



LODESTONE NAMIBIA (PTY) LTD

ENVIRONMENTAL MANAGEMENT PLAN

**Prepared for the
Dordabis Iron Ore Mining Project and Associated Infrastructure**

May 2023

DOCUMENT CONTROL

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EMP FOR THE DORDABIS IRON ORE MINING PROJECT AND ASSOCIATED INFRASTRUCTURE

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ACRONYMS AND ABBREVIATIONS

Below a list of acronyms and abbreviations used in this report.

| Acronyms / Abbreviations | Definition |
|--------------------------|--|
| ARD | Acid rock drainage |
| BFS | Bankable Feasibility Study |
| CDF | Co-disposal Facility |
| COO | Chief Operational Officer |
| DEA | Department Environmental Affairs |
| DoF | Directorate of Forestry |
| DWA | Directorate of Water Affairs |
| ECC | Environmental Clearance Certificate |
| EIA | Environmental Impacts Assessment |
| EMP | Environmental Management Plan |
| EPL | Exclusive Prospecting License |
| HFO | Heavy-fuel oil |
| I&APs | Interested and affected parties |
| km | kilometres |
| kV | kilowatt |
| LoM | Life of Mine |
| MAWLR | Ministry of Agriculture, Water and Land Reform |
| MC | Mining Commissioner |
| MEFT | Ministry of Environment, Forestry and Tourism |
| MET | Ministry of Environment and Tourism |
| ML | Mining Licence |
| MLIREC | Ministry of Labour, Industrial Relations and Employment Creation |
| MME | Ministry of Mines and Energy |
| MOA | Memorandum of Agreement |
| MoHSS | Ministry of Health and Social Services |
| MSDS | Material safety datasheets |
| MWT | Ministry of Works and Transport |
| NBRI | National Botanical Research Institute |
| NHC | National Heritage Council |
| OHS | Occupational Health and Safety |
| PBS | Performance-Based Standards |
| PCD | Pollution Control Dam |
| (Pty) Ltd | Proprietary Limited |
| RA | Roads Authority |
| Rol | Radius of Influence |
| RoM | Run of Mine |
| SWP | Stormwater Plan |
| WRD | Waste rock dump |

EMP FOR THE DORDABIS IRON ORE MINING PROJECT AND ASSOCIATED INFRASTRUCTURE

1 INTRODUCTION

1.1 PROJECT OVERVIEW

Lodestone Namibia (Pty) Ltd (Lodestone), a privately funded mining company, holds Mining Licence (ML) 182, within their Exclusive Prospecting License (EPL) 7352, which replaced EPL 3112. ML 182 is located in the Khomas Region, approximately 20 km north-west of Dordabis and 75 km southeast of Windhoek on the C23 tar road (see Figure 1).



FIGURE 1: LOCATION OF ML 182

Lodestone envisages to develop an open pit mine and processing plant on ML 182 using a conventional gravity and magnetic separation processing route to produce up to two million tons of iron concentrate per year. Lodestone aims to produce 68% high grade iron ore concentrate (of which 100% is less than 1mm in size) for sixteen years, with a full potential ramp-up of four million tons per year for a further twenty to thirty years. Ongoing work entails the Bankable Feasibility Study (BFS), market development and the financing of the production plant.

Lodestone started small-scale mining in 2015 to supply the local cement industry with iron ore required in the production of clinker. A decision was made in August 2021 to export an inaugural shipment of 52,000 tons of iron ore fines.

The Environmental Impact Assessment (EIA) (Amendment) Report for the Dordabis Iron Ore Mining Project and Associated Infrastructure composed by Namisun (2020) contains a detailed description of the project.

1.2 BACKGROUND ON ML 57'S ENVIRONMENTAL COMPLIANCE

Lodestone undertook an EIA process for an iron ore mine and processing plant and associated infrastructure and activities on the EPL area, between 2011 and 2013. The Office of the Environmental Commissioner at the Directorate of Environmental Affairs (DEA), of the former Ministry of Environment and Tourism (MET) issued an Environmental Clearance Certificate (ECC) to Lodestone in July 2014 – on the basis of an approved EIA report which included an Environmental Management Plan (EMP). In December 2019 Lodestone submitted a renewal application of the ECC to the Ministry of Environment, Forestry and Tourism (MEFT). The application for the renewal, however, was for a much-reduced scale in activities on ML 182 (i.e. small-scale magnetite mining). MEFT issued the renewed ECC to Lodestone in June 2020.

Subsequently, Lodestone has finalized the Feasibility Study for the originally planned “Dordabis Iron Ore Mining Project and Associated Infrastructure” on ML 182 in 2020, and thereby proposed several changes to the previously assessed / approved (2013 EIA) project (i.e. the original bigger scale project). The potential environmental impacts associated with the proposed “Dordabis Iron Ore Mining Project and Associated Infrastructure” on ML 182, therefore, had to be re-assessed and the original / approved EMP (of 2013) had to be updated, taking further management and mitigation measures (as an outcome of the 2020 re-assessment) into account. An application for amendment, accompanied by the relevant EIA (amendment) report, including the updated EMP, was submitted and approved by the DEA in 2021.

With the expiry date of the current ECC (05 June 2023) in mind, Lodestone approached and appointed Namisun Environmental Projects and Development (Namisun) to assist in addressing the renewal of the ECC. Part of the request was to revise the existing EMP and to make it a stand-alone document, with minor editorial changes (this report).

1.3 AIM OF THIS DOCUMENT

The EIA Report of 2012 conducted by Colin Christian & Associates contained a (preliminary) EMP. Broad recommendations were made, including suggestions for rehabilitation and closure. It was pointed out that the EMP was preliminary because further work was needed in terms of

quantification and design of the various infrastructure and facilities. Yet, the original / approved EMP (of 2013) was used as the basis for the updating of the EMP of 2020, considering the management and mitigation measures (as an outcome of the assessments in 2020).

The aim of this EMP, like the original EMP (of 2013) and the updated one of 2020, is to detail the actions required to effectively implement management and mitigation measures required to minimise negative impacts and enhance positive impacts associated with the mining activities on ML 182. This EMP also consolidates all the environmental commitments, which must be implemented on ML 182 by Lodestone.

As part of making the EMP a stand-alone document, changes (other than spelling, grammar and punctuation) are indicated in **red**. In the case of Chapter 1, Sections 1.1, 1.2, 1.3 and 1.6 were **added** as new components. Sections 1.4 and 1.5 were retained, but some re-arrangements, updates and editorial changes were made (indicated in **red**). Chapter 2 contains the management plans relevant to all and Chapter 3 contains the management plans specific to the mining, processing and associated activities. New additions and changes in these two chapters are indicated in **red**. It is important to note that the sequencing and numbering of the original documents have been altered as a result of the revision.

1.4 ENVIRONMENTAL LEGAL REQUIREMENTS (PERMITS)

TABLE 1: NOTIFICATION, REGISTRATION, APPROVAL AND PERMITS

| Issue | Act / section | Type of requirement / ministry |
|---|---|---|
| Revised Mining Licence | Minerals (Prospecting and Mining) Act, No. 33 of 1992 Section 91 (f) of | Approval of EIA and EMP / Ministry of Mines and Energy (MME) and MEFT |
| Written permission of the Mining Commissioner (MC) to erect any accessory works | Minerals (Prospecting and Mining) Act, No. 33 of 1992 Section 90 (2) (a) | Written permission from MC / MME |
| Permission to sell, discharge, etc. Minerals mined | Minerals (Prospecting and Mining) Act, No. 33 of 1992 Section 102 (1) | Permission from MC / MME |
| ECC for EIA and EMP (amendment) | Environmental Management Act, No. 7 of 2007 | ECC amendment, MEFT |
| Permit to store and handle explosives on site | Explosives Act No. 26 of 1956 | Permit Police |
| Licence for explosives magazine | Explosives Act No. 26 of 1956 | License Police |
| Explosive burning permit | Explosives Act No. 26 of 1956 | Permit Police |

