevent environmental management improvement on site. It follows that should the no-go option be undertaken, the management measures required for mining operations cannot be realised. In addition, the no-go option will not facilitate further economic growth for the Mokala Mine and South African economy.

PUBLIC PARTICIPATION UNDERTAKEN TO DATE

The following public participation has been undertaken for the Scoping Phase:

- Pre-application meeting with the DMRE and approval of a Stakeholder Engagement Plan.
- Development and regular update of an Interested and Affected Party (I&AP) database;
- Land claims commissioner consultation 28 April 2021;
- Desktop Social Scan;
- BID in English, Afrikaans and Setswana made available via email and on SLR website and data-free website:

- Site notices in English, Afrikaans and Setswana were placed in key locations around the Mokala Mine;
- Newspaper advertisements were placed in the Noordkaap Bulletin and the Kathu Gazette.
- A virtual public meeting was held on 14th April 2021;
- The Scoping Report was made available for review and a Non-Technical Summary was also provided in English, Afrikaans, and Setswana via email and on the SLR website and data-free website.

Public participation during the EIA Phase includes:

- Provision of the EIA and EMPR for public review for a period of 30 days from 14th February to 15th March 2022:
- Submission of the draft report to authorities and key stakeholders for initial review during the public review period;
- Registered I&APs have been notified on 11th
 February 2022 of the availability of the EIA and EMPR reports via email and SMS;
- All comments on the EIA and EMPR will be collated into a Comments and Response Report for submission with the EIA and EMPr to the authority to inform decision making.

IMPACT ASSESSMENT FINDINGS

An impact assessment was undertaken to determine the potential impacts associated with the proposed project activities for Marula Mine. The findings of this assessment are included in Table 1. The potential impacts associated with the proposed project can be categorised into those that have low, medium and/or high significance in the unmitigated scenario. All three categories of impacts require a measure of management actions which, if successfully implemented will reduce and or enhance the significance of the impacts.

IMPACT STATEMENT

The assessment of the proposed project presents the potential for negative impacts to occur (in an unmitigated scenario) on the biophysical environments both on the project area and in the surrounding area. With the implementation of management actions, these potential impacts can be prevented or reduced to acceptable levels. It follows that provided the EMPr is effectively implemented, there is no biophysical, cultural heritage or socio-economic reason why the proposed project should not proceed.