| Issue | Act / section | Type of requirement / ministry |
|--|--|---|
| Stipulates the purification of wastewater and discharge | Water Act, No. 54 of 1956 Section 21 (1) (2) (3) (4) (5) & 22 | Permit for industrial wastewater and effluent disposal (including sewage). Directorate of Water Affairs (DWA) in the Ministry of Agriculture, Water and Land Reform (MAWLR) |
| Water discharge | Water Act, No. 54 of 1956 | Permit for industrial wastewater and effluent disposal (including sewage) DWA, MAWLR |
| Picking and transport of protected plants | Nature Conservation Ordinance, No. 4 of 1975 Section 73 | Plant removal permit / Approval of landowner / Directorate of Parks and Wildlife (DPW), Directorate of Forestry (DOF) and the National Botanical Research Institute (NBRI) in MEFT |
| Picking, removal of protected plants | Nature Conservation Ordinance, No. 4 of 1975 Section 73 | Permit / DPW, DOF and NBRI in MEFT |
| Sale, donation, export and removal of protected plants | Nature Conservation Ordinance, No. 4 of 1975 Section 74 | Plant export permit / DPW, DOF and NBRI in MEFT |
| Registration, selling, operating, installing of infrastructure related to Group I and III hazardous substances | Hazardous Substance Ordinance, No. 14 of 1974 Section 5 (1) (a) (b) (c) | Licences required for the sale, use and storage of "hazardous substances", which are specified in certain groups. MEFT and Ministry of Health and Social Services (MoHSS) |
| Disturbing or destroying of national heritage sites (archaeological / paleontological sites) | National Heritage Act, 2004 Section 48 – 52 and 55 | Notify the National Heritage Council (NHC) |
| Consumer installation certificate | Petroleum Product Regulations, 2000 Section 18 (5) | Certificate / license Department of Energy, MME |
| Actions to be taken after a spill has occurred (major petroleum spill means 200 L per spill) | Petroleum Product Regulations, 2000 Section 49 (1) (4) | Notify the Department of Energy, MME |
| 30-days notification prior to commencement of construction | Labour Act, 1992, Regulations for Labour Act 1992, Section 20 | Notify the Ministry of Labour, Industrial Relations and Employment Creation (MLIREC) |
| 30-days notification prior to commencement of mining operation | Labour Act, 1992, Regulations for Labour Act 1992, Section 21 | Notify MLIREC |

| Issue | Act / section | Type of requirement / ministry |
|--|---|--|
| Transport / operating licence to transport goods on public roads | Roads Traffic and Transport Act, 1999 Section 60 | Licence / Ministry of Works and Transport (MWT) |
| Approval to work on Sundays, public holidays and continuous operation | Labour Act, 1992, Regulations for Labour Act 1992, Section 33 | Approval / MLIREC |
| Company must inform Chief Inspector (MoHSS) before commencing building or construction work on the mine | Regulations concerning the Health and Safety of Employees at Work, 1997 (Government Notice 156 of 1997) | Notify MoHSS and MME |
| VAT registration | Value Added Tax Act, 2000 | Certification |
| Tax registration | Income Tax Act, 1981 | Certification |
| Social Security | Social Security Act, 1994 Section 20 | Registration |
| Valid Affirmative Action compliance certificate | Affirmative Action Act, 1998, Section 42 | Certification |

1.5 OVERALL OBJECTIVES

The following overall environmental objectives have been set for the Lodestone Project:

- Comply with national legislation and standards for the protection of the environment.
- Limit potential impacts on biodiversity through the minimisation of the footprint and the conservation of residual habitat as far as possible.
- Investigate and exploit measures to reduce water resources.
- Keep the owner of the Tsatsachas Farm and nearby surrounding farmers informed of mining and associated activities through the implementation of forums for communication and constructive dialogue.
- Limit contaminated effluent discharge into the environment through the containment, recycling or removal of contaminated water.
- Conserve soil resources by stripping, stockpiling and managing topsoil.
- Protect soils and groundwater resources through the implementation of measures for spill prevention and clean-up.
- Ensure the legal and appropriate management and disposal of general and hazardous waste, through the implementation of a strategy for the minimisation, recycling, management, temporary storage and removal of waste.
- Minimise the potential for dust emissions.
- Minimise the potential for noise disturbance in surrounding areas.

- Undertake rehabilitation wherever possible during the life of mine (LoM).
- Incorporate final closure objectives in construction and mine planning.
- Develop, implement and manage monitoring systems to ensure good environmental performance in respect of the following: ground, air quality (i.e. dust), noise and biodiversity.
- Reduce potential impacts on the safety of the surrounding properties through strong site access controls and discouragement of informal settlements.
- Support and encourage environmental awareness and responsibility amongst all employees and service providers.
- Provide appropriate environmental education and training for all employees and service providers.
- Prevent pollution and clean up if incidents occur.
- Incorporate the relevant requirements stipulated in this EMP into the mine, plant process design and mine waste residue disposal.
- Ensure that all the employees and contractors adhere to the relevant management commitments.
- Ensure compliance to the EMP.

1.6 KEEPING THE EMP UP TO DATE

It is the intention that this EMP should be seen as a “living document” which will be amended during the operation (where relevant) as new information (e.g.: environmental data), policies, authority guidelines, technologies and as the activities might change, or new ones be introduced.

Lodestone will conduct periodic reviews of the EMP, should circumstances change.

Should any listed activity(s) as defined in the EIA-regulations associated with the Environmental Management Act, No. 7 of 2007 be triggered because of future modifications / changes, this EMP will be required to be updated through another EIA process as stipulated in the Act and its regulations.

2 MANAGEMENT PLANS RELEVANT TO ALL

The following sections list the (generic) management plans relevant to all project activities / facilities, including the Dordabis Iron Ore Mine and associated activities; as well as the proposed new 132 kV powerline.

2.1 PARTIES RESPONSIBLE FOR THE IMPLEMENTATION OF THE EMP

This section describes the roles and responsibilities for implementing the various management plans.

2.1.1 LODESTONE CHIEF OPERATING OFFICER

The Chief Operating Officer (COO) shall ensure compliance to this EMP. **The COO must ensure that employees and contractors adhere to the conditions of the EMP and other relevant permits.**

It is the duty of the COO to ensure that appropriate environmental risk assessments are conducted and that an environmental risk management plan is developed and implemented. The COO must ensure that an adequate protection and indemnity insurance cover for incidents exists, an Emergency Response Plan (including firefighting and oil spill contingency) is developed and implemented, and the necessary procedures and protocols required for emergencies are developed and implemented.

2.1.2 LODESTONE MINE MANAGER / SITE SUPERVISOR

This person has overall responsibility for environmental management on the mine and for ensuring this EMP is implemented. To assist the **Mine Manager / Site Supervisor**, the Dordabis Iron Ore Mining Project will have an Environmental **Manager / Officer** (or dedicated person responsible for environmental management activities onsite) that will be dedicated to managing and monitoring the environmental issues associated with the mining and associated activities.

The **Mine Manager / Site Supervisor** must ensure the environmental management plan is included in all contracts and to ensure that contractors adhere to the conditions of the EMP. Contract documents should consider the inclusion of penalties for non-conformance to the EMP, or to link the sign-off of the contract to a retainer clause. The client retains part of the contract fees until the **Mine Manager / Site Supervisor** has signed off the clearance certificate, indicating satisfaction with the rehabilitation of the contractor's work and laydown area.

The Mine Manager / Site Supervisor shall be responsible for responding to any actual environmental emergencies that **occur, or as specified per procedure.**

The **Mine Manager / Site Supervisor** shall also ensure that sufficient financial and human resources are available to implement emergency procedures, and to take corrective action proactively when environmental risks are evident in advance.

2.1.3 THE ENVIRONMENTAL MANAGER / OFFICER

The Environmental **Manager / Officer** will be responsible for assisting the Mine Manager / **Site Supervisor** in all environmental and community issues, and specifically to ensure that the commitments as set out in this EMP are implemented during the design, operations, decommissioning and closure phases.

In addition to the above, the Environmental **Manager / Officer** is responsible for ensuring that all persons involved with the **project** comply with this EMP.

The Environmental **Manager / Officer** will be responsible for the following aspects related to compliance of this EMP:

- Regular inspections and auditing compliance to this EMP and any other relevant legal requirements e.g., permits and authorisations.
- **Ensure that environmental awareness training is conducted** during induction training and on an ad hoc basis thereafter.
- Conduct scheduled monitoring as outlined in various sections in the EMP as well as any additional monitoring required by permit and authorisations issued to the mine by relevant authorities.
- Ensure compliance to this EMP and permits and authorisations issued to **Lodestone** by relevant authorities. Ensure responsibilities and target dates are developed for each one of the commitments in this EMP.
- Submit required information to relevant authorities such as reporting on compliance with the EMP, permit and relevant authorisations.
- Liaise with the Mine Manager / **Site Supervisor** on environmental management (where required).

Furthermore, the Environmental Manager / Officer for the Lodestone operations shall be responsible for the following:

- Identifying all potential environmental emergencies for the mine.
- Testing, where practical, the response plans developed to deal with identified environmental emergencies.
- Investigating any environmental impacts after the occurrence of an emergency to ensure that all aspect registers and procedures are still relevant.
- Ensuring the periodical review and, if necessary, revision of this **EMP and related procedures**, in particular after the occurrence of accidents or emergency situations.
- Distribution of **standard procedures** to all relevant **Mine Managers**.

2.1.4 CONTRACTORS

All contractors and their sub-contractors and employees will be contractually required to comply with the relevant commitments in this EMP.

2.1.5 EXTERNAL SPECIALISTS

Lodestone may appoint an external environmental specialist, as and when required, to assist with the implementation of certain commitments made in the various management plans.

An independent auditor will also assess compliance against the EMP on an annual basis.

2.2 DEALING WITH ENVIRONMENTAL EMERGENCIES AND INCIDENTS

Potential environmental emergencies are identified by the Environmental Manager / Officer based on legal and other requirements, aspects identified and risk rating, knowledge of the mining environment and previous emergency situations.

Should an environmental emergency occur, the following procedure will be followed:

- The Environmental Department must immediately be notified of the incident.
- Steps must immediately be taken to minimize the spread of pollution.
- The Environmental Manager / Officer shall arrange for samples of the water and or soil resources to be taken for chemical analysis.
- The Environmental Manager / Officer must report the incident to the following government departments (depending the nature of the incident):
 - DWA (MAWLR);
 - The Namibian Police Services or relevant Fire Department.
 - The neighbouring farmers and informal settlements.
 - Any other government departments that must be notified in response to specific legal or policy requirements.
- Clean-up and remedial actions must be taken. These may be directed by DWA or developed in consultation with a water specialist.
- Informing DWA when the incident has been fully remediated.

2.3 AUDITING COMPLIANCE WITH THE EMP

The commitments contained in this EMP will be Lodestone's contractual agreement with the Namibian authorities for sound environmental management. All employees, contractors and sub-

contractors and any visitors to site will be expected to comply with the commitments contained herein.

Auditing against the commitments in the EMP is compulsory. A distinction between internal and external environmental performance assessments can be made.

2.3.1 INTERNAL AUDITS

The Environmental **Manager / Officer** will conduct internal management audits against the commitments in the EMP. These audits will be conducted **periodically**. The audit findings will be documented for both record keeping purposes and for informing continual improvement.

The Environmental **Manager / Officer** will furthermore conduct daily inspections during construction and weekly inspections during mining and associated operations.

2.3.2 EXTERNAL ENVIRONMENTAL PERFORMANCE ASSESSMENTS

The operators of the **Dordabis Iron Ore Mining Project** must be committed to continuous monitoring and performance assessment of their operations in relation to compliance with the EMP, and environmental legislation. It is suggested that external performance assessments be completed on a yearly basis by an independent qualified Environmental Practitioner and should specifically deal with:

- The adequacy of the EMP at various stages of the operations. To ensure this, Lodestone will need to:
 - Conduct their own monitoring on a continuous and daily basis during the operation of the mine.
 - Commission independent performance assessments of the EMP.
 - **Conduct assessment for authorities as requested.**
- A performance assessment / audit report as contemplated above shall make provision for:
 - Information regarding the period applicable to the performance assessment / audit.
 - The scope of the assessment / audit.
 - The procedure used for the assessment.
 - The interpreted information gained from monitoring the approved EMP.
 - The evaluation criteria used during the assessment.
 - The results of the assessment.
 - Recommendations on how and when non-compliance and deficiencies will be rectified.

2.4 REPORTING / SUBMISSION OF INFORMATION

As a minimum, the following documents will be submitted to the relevant authorities on an ongoing basis:

- The bi-annual report required by MEFT will be submitted every six months.
- Reporting to authorities as specified by permit conditions, for example water abstraction reporting to the DWA.

2.5 SOLID AND LIQUID WASTE (INCLUDING SEWAGE) MANAGEMENT

2.5.1 MANAGEMENT MEASURES

Issue 1: General

- Action 1: The waste management procedure for Lodestone must cover the recycling, re-use, storage, handling, transportation and disposal of waste. Ensure that the contractor responsible for the above are made aware of these procedures.

Issue 2: Collection, storage and disposal of non-hazardous waste

- Action 1: Designated waste collection points will be established onsite. Care will be taken to ensure that there will be sufficient collection points with adequate capacity. Receptacles must have lids to prevent windborne litter or scavenging by animals.
- Action 2: Recyclable waste will be sent to a reputable recycling company. The remainder of the waste will be disposed of at a licenced landfill site offsite.
- Action 3: Washed / neutralised drums are to be separated into salvageable and non-salvageable groups.
- Action 4: Non-salvageable drums (and drums that contained hazardous materials) should be cleaned, flattened and sold as scrap or disposed of as above.
- Action 5: Non-recyclable waste will be collected and taken to an offsite waste facility.
- Action 6: Scrap metal should be sold to a reputable company.
- Action 7: Consider using a press onsite to press relevant waste material before storage and disposal.
- Action 8: Avoid foamalite packaging for food onsite.
- Action 9: Obtain agreement from the landowner regarding safe disposal of concrete and building rubble (excluding domestic waste) on a dedicated area on the proposed ML area (e.g. within the WRD) and then covered with waste rock or overburden. This does not include waste (wet) cement.

Issue 3: Collection, storage and disposal of hazardous waste

- Action 1: Designated waste collection points will be established onsite for hazardous waste. Care will be taken to ensure that there will be sufficient collection points with adequate capacity.
- Action 2: Hazardous waste will be disposed of at a permitted hazardous waste disposal site (most likely in Windhoek).
- Action 3: **Keep a record of hazardous waste disposal certificates.**
- Action 4: **Onsite there will be** a dedicated area for used oil / chemicals storage that will include an impermeable concrete slab, bunding, an oil trap and sump.
- Action 5: Used oil will be sent to a reputable recycling company for recycling.
- Action 6: Materials contaminated with oils and greases will be disposed of at a permitted hazardous waste disposal site.
- Action 7: All explosive bags are to be collected together and safely burnt at the dedicated site (i.e. magazine site) according to permit conditions and procedures, where applicable.
- Action 8: Ensure that hazardous waste is kept covered, in impermeable bunded areas until it can be removed from site to the hazardous waste facility.
- Action 9: Store fluorescent tubes (if any) in a special labelled steel drum at the engineering workshop.
- Action 10: Ensure that waste storage areas and or containers meet the risk needs for that specific waste (e.g. impervious floor, bunded areas with drainage / containment systems, lids to prevent light material from blowing away or sealed containers for hazardous material).

Issue 4: Medical waste

- Action 1: Incinerate the medical waste offsite at an approved medical facility.

Issue 5: Sewage management

- Action 1: Sewage disposal for the different areas must be safely managed to prevent groundwater impacts. Individual gravity sewer networks around the buildings discharging to various septic tanks must be properly designed and implemented. Subsoil disposal of the liquid effluent will take place by using soakaways installed for each septic tank. See effluent discharge permit requirements.

2.5.2 MONITORING / PLANNING / FURTHER INVESTIGATION

- Engineering design of storage installations.
- Records (a manifest) in the case of hazardous waste transport and disposal.
- Weekly inspections of non-mineralised waste handling and management facilities will be undertaken to ensure that the waste management procedures are being implemented. The volume and type of non-mineralised waste, and the disposal destination, will be monitored and recorded as required. The results will be reported annually.

2.6 STAKEHOLDER CONSULTATION / COMMUNICATION MANAGEMENT PLAN

2.6.1 MANAGEMENT MEASURES

General stakeholder communication

Sufficient opportunity for regular communication **must be** provided on the relevant mining activities, together with feedback on the environmental management performance of the mine and **to ensure that** interested and affected parties (I&APs) **continue** to raise comments and concerns (complaints) on the same.

The key I&AP in this regard is the Tsatsachas farm owner.

The issues surrounding the stakeholder communication can be summarised below, along with the management commitments in order to resolve, manage or mitigate these issues. These commitments apply to all phases of the mining project.

Issue 1: Understanding who the stakeholders are

- Action 1: Maintain and update the stakeholder register. Ensure that all relevant stakeholder groups are included.
- Action 2: A representative **stakeholder** database would include, as a minimum, surrounding farm owners.

Issue 2: Liaison with I&APs **during** all phases of the **LoM**

- Action 1: **Develop** and implement a stakeholder communication and engagement strategy. Regular meetings with the relevant **farm** owner will be carried out (the frequency of the meeting will be determined between Lodestone and the farm owner at the outset of the project).

Meetings with other neighbouring farmers must be arranged on an ad-hoc basis, depending specific complaints being raised. However, at the outset of the project, Lodestone will engage with the immediate farm neighbours

(as a minimum) to inform them of the commencement of the activities and also to share relevant safety-related information.

Issue 3: Managing perceptions, issues and or complaints

Action 1: Develop and implement a concerns / complaints (grievance) process for stakeholders and **announce** the channels through which issues can be submitted to Lodestone:

- Document all complaints in an external communications' register.
- Respond **swiftly** to acknowledge receipt of complaints and comments.
- Investigate and report on findings of issue to the complainant.
- Keep complete auditable records of complaints, responses and actions taken.
- Introduce an independent mediator if the grievance / complaint cannot be resolved between Lodestone and the affected party.

Issue 4: Safety of third parties

Action 1: Through appropriate communication and inductions, provide information to educate third parties about the dangers associated with hazardous excavations and infrastructure (refer to Issue 2).

2.7 SAFETY AND SECURITY MANAGEMENT PLAN

It is essential that safety and security measures are defined and implemented to adequately protect the mine site from being accessed by unauthorised people. An emergency response plan for incidents is also essential.