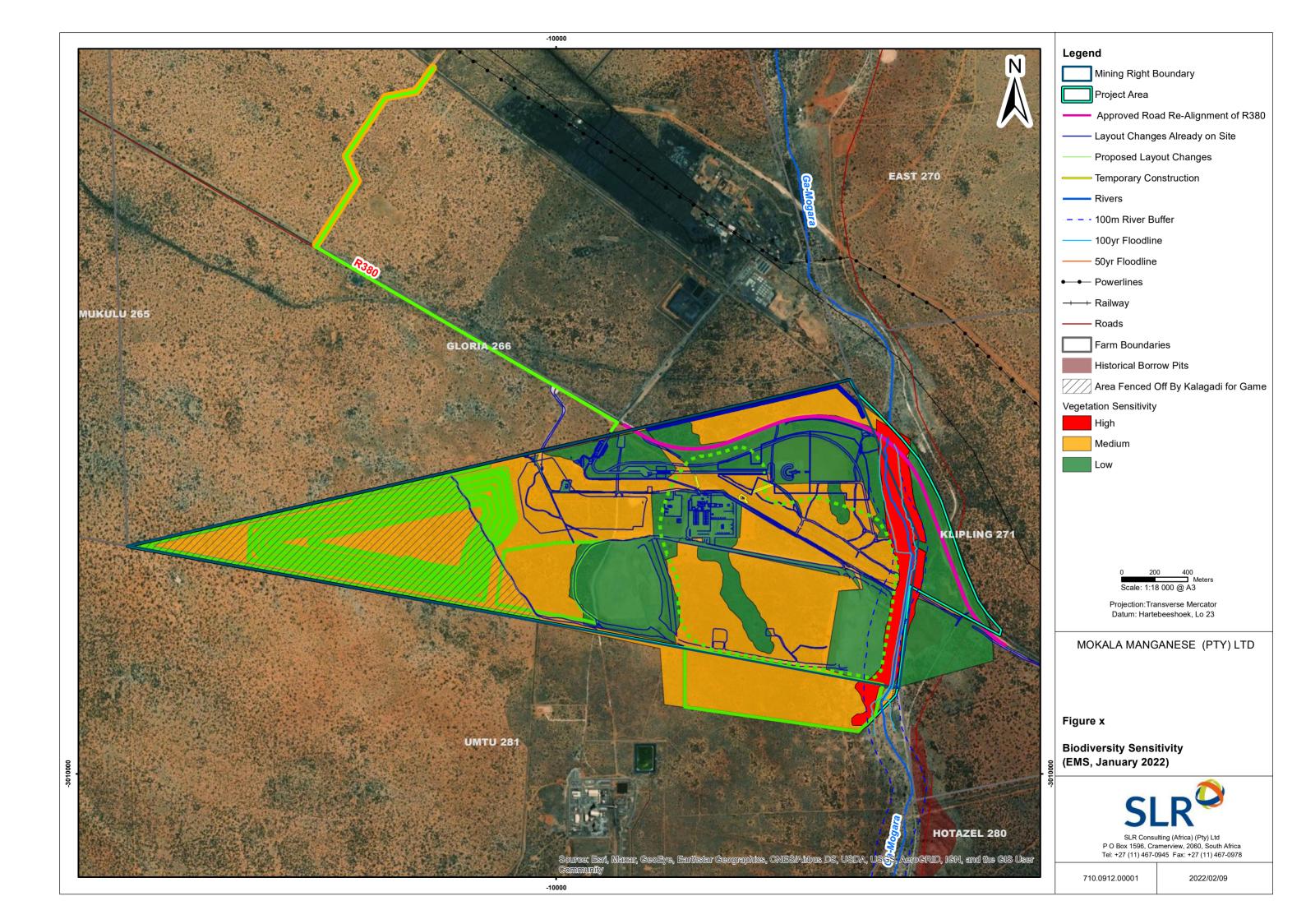


Table 1: Summary of Potential Impacts

Aspects affected	Potential impact	Phase	Incremental Impact (the ratings are negative unless otherwise specified) Unmitigated Mitigated	
Topography	Hazardous excavations and infrastructure resulting in safety risks to third parties and animals	All Phases	High	Mitigated Low
Soil and land capability	Loss of soil and land capability through physical disturbance resulting in soil erosion	Construction Operation	Medium Medium	Low Very Low
Soil and land capability	Loss of soil and land capability through physical disturbance resulting in soil compaction	Construction	Medium	Low
Soil and land	Loss of soil and land capability through	Operation Construction	Medium Medium	Very Low Very Low
capability	contamination	Operation	Medium	Very Low
Soil and land capability	Loss of agricultural land capability	Construction	Medium	Low
		Operation	Medium	Low
Biodiversity	Loss of natural vegetation, increase in alien invasion and further habitat fragmentation	All Phases	Medium	Medium
Biodiversity	Additional loss of sensitive habitats, protected flora and faunal species of conservation concern	All Phases	High	Medium
Biodiversity	Anthropogenic disturbances, intentional and/or accidental killing of fauna	All Phases	Medium	Low
Freshwater Resources	Impact on freshwater resources and ecology due to the Internal Haul Road (approximately 140 m west of the Ga-Mogara River)	Construction	Insignificant	Insignificant
		Operation	Negligible	Negligible
Freshwater Resources	Impact on freshwater resources and ecology due to the Plant Area, High Grade and Run of Mine (ROM) Stockpiles approximately 575 m from and upgradient of the Ga-Mogara River	Operation Operation	Very Low	Very Low
Freshwater Resources	Impact on freshwater resources and ecology due to the Expansion of open pit to within 55 m of diverted segment of Ga-Mogara River and mining of barrier pillar between Mokala and Kalagadi Mines within 25 m of Ga-Mogara River	Construction	High	Insignificant
		Operation	High	Medium
Freshwater Resources		Construction	Medium	Low
	of diverted segment of Ga-Mogara River	Operation	Medium	Low
Groundwater	Change in groundwater levels and gradient	Operation Closure	Low	Low
Groundwater	Deterioration of groundwater quality	Operation	Low	Low