Note that a separate Occupational Health and Safety (OHS) Plan shall be developed for the mining activities which does not form part of this EMP.

2.7.1 MANAGEMENT MEASURES

General (third party) safety and security

The objective of the **management** measures is to prevent physical harm to third parties and animals from potentially dangerous excavations, infrastructure and associated activities.

Issue 1: Access of unauthorised people

Action 1: Warning signs will be erected and maintained at the site boundary (and the entrance to the farm – i.e. the new access road) and the fence around the working area of the mine will be maintained.

- Action 2: Security control will be in place at the access point to prevent uncontrolled vehicle and pedestrian access.
- Action 3: Any persons entering the mine area will be required to undergo a formal induction.
- Action 5: Operate and publicise among all site workers and visitors a detailed security plan for the mine and neighbouring farms. The mine cannot lock workers in, but it must inform all employees / contractors of the detailed consequences of anyone found in breach of the security measures. It must include a contingency plan to protect the local community if mine labour goes on strike.

Issue 2: Safety risks

- Action 1: Operate an alcohol-free site and include random testing of employees / contractors on entry to site, at the beginning of shifts and at any time on duty. **Where relevant, random tests will be conducted at the (temporary) accommodation camp.**
- Action 2: Develop a detailed fire management policy and ensure all employees / contractors are regularly trained. In this regard (amongst others):
- No open fires must be allowed.
 - Smoking in dedicated areas to avoid any veldfires.
 - Conduct a risk assessment(s) to ensure potential veldfires are avoided at all costs.
 - Fire breaks must be made around the mine site, and the farm boundaries in accordance with the relevant legislation pertaining to land management.
- Action 3: Ensure all security personnel are well vetted and trained.
- Action 4: Permanent aboveground waste facilities and stockpiles will be rehabilitated in a manner that they present as landforms that will be stable, protected from flood damage (designed, constructed and operated in a manner that stability (i.e. safety) is a priority). As far as is possible, the slopes will be revegetated. The permanent aboveground facilities will be designed, constructed and operated in a manner that stability is a priority, flood protection is provided and the risk of failure is limited to acceptable levels.
- Action 5: Any mining void that remain open will be made safe to ensure that there is no risk to the safety of people and animals.

- Action 6: Collection of wood and any plant or animal species from the farms are forbidden.
- Action 7: At closure, the open pit perimeters will be bermed off with available waste rock material or sidewalls must be sloped sufficiently. The viability of providing fencing as an additional measure will be investigated and agreed to with the landowner. The pit walls will be made safe from both a stability and access perspective. In the event that people or animals cross the berm and enter the pits the mitigation measures will ensure that there will be no risk of pit wall failure and that there will be safe exit options available. In addition, permanent warning signs will be in place at appropriate intervals, in appropriate languages with danger pictures to warn people of the long-term safety risks of entering the open pits.

Issue 3: Emergency

- Action 1: Develop and implement an emergency response plan relating to third parties' safety (i.e. hazardous excavations that can cause injury, etc.). This will be kept by the **Environmental and Safety Departments**.

Issue 4: Handling storage, transport and use of hazardous substances (i.e. **hydrocarbons**, etc.)

- Action 1: All legal health and safety requirements will be implemented when transporting **hazardous** substances to site.
- Action 2: Transport companies will comply with all legal requirements for the handling and transport of hazardous substances.
- Action 3: Storage facilities / tanks will comply with all relevant health and safety requirements applicable for Namibia.
- Action 4: Major spillage incidents will be handled in accordance with the mine's Emergency Response Plan. Any significant spills will be reported to DWA within 24 hrs and corrective action must be taken.
- Action 5: Induct all relevant employees and contractors in the mine's spillage management procedure.
- Action 6: Enforce a zero-tolerance policy on loitering on any privately owned farms. No outside visitors to the camp should be allowed.

2.8 OCCUPATIONAL HEALTH AND SAFETY

Occupational health and safety aspects of the **Dordabis Iron Ore Mining Project** do not form part of this EMP. Lodestone will, however, adhere to all the relevant Namibian legislation regarding health and safety, and implement a formal health and safety management system.

All hazardous chemicals used onsite will have readily available material safety datasheets (MSDSs). Chemical hazards training will be an integral part of safety training and induction. Procedures will be developed for the use and handling of all dangerous chemicals. Correct personal protective equipment will be supplied for the relevant work.

3 MANAGEMENT PLANS SPECIFIC TO THE MINING, PROCESSING AND ASSOCIATED ACTIVITIES

3.1 GEOLOGY MANAGEMENT PLAN

3.1.1 MANAGEMENT MEASURES

Issue 1: Removal of a portion of the geological strata as ore and waste rock

- Removal of the ore and waste rock is inevitable and cannot be mitigated.

Issue 2: Creating areas of differential settlement once backfilled, resulting in localized uneven terrain.

- Compaction of backfill to some extent may be necessary during backfilling of the mined-out pits.
- Except on the backfilled pits, significant compaction is unlikely.
- After backfilling of the pit with tailings, some of the waste rock could be replaced on top of backfill to create a more natural appearance.

3.2 TOPOGRAPHY AND DRAINAGE MANAGEMENT PLAN

3.2.1 MANAGEMENT MEASURES

Issue 1: Topography and drainage

- Implementation of a rehabilitation plan which will provide guidance towards avoiding all surface water ponding.
- Appropriate shaping or landscaping of the final profiles to ensure proper drainage.
- Refer to surface water management plan.

3.2.2 MONITORING / PLANNING / FURTHER INVESTIGATION

- Appropriate engineering planning of the site.

3.3 SOIL MANAGEMENT PLAN

3.3.1 MANAGEMENT MEASURES

Issue 1: Failure to strip and stockpile soil for later rehabilitation and the management of soil stockpiles.

- Prior stripping and stockpiling of topsoil (nominally 150 mm) from the areas of:
 - the mine pits,

- the haul roads and any other areas where soil would become compacted,
 - the waste rock dumps,
 - the CDF,
 - the ROM tip / crusher area,
 - the processing plant,
 - buildings and any other mine infrastructure.
- Ensuring direct placement of stripped topsoil and undertaking stockpiling for limited periods of time in terms of well-defined procedures.

Issue 2: Soil contamination:

- Limit the risk of potential soil contamination around the ore processing areas by practicing good housekeeping.

Issue 3: Loss of soil fertility:

- Additional measures may be required such as mulching and or initial fertilising in order to encourage restoration of natural vegetation.
- Encourage natural vegetation of the soil stockpiles by local indigenous grasses and prevent infestation by alien invasive weeds.

3.3.2 MONITORING / PLANNING / FURTHER INVESTIGATION

- Planning of stripping of topsoil and location of stockpiles to avoid mixing with other material.
- Advance planning with a view to final rehabilitation can save Lodestone a considerable amount of money at the closure and rehabilitation stage.

3.4 LAND CAPABILITY MANAGEMENT PLAN

3.4.1 MANAGEMENT MEASURES

Issue 1: Mixing of topsoil (having higher fertility and organic matter) and subsoil (lower fertility and organics) due to bulk soil handling resulting in reduced post-mining capability to support vegetation.

- Ensuring appropriate stripping of the topsoil / top layer, handling and preservation of this limited resource. Careful topsoil management is a prerequisite for rehabilitation to productive rangelands.

Issue 2: Land capability and restoration

- Protection of available topsoil stockpiles. Once soil is replaced after closure, protection against erosion by wind and water must be integral to the rehabilitation process.

- Protection of rehabilitated areas against sheet flow and or gulley erosion by means of storm water diversion berms leading to natural watercourses.
- Protection of the above drainage paths against secondary erosion.
- Establishment of appropriate vegetation over rehabilitated areas as soon as possible and maintaining until plant cover is self-sustaining and able to prevent erosion.
- Create mine rehabilitation landscapes that are conducive to the following:
 - Erosion protection,
 - Nutrient capturing,
 - Stable habitats which can form the platform for revegetation.

3.4.2 MONITORING / PLANNING / FURTHER INVESTIGATION

- Identify areas at risk of erosion or needing particular protection and implement appropriate protection measures timeously, taking into account seasonal weather factors.

3.5 LAND USE MANAGEMENT PLAN

3.5.1 MANAGEMENT MEASURES

Issue 1: Failure in progressive rehabilitation and restoration

- Align surface rehabilitation with mine planning to ensure that proper rehabilitation follows mining-related disturbance as closely as possible.
- Ensure rehabilitation plan for implementation is aligned to the final land use and is implemented accordingly.

3.5.2 MONITORING / PLANNING / FURTHER INVESTIGATION

- Advance planning of progressive rehabilitation to ensure that it is not left till the end of the project.

3.6 FLORA MANAGEMENT PLAN

3.6.1 MANAGEMENT MEASURES

Issue 1: Destruction of flora habitats associated with mining activities

- Demarcate no-go areas for mine activities. Fence the operations area (not the whole ML area) with game fencing and contain all activities within the fenced area.
- Partial or complete backfilling of pits as determined by (a) volumes of available tailings (and waste rock) and (b) results of updated groundwater modelling prior to closure.
- Rip compacted soil and replace topsoil on other disturbed areas.
- Re-establish vegetation in floral communities comprising an appropriate mix of grasses, shrubs and woody species.

- Remove invasive vegetation through measures that may include grubbing out, and or spraying with selective herbicide.
- All aloes on the ore koppies must be removed and planted elsewhere or donated to NBRI prior to mining in these areas.
- Establish woody species in clumps to encourage associated grass species and take measures to encourage the desired vegetation species over the rehabilitated areas.
- Select vegetation primarily for the purpose of combating soil erosion and encouraging grassland succession to restore perennial grass species, with limited woody component (refer to the botanical report by Curtis, 2011).
- Where backfilling with tailings has provided a deep substrate, special tree species such as *Acacia erioloba* can be planted. Other valuable tree species from the local environment would include *Albizia anthelmintica*, and *Boscia albitrunca*. Another useful tree species from the local environment would be *Acacia karoo*.
- Utilise topsoil as judiciously as possible and try to preserve as much of the natural fertility in the soils by direct replacement.
- To the extent that self-sustaining floral communities are re-established, faunal communities can also be expected to return – both invertebrates and vertebrates, including birds.
- If cutting of protected species is unavoidable, tree removal permits will be obtained for the removal of all protected tree species (as is required by the Forestry Act).

3.6.2 MONITORING / PLANNING / FURTHER INVESTIGATION

- Planning of mine operations area.
- Ongoing regular monitoring and eradication of alien invasive plants.
- Monitor revegetation of rehabilitated areas and determine any additional measures required to ensure adequate revegetation.

3.7 FAUNA MANAGEMENT PLAN

3.7.1 MANAGEMENT MEASURES

Issue 1: Loss of habitat

- Provided that mitigation is implemented in relation to flora according to the above management measures, the re-establishment of biodiverse faunal communities should follow.

Issue 2: Loss of grazing palatability as a result of dust

- Dust needs to be managed at source during construction and operations as outlined later in this EMP.

Issue 3: Injure to animals

- The mine area should be fenced with game fencing to keep wildlife out.

Issue 4: General issues relating to biodiversity

- The footprint of the area to be disturbed will be minimised as far as is practically possible.
- Lodestone will implement a zero-tolerance policy with regards to the killing or collecting of any biodiversity. This applies to people directly employed by Lodestone as well as any contractors working on their behalf.
- Employees and contractors will be shown the value of biodiversity and the need to conserve the species and systems that occur within the project area.
- No open fires will be permitted on site.
- Speed limits will be enforced so as to prevent road kills.

3.8 GROUNDWATER MANAGEMENT PLAN

3.8.1 MANAGEMENT MEASURES

Issue 1: Seepage plume emanating from WRD, CDF has a negative impact on groundwater quality.

Mitigation measures before start of full-scale mining:

- Confirm during demonstration phase the geochemical characteristics of the tailings and waste rock and that the waste is non-acid generating and the leachate from the facility is within effluent discharge guideline values.

Mitigation measures during mining:

- Capture stormwater and contact water during rainy season and manage it as per Storm Water Plan (SWP). Divert non-contact water around WRD and CDF
- Conduct a robust groundwater quality monitoring to effect early detection of any of these contaminants and use the baseline groundwater chemistry as a benchmark.
- Maintain the lowest possible moisture of the tailings by densifying them with environmentally friendly flocculent.

Issue 2: Abstraction from production boreholes has a negative impact on the groundwater levels and other groundwater users on neighbouring farms.

Mitigation measures before start of mining:

- Secure alternative water supply sources to relief water demand from boreholes. Water supply from Ujams Sewage Treatment Plant is planned for Demonstration Phase of the project.

Mitigation measures during mining:

- Do not exceed recommended pumping rates, use less than recommended volume if possible. The volume of 120 m³/d is the recommended volume for future abstraction on farm Tsatsachas from these existing boreholes.
- Reuse process water / raw water pond
- Conduct a robust groundwater level monitoring as well as in observation boreholes.
 - Abstraction volumes must be metered and water levels in production boreholes measured on a regular basis.
- Monitoring of borehole water levels at neighbouring farms
- Conduct a limited hydrocensus to determine boreholes to be used for regional monitoring of groundwater levels and groundwater quality.
- The hydrocensus and regional monitoring must be done by an external specialist as from start of mining activities.
- Maintain groundwater abstraction permit from the DWA, MAWLR.

Issue 3: Using semi-purified water for mining processes and dust suppression has a negative impact on the nearby potable water abstraction points

Mitigation measures before start of mining:

- Built flood protection over around the monitoring and production boreholes such as concrete slabs 1 m x 1 m x 1 m for the alluvial boreholes.

Mitigation measures during mining:

- Treat the water further by adding chlorine at Ujams before water is delivered to the mine site.
- Monitor all the metals as given in the general standard guidelines of the Water Act No. 11 of 2013.
- Include faecal coliforms and E. coli monitoring in the monitoring strategy.
- Put up signage to prevent people from drinking the water.
- Obtain effluent discharge permit from the DWA, MAWLR

Issue 4: Groundwater contamination due to hydrocarbon such as heavy-fuel oil (HFO) spillages or seepage from improperly stored fuel on site during mine operations has a negative effect on groundwater quality.

- Fuel must be stored in a special designated and bunded area.
- Clean up spills with immediate effect to curb percolation.
- Emergency pollution management plan must be in place and regular training of operational staff has to be scheduled.
- Dispose of at appropriate disposal sites such as Kuperberg Landfill Site and do not let such waste pile up.
- While drilling, equipment used on site are well maintained during the drilling phase.
- Drip trays to be placed under vehicles when conducting maintenance.
- Have proper oil water separators installed that are cleaned before they are full to the brim and run the risk of overflow.
- Monitoring of borehole water quality.

Issue 5: Mine pit dewatering has a negative influence on groundwater levels

- Monitoring of water levels on mine site and on neighbouring farms during LoM and after mine closure.
- Update groundwater flow and mass transport model two years after full scale mining starts and update groundwater inflow predictions and **radius of influence (RoI)** every two years thereafter.
- If borehole yields and water levels on farms located within the RoI of the mine pit dewatering are materially affected on account of mine pit dewatering operations conducted by Lodestone, (i.e. if regional groundwater monitoring on the mine and neighbouring farms shows clear evidence of a material adverse impact on the groundwater levels on account of mine pit dewatering activities), the farmers may claim the following remedial action to be taken by Lodestone:
 - Lodestone will assume liability for the reasonable cost of deepening the affected farmers existing boreholes (i.e., drilling cost) or, if, reasonably required, identifying and drilling substitute boreholes or supplying the farmers with equivalent reasonable volumes of water from the mine.
- Lodestone to produce a groundwater and surface water baseline.

3.8.2 MONITORING / PLANNING / FURTHER INVESTIGATION

- Refer to Section 3.17.2.

- A subsequent monitoring plan for water quality and water levels must be produced, and the overarching recommendation is to enforce groundwater quality monitoring and groundwater level monitoring in existing and newly proposed monitoring boreholes.
- Additional recommendations to confirm the geophysical and geochemical characteristics of the CDF a further geochemical analysis must be done to bridge the information gap.
- It is recommended that in order to continue pumping sustainably from the boreholes, Lodestone adheres to the recommended abstraction regime and secure alternate water supply sources as planned, and rather only use borehole water for potable use.
- Due to the current unsafe effluent water's chemical composition, it is recommended that the wastewater be treated before utilisation, e.g. by chlorination. Additionally, if the current analysis has omitted some parameters stipulated in the guidelines, it is therefore recommended to analyse for these outstanding parameters to make a conclusive judgement about the safety of the water from Ujams.
- With regard to managing hydrocarbons, it is recommended that the mine enforce the good environmental practises of bunding the fuel depots, and fuel storage facilities, using drip trays when fixing or conducting maintenance of equipment, installing oil separators and cleaning up spill with immediate effect to curb the percolation of the hydrocarbons below ground or before they are washed away.
- It is further recommended that the groundwater numerical model be updated to transient and be updated every two years after the full-scale mining phase has commenced as the monitoring data becomes available and better understanding of the hydrogeological setting is attained. This will ensure to refine the scenarios and increase the level of confidence of the model results.
- Furthermore, when geochemical testing of the composition of the tailings and waste rock dams has been done to confirm **acid rock drainage (ARD)** potential, the model may be updated to see impact of the in-pit backfilling of waste rock and tailings material.

3.9 SURFACE WATER MANAGEMENT PLAN

3.9.1 MANAGEMENT MEASURES

Issue 1: Surface water resources contamination

The design of the stormwater infrastructure has been provided in brief **in the EIA (Amendment) Report of 2020** and is summarised below:

- Clean water systems will be separated from dirty water systems.
- Clean run-off and rainfall water should be diverted around dirty areas and back into the environment.

- The size of contaminated water generating areas should be minimized, and contaminated water contained in systems that allow for the reuse and or recycling of this contaminated water.

The proposed stormwater management system will collect the dirty (contact) water generated in various mining infrastructure areas and activities through ditches and diversion channels which routes runoff from the CDF, WRD and the mine plant areas into surface water containments. Around the CDF three sediment ponds have been designed to attenuate dirty water. Contact water will be classified as either reduced quality and be stored in retention dams for use within the mining processes, or as containing silt / sand load and be stored in sediment ponds, so that after suitable treatment and retention to allow the settling of solids, the water can be released back into the downstream channels to continue as runoff. The stormwater generated from the waste rock and the mining pits will be routed to the three proposed sediments ponds.

Additional mitigation measured for the surface water contamination are as follows:

- Progressive rehabilitation of disturbed land should be carried out to minimize the amount of time that bare soils are exposed to the erosive effects of rain and subsequent runoff.
- Traffic and movement over stabilised areas should be controlled (minimised and kept to certain paths), and damage to stabilised areas should be repaired timeously and maintained.
- All hazardous chemicals (new and used), mineralized waste and non-mineralised waste must be handled in such a manner that they do not pollute surface water. This will be implemented by means of the following:
 - Pollution prevention through basic infrastructure design such as waste storage containment, hardstanding and bunds.
 - Pollution prevention through maintenance of equipment.
 - Pollution prevention through education and training of workers (permanent and temporary).
 - A spill clean-up plan to enable containment and remediation of pollution incidents.
- Water quality monitoring in streams must be undertaken as per the monitoring programme outlined below.
- Good housekeeping practices should be implemented and maintained by timeous cleaning-up of accidental spillages, as well as ensuring all dislodged material is kept within the confined storage footprints. In addition, spill cleaning kits and material safety data sheets for chemical and hazardous substances should be accessible and available where these are used for immediate clean-up of accidental spillages of pollutants.

- Minimise the disturbance of vegetation and soils as much as possible by restricting construction activities within demarcated areas.
- In the case of linear earthworks, phasing of working areas and progressive rehabilitation will be necessary to minimise the footprint of the extent of the disturbance at any given time.
- A post-rehabilitation audit should be undertaken during the end of LoM to ascertain whether the remediation has been successful is recommended and if not, further measures should be recommended and implemented.

Issue 2: Alteration of natural drainage patterns and flow: stormwater reduction and abstraction

- Clean water around the mine must be diverted around the infrastructure and be allowed to get to preferential flow into the environment. The detailed stormwater management plan will provide the design criteria.
- The site water balance must be developed to describe the collection and water management strategy defined with the reuse of dirty water prioritised. To reduce the impacts of the project on the surface water resources collected in sediment ponds must be recycled for use in the process or for other uses on site to reduce make-up water requirements.

Further management and mitigation measures:

- In addition to the measures presented and discussed throughout this report, the following management measures should be implemented:
 - Good housekeeping practices must be implemented and maintained through clean-up of accidental spillages are kept within the defined footprints of the mineralised and fuel storage areas. In addition, clean-up equipment and material safety data sheets for chemical and hazardous substances should be kept on site for immediate clean-up of accidental spillages of pollutants.
 - Regular sessions for the inspection and maintenance of the stormwater management facilities must be scheduled. This must include inspection of drainage structures for any in channel erosion or cracks, de-silting of silt traps and sediment ponds.
 - Vehicles and plant equipment servicing must be undertaken within suitably equipped facilities. This would include either workshops, or bunded areas, from which any storm water is conveyed to a pollution control dam(s) (PCD), after passing through an oil and silt interceptor.

- Pollutant storage – any substances which may potentially pollute surface water must be stored within a suitably sized bunded area and where practicable covered by a roof to prevent contact with rainfall and or runoff.
- All measures implemented for the mitigation of impacts, should be regularly reviewed in order to conform to best practice and to be compliant with the various permits issued for the site by the authorities as well as the water guidelines as demarcated by the DWA, MAWLR.

3.9.2 MONITORING / PLANNING / FURTHER INVESTIGATION

- Refer to Section 3.17.1.

3.10 AIR QUALITY MANAGEMENT PLAN

3.10.1 MANAGEMENT MEASURES

- Air quality impacts during construction would be reduced through basic control measures such as limiting the speed of haul trucks; limit unnecessary travelling of vehicles on untreated roads; and applying chemical suppressants such as dust-a-side on regularly travelled, unpaved sections.
- For the control of vehicle entrained dust the mine has committed to a design control efficiency of 90% on unpaved roads through the application of dust-a-side.
- In controlling dust from crushing and screening operations, it is recommended that water sprays be applied to keep the ore wet.
- Mitigation of materials transfer points should be done using water sprays at the tip points.
- In minimizing windblown dust from stockpile areas, water sprays should be used to keep surface material moist.
- Refer to the Air Quality Specialist Report [attached to the EIA \(Amendment\) Report of 2020](#) for further detailed recommendations (Appendix N).

3.10.2 MONITORING / PLANNING / FURTHER INVESTIGATION

- Refer to Section 3.17.3.

3.11 BLAST VIBRATION MANAGEMENT PLAN

3.11.1 MANAGEMENT MEASURES

Issue 1: Impacts associated with blasting (general)

- Use the **blast specialist's report attached to the EIA Report of 2012** as a working document to: -
 - Ensure that the recommended charge masses are not exceeded.
 - Set safe distances for people and animals during blasting.
 - Ensure that neighbours understand that they may experience air blast, but airborne vibrations are not structurally damaging.
 - Provide blast specialist's guidelines to blasting contractor regarding the design and management of blasts. The blasting contractor is responsible for all aspects of blasting.
 - Based on the work done by the blast specialist, mitigation must be considered for the possible influences of ground vibration on the C23 national road. The maximum charge as used in the blast specialist's report may not be used closer than 100 m from the road. At 50 m from the road only 213 kg charge mass per delay may be used. Proper drilling and blasting may be used at distance as close as 50 m but only with reduced charge mass per delay. There is however still the responsibility of blasting teams to conduct blasting in such a manner that the possible effects remain low and do not result in complaints or damages.
- Close the C23 road during blasting. However, Lodestone must consider re-aligning of the road (in liaising with the landowner and the **Roads Authority – RA**) outside the blasting zone.
- A system will be designed to advise relevant neighbouring farmers of intended blasting times, in accordance with the rules of the use of explosives.
- Adequate notification will also be provided to mine workers, contractors and visitors.
- All registered complaints will be documented and, investigated by the Lodestone management team and efforts will be made to address the area of concern where possible.

Issue 2: Safe blasting distance from communities

- A minimum recommendation is that 500 m must be maintained from the blast done. This may be greater but not less. It is also a function of the blast contractor to determine what is considered as a safe distance.

Issue 3: Evacuation

- All persons and animals within 500 m from a blast must be cleared and where necessary evacuation must be conducted with all the required pre-blast negotiations.

Issue 4: Road closure

- When blasting closer than 500m from the C23 national road the necessary authorities must be informed, and a system of road closure implemented to ensure there are no vehicles on the road when blasting is done. Blasting signboards giving notice of intention to blast should also be placed at either side of the mining area.

Issue 5: Monitoring

- Monitoring is always a good preventative measure. It is strongly recommended that a monitoring program be put in place. This will also qualify the expected ground vibration and air blast levels and assist in mitigating these aspects properly. This will also contribute to proper relationships with the neighbours.

Issue 6: Photographic inspections

- A baseline of structure inspection should be considered for all privately owned structures surrounding the project area and specifically those identified as POI 1 to 6 (see the blast specialist's report [attached to the EIA Report of 2012](#)).

Issue 7: Recommended ground vibration and air blast levels

- The following ground vibration and air blast levels are recommended for blasting operations in this area. See Table 20 in the blast specialist's report [attached to the EIA Report of 2012](#) for limits for ground vibration and air blast.

Issue 8: Blasting times

- A further consideration of blasting times is when weather conditions could influence the effects yielded by blasting operations. It is recommended not to blast too early in the morning when it is still cool or the possibility of inversion is present or too late in the afternoon in winter. Do not blast in fog. Do not blast in the dark. Avoid blasting when the wind is blowing strongly in the direction of an outside receptor. Do not blast with low overcast clouds. These 'do not's stem from the influence that weather has on air blast. The energy of air blast cannot be increased but it is distributed differently (in unfavourable atmospheric conditions.) (For example, when air is denser the levels experienced may be higher than expected for a given distance.) to unexpected levels where it was not expected. Levels may be experienced higher than expected for specific distance due to meteorological influences.
- It is recommended that a standard blasting time is fixed and blasting notice boards setup at various entrance routes that will inform local residents of dates of blasting and blast times.

Issue: Third party monitoring

- Third party consultation and monitoring should be considered for all ground vibration and air blast monitoring work. Additionally, assistance may be sought when blasting is done

close to the highways. This will bring about unbiased evaluation of levels and influence from an independent group. Monitoring could be done using permanently installed stations. Audit functions may also be conducted to assist the mine in maintaining a high level of performance with regards to blast results and the effects related to blasting operations.

3.11.2 MONITORING / PLANNING / FURTHER INVESTIGATION

- Conduct independent assessments of relevant buildings and structures prior to the first blasting.
- Measurement of ground vibrations at the nearest homesteads and structures (refer to the blast specialist's report [attached to the EIA Report of 2012](#) (see above);
- Monitor blast gas plumes on site that may affect health of mine staff.

3.12 NOISE VIBRATION MANAGEMENT PLAN

3.12.1 MANAGEMENT MEASURES

- Implement general good practice measures.
- Consider quietest available technology.
- As far as is practically possible, source of significant noise should be enclosed.
- Regular and effective maintenance of equipment and plants.
- If noise control at the source and the use of distance between source and receiver is not possible, screening methods must be considered. As the CDF is being developed (and increases in height), it will act as a screen to the [nearest sensitive receptors](#) to the north and northeast of the mining and processing activities.
- Refer to the Noise Specialist Report [attached to the EIA \(Amendment\) Report of 2020](#) for further detailed recommendations (Appendix M).

3.12.2 MONITORING / PLANNING / FURTHER INVESTIGATION

- Noise monitoring at sites where noise is an issue or may become an issue is essential. Annual noise sampling over a period of 10 to 30 minutes for day- and night-time at NSR1, NSR 2, NSR 3, NSR 4, NSR 5, NSR 6, NSR 15, NSR 16 and NSR 17 should be incorporated in an annual environmental noise monitoring programme.
- Also, in the event that noise related complaints are received short term (24-hour) ambient noise measurements should be conducted as part of investigating the complaints. The results of the measurements should be used to inform any follow-up interventions. The investigation of complaints should include an investigation into equipment or machinery that likely result or resulted in noise levels annoying to the community. This could be achieved with source noise measurements.

- Refer to the Noise Specialist Report **attached to the EIA (Amendment) Report of 2020** for further detailed recommendations (Appendix M).

3.13 VISUAL VIBRATION MANAGEMENT PLAN

3.13.1 MANAGEMENT MEASURES

- It will not be possible to 'hide' the mine and infrastructure from the tar road but mitigation is possible to a degree from the neighbouring farmsteads.
- Design WRDs and CDF with visual impacts in mind.
- Some waste rock can be used to create a natural appearance on exposed surfaces.
- The landscaping and shaping of the mining areas during operations and rehabilitation must take cognisance of the local topography ensuring that it blends in as much as possible limiting the visual impact.
- Ensure transition from erosion protection to self-sustaining plant communities with grass and tree clumps – creating a natural appearance and further protecting the ground surface.
- Land disturbance will be limited to what is absolutely necessary.
- All dust plume sources will be managed as per the air quality assessment requirements.
- Litter will be prevented.
- All vegetation within the mine site that is not removed needs to be managed and protected.
- In all areas which are to be excavated, topsoil needs to be removed and stockpiled in a suitable location and utilised in rehabilitation of the CDF and WRD, plant and infrastructure areas.
- Unless utilized in the operation phase, construction structures need to be removed and the area rehabilitated.
- Minimize the height of the WRD and CDF by placing tailings and waste rock in mined-out open pits. However, the potential groundwater impacts need to be considered (see Section 3.9).
- All lighting is to be kept to a minimum within the requirements of safety and efficiency. Overly tall light poles are to be avoided and if exposed to the public line of site, low wattage and directional lighting should be used as appropriate. Security and perimeter lighting, where required, must also be shielded so that no light falls outside the area needing to be lit.

- It is recommended to put the lamp posts on the north / northeast side of the workstations to be lit, and focus the lights towards the south / south-westerly direction. Lamps should be fitted with suitable reflectors to focus the light downwards towards its target.
- All painted surfaces should blend into the natural surroundings.
- Rehabilitation of all the faces of the WRD to grass / scrub bushes and some trees.
- Reduce the angle of the WRD slope if not suitable for rehabilitation.
- Continuous rehabilitation of the CDF walls as they are raised.
- Implement the air quality (i.e. dust) management and mitigation measures (see Section 3.10).
- For the closure phase:
 - Lodestone will establish a mechanism to ensure that the rehabilitation of the mine is properly funded to ensure that sufficient funds are available to implement the rehabilitation and mitigations required for closure.
 - All components of the infrastructure used during operation, apart from the WRD and CDF, must be removed. The site must be visually 'cleaned up' so as to portray an uncluttered landscape.
 - The ground where processing plants were located must be decontaminated and then covered by the earth used for the berm and landscaped into a natural form in alignment with the natural hydrological patterns (where relevant).

3.13.2 MONITORING / PLANNING / FURTHER INVESTIGATION

- During all planning stages GIS terrain modelling can be used to predict visual impacts.

3.14 ARCHAEOLOGY MANAGEMENT PLAN

3.14.1 MANAGEMENT MEASURES

Issue 1: Chance Find Procedure

- The "chance finds" procedure covers the actions to be taken from the discovery of a heritage site or item to its investigation and assessment by a trained archaeologist or other appropriately qualified person.

Action by person identifying archaeological or heritage material:

- If operating machinery or equipment - stop work.

- Identify the site with flag tape.
- Determine GPS position if possible.
- Report findings to foreman.

Action by foreman:

- Report findings, site location and actions taken to superintendent.
- Cease any works in immediate vicinity.

Action by Mine Manager / Site Supervisor / Environmental Manager / Officer:

- Visit site and determine whether work can proceed without damage to findings.
- Determine and mark exclusion boundary.
- Site location and details to be added to project GIS for field confirmation by archaeologist.

Action by archaeologist:

- Inspect site and confirm addition to project GIS.
- Advise NHC and request written permission to remove findings from work area.
- Recovery, packaging and labelling of findings for transfer to National Museum.

In the event of discovering human remains:

- Actions as above.
- Field inspection by archaeologist to confirm that remains are human.
- Advise and liaise with NHC and Police.

3.15 SOCIO-ECONOMIC ASPECTS

3.15.1 MANAGEMENT MEASURES

Issue 1: General

- Full rehabilitation to productive grazing lands.
- Manage all bio-physical impacts and aspects thoroughly, from the planning stage onwards to prevent secondary social impacts.
- Maintain high levels of access control.

- Impose controls on the movement of personnel off-site in the local area through conditions of employment contracts.
- Ensure upfront alignment with I&APs on final land use and the rehabilitation to be implemented.
- Devise and implement a proper mine closure plan that includes asset protection during mine decommissioning.
- Compile and communicate the mine closure plan in accordance with acceptable good practice.
- The above should also be applied to the construction stage.

Issue 2: Economic Impacts:

- Lodestone will give tender preferential weighting to construction companies owned by previously disadvantaged Namibians, who demonstrate they make maximise use of the local labour force and specifically encourage women to apply for any jobs available.
- Lodestone will give tender preferential weighting to women-owned and managed companies over male-led companies.
- Lodestone will give tender preferential weighting to prime contractors who include and support previously disadvantaged Namibian suppliers in the procurement chain.
- Lodestone will implement a procurement policy which promotes the use of small and medium enterprises (SMEs), giving preference to those provided by the neighbouring community; also to purchase Namibian-made goods and services whenever possible or those from businesses within the South African Development Community.
- Lodestone will promote opportunities to seek win-win opportunities for local business growth, e.g. to produce and deliver goods and services at a fair price, e.g. guest accommodation and supplies to the canteen.
- Lodestone will develop a grievance procedure which will be shared with neighbours and all stakeholders, so that issues and concerns can be addressed adequately and promptly.
- It is recommended that Lodestone offers pre-arranged education tours of the working mine to schools and other groups. (Industrial tourism is of interest to many people).

Issue 3: Job creation and skills development

Lodestone will put the following enhancement and mitigation measures in place to maximise benefits from the project. Lodestone will:

Promote local recruitment.

- Put in place Human Resources (HR) policies which enable local recruitment.
- Enable local residents (and people who originated from the area) to register their interest in employment with Lodestone and its contractors.
- Document efforts, and those by Lodestone's contractors, to recruit employees from Stinkwater and Dordabis as well as from Windhoek.

Promote skills development.

- Put in place skills development strategies and programmes prior to construction to maximise use of the local labour force in the Dordabis / Stinkwater area for both construction and operations phase.
- Give tender weighting to construction companies that will detail how and what skills they will transfer to local workers during construction or the % of gross wages they spend on training.
- Have a long-term skills development programme in place which includes elements such as community outreach, apprenticeships, internships, bursaries, graduate programme, study assistance and in-house training.

Promote equality among previously disadvantaged Namibians and women.

- Weight tender selection in favour of contractors and suppliers of goods and services which employ Namibians and Namibian suppliers down the supply chain.
- Recruit a balanced gender and age workforce – not only youth (under 35 years) but also people with experience of different ages, to minimise workplace social problems.
- Prioritise the selection of women for training and recruitment.
- Adopt a focused approach to leadership training and development for supervisory and management levels to enable previously disadvantaged employees to rise through Lodestone.

Promote stable working conditions.

- Ensure that employees, and those of its contractors, are paid market related wages, with housing allowances that can promote home ownership, pension contributions and medical aid.
- Foster good labour relations and take responsibility to respect employees' human rights.
- Establish credible and trusted operational procedures to address employees' concerns and grievances.

Issue 4: In-migration

- Enable local residents (and people who originated from the area) to register their interest in employment with Lodestone and its contractors (See Issue 3).
- Avoid potential in-migration to the mine-site area by restricting recruitment in Dordabis to local residents applying well before construction starts.

Issue 5: Community Security and Health

- Support NamPol and the local community efforts to have an active Neighbourhood Watch to monitor and report criminal activities.
- Support community efforts to prevent jobseekers, specifically non-relatives of existing residents, from taking up residence in the local area.
- Have a comprehensive wellness workplace policy and programme which will also include facilitating personnel's easy access to their chronic medication such as antiretroviral treatment through the clinic at Dordabis or through other arrangements.
- Implement mitigation measures which skill-up local people, thereby reducing poverty in the neighbourhood, which in turn may strengthen community security and health.

3.15.2 MONITORING / PLANNING / FURTHER INVESTIGATION

- Establish a farm owners' "watchdog" group, and procedure for reporting environmental complaints.

3.16 TRAFFIC MANAGEMENT PLAN

3.16.1 MANAGEMENT MEASURES

Issue 1 Impact on third party road users

- Promote basic road safety behaviour for all Lodestone employees and contractors through training and awareness. Typical issues include the following:
 - Keeping to safe speed limits, but as a minimum all specified road speeds will be adhered to.
 - Operational protocol for spacing between other slower moving trucks, to enable passing of other vehicles.
 - Ensuring that drivers all have valid licenses.
 - Making sure that all vehicles are roadworthy.
 - Zero-tolerance for drinking and driving.
 - Using lights appropriately for night driving.
 - Lookout for cyclist on the C23 road and slow down when cyclists are noted.

- C23 / Lodestone Mine Access (demonstration phase): (The following upgrades are recommended)
 - Eastbound – Separate through lane and left-turn lanes.
 - Westbound – Separate through lane plus shared through and right-turn lane.
 - Southbound – One lane to accommodate all movements.
 - Control - Stop on the development exit and free flow along C23.
- C23 / Lodestone Access: (Full-scale project)
 - Realign the C23
 - Separate eastbound through lane plus left-turn lanes.
 - A separate westbound through lane, plus a shared through and right-turn lane.
- Pedestrian and cyclists:
 - Signage to be provided to indicate danger / exclusion zones at the mine access,
 - Cyclists should be discouraged from using the route and encouraged to use alternative routes.
- C23 Road maintenance
 - Lodestone to sign a Memorandum of Agreement (MOA) with RA to maintain the C23 road section from the C23 / mine access up to the C23 / B6 intersection.
 - Lodestone to do periodic road maintenance on the C23 road section to acceptable standards which will also be monitored by RA in accordance with the MOA mentioned above.
 - As and when necessary, Lodestone to upgrade the road section to strengthen the pavement structure.
 - All standard safety protocols relating to working within public roads to be adhered to.
- Widening of the Auasklip Bridge and Olifantsrivier Bridge
 - Lodestone to sign a MOA with NRA to widen the Auasklip and Olifantsriver bridges, as well as upgrade the B6 / C23 intersection prior to the start of operations on the mine.
 - All standard safety protocols relating to working within public roads to be adhered to.
- Performance-Based Standards.

- Lodestone to only use transporters that comply with PBS for all road-based transport. Under a PBS approach, trucks are required to meet minimum performance standards relating to manoeuvrability, stability, and infrastructure impact, with limits on mass and dimensions. This includes high performance vehicles, trained drivers and full-time monitoring of the drivers and the vehicles. This implies that the trucks will be able to maintain higher average speeds, even when fully laden and that the drivers will be trained to comply with operational and safety standards.
- Ensure acceptable operations of the C23.
 - Demonstration phase (from 2021): Drivers will be instructed and monitored to maintain at least four second headways between following vehicles. This will ensure that the distance between trucks in platoons are sufficient to allow passing vehicles to pass one truck at a time. This will improve the average speeds significantly and it would ensure acceptable operations.
 - Full-scale project phase: The same operational requirements as for the demonstration phase would apply, i.e. minimum distances between following vehicles. In addition, three to four passing lane sections are proposed along the C23 in the northbound direction, spaced at approximately 8 km intervals. This will allow passing of slower vehicles. The mine trucks will be required to maintain their sequence, and one mine truck will not be allowed to pass another one. The passing lanes should be at least 500 meters long and designed based on the standards of the RA.

3.17 MONITORING

The management plans have covered various aspects of the proposed monitoring. This section both augments those requirements and sets further detail where relevant. Lodestone will develop monitoring procedures including the relevant monitoring commitments spelled out in this EMP.

As a general approach, the monitoring procedures will comprise the following:

- A formal procedure.
- Appropriately calibrated equipment – regular inspections and calibration of equipment will be undertaken in line with the equipment calibration / validation procedure.
- Where samples require analysis, they will be preserved according to laboratory specifications.

- Where practical, an accredited, commercial laboratory will undertake sample analyses.
- Parameters to be monitored can be identified in consultation with a specialist in the field and or the relevant authority.
- If necessary, following the initial monitoring results, certain parameters may be removed from the monitoring programme in consultation with a specialist and or the relevant authority and or the relevant farm owners and neighbouring farmers, where applicable.
- Monitoring data will be stored in a structured database.
- Data will be interpreted and reports on trends in the data will be compiled on a quarterly basis.
- Both the data and the reports will be kept on record for the LoM.

As a general comment, if monitoring points become damaged or redundant then they can be replaced with new points.

3.17.1 SURFACE WATER MONITORING

TABLE 2: SURFACE WATER MONITORING PROGRAMME

| Monitoring Element | Description | Frequency |
|--|---|--|
| Water quality | <ul style="list-style-type: none"> • A monitoring programme should be developed, and this should cover upstream and downstream receptors. • Water quality monitoring should be done to establish a longer database throughout the project and may cease after closure and rehabilitation. Analytical suites for recommended water quality analysis are contained in Appendix K of the EIA (Amendment) Report of 2020. | <ul style="list-style-type: none"> • Monitoring must be undertaken quarterly. • Monitoring needs to carry on after the project has ceased and the results reach a steady state to detect residual impacts. |
| Flow Volumes | <ul style="list-style-type: none"> • Flow monitoring should be carried out at abstraction points. | <ul style="list-style-type: none"> • On a monthly basis to update and calibrate the water balance for the mine. |
| Water Levels | <ul style="list-style-type: none"> • Monitoring water levels in sediments ponds and channels to ensure the freeboard is maintained. | <ul style="list-style-type: none"> • Monthly through the dry season and weekly through the wet season or after storm events. |
| Water management structures and facilities | <ul style="list-style-type: none"> • Inspection of channels, silt traps, culverts, pipeline, ponds for signs of erosion, cracking, silting and blockages of inflows, to ensure the performance of the stormwater remains acceptable. | <ul style="list-style-type: none"> • Weekly to monthly during wet season and after storm events or as per site management schedule. • Monthly in dry season. |

Water Quality Monitoring

Water quality monitoring will be undertaken as per the monitoring programme outlined below.

- A water quality monitoring programme should be developed, and this should cover upstream and downstream receptors.
- Analytical suites as outlined in Table 3 recommends that water quality analysis must be undertaken until a longer-term baseline has been established. Monitoring should additionally be done after storm events.
- Monitoring needs to carry on after the project has ceased and the results reach a steady state to detect residual impacts.
- The monitoring plan should be reviewed once a year to ensure appropriateness of sites and sampling frequency during operation.

TABLE 3: SURFACE WATER QUALITY PARAMETERS OF CONCERN

| Determinants | |
|---------------------------------------|---------------|
| pH | Nitrate as N |
| Electrical conductivity | Ammonia |
| Total dissolved solids | Potassium |
| Total suspended solids | Nickel |
| Aluminium | Manganese |
| Calcium | Magnesium |
| Fluoride as F | Iron |
| Total alkalinity as CaCO ₃ | Copper |
| Chloride as Cl | Lead |
| Sulphate as SO ₄ | Sodium |
| Uranium | <i>E.coli</i> |

3.17.2 GROUNDWATER MONITORING

TABLE 4: GROUNDWATER MONITORING PLAN

| Monitoring Element | Description | Frequency |
|--------------------|--|---|
| Water quality | <ul style="list-style-type: none"> • A groundwater monitoring programme should be developed