Aspects affected	Potential impact	Phase	Incremental Impact (the ratings are negative unless otherwise specified)	
			Unmitigated	Mitigated
		Closure	Low	Low
Air Quality	Air pollution due to PM emissions	Construction	Low	Low
		Decommissioning and Closure		
Air Quality	Human health impacts associated with PM2.5	Operation	Medium	Low
Air Quality	Human health impacts associated with PM10	Operation	Medium	Medium
Air Quality	Nuisance impact due to dust fall	Operation	Low	Low
Air Quality	Human health impacts due to Respirable Mn (elemental)	Operation	Medium	Medium
Air Quality	Human health and nuisance impacts associated NO_2 , CO , SO_2 and VOC emissions	Operation	Low	Low
Noise Quality	Increase In Disturbing Noise Levels	Operation	Low	Low
Visual	Negative visual views	All Phases	High	Very Low
Heritage and palaeontological resources	Destruction of heritage/ cultural and palaeontological resources	All Phases	Low	Low
Socio-economic	Inward migration	All Phases	Medium	Very Low
Socio-economic	Economic impact	All Phases	Very High +	Very High
Blasts	Blasting Impacts	Operation	High	Medium
Traffic	Road disturbance and traffic safety	Construction	Medium	Low
		Decommissioning and Closure		
		Operation	Medium	Very Low
Land Use	Change in land uses	All Phases	Medium	Low

REVIEW OF DRAFT EIA and EMPR REPORTS

The EIA and EMPR Reports for the proposed project have been made available for a public review period of 30 days, from **11 February 2022** to **15 March 2022**. This Non-Technical Summary contains a brief synopsis of the EIA and EMPR Reports. The full Reports can be found in the following places for review:

- Mokala Mine Security Office;
- Kathu Public Library;
- Hotazel Post Office; and
- Data-free website (https://slrpublicdocs.datafree.co/en/public-documents/); and
- SLR project website (<u>https://slrpublicdocs.datafree.co/en/public-documents/</u>).

WHAT WILL HAPPEN NEXT?

The following will happen next in the process:

- Please submit any comments to SLR at the email address provided.
- All comments received will be addressed as part of a Comments and Response Report (CRR).
- The Draft EIA and EMPR Reports will be updated based on the comments received and submitted together with the CRR to the DMRE.
- The DMRE will then have 43 days to either accept or refuse the Final EIA and EMPR Reports.
- I&APs will be notified of DMRE decision on the Reports and application and will provide information relating to any appeals.

HOW CAN YOU GET INVOLVED?

The draft EIA and EMPR are currently available for review and comment. The reports outline the impact assessment process undertaken to date including public participation, provides a description of the proposed Project, the affected environment, and the plan of study for the impact assessment to be undertaken. The reports include specialist assessments and the impact significance rating and recommended mitigation actions.

You can be involved by:

- Reading this NTS you can access the full report at https://slrpublicdocs.datafree.co/en/public-documents/ which is accessible from internet-capable mobile phones without data charges.
- The full report is also available at: <u>https://www.slrconsulting.com/en/public-documents</u>
- Sending comments, questions or concerns to SLR at the contact details below.

Please send your comments to:

Piet Moima

Tel: (011) 467 0945 Fax: (011) 467 0978

pmoima@slrconsulting.com

PO Box 1596, Cramerview 2060

Comments must reach SLR by 10 March 2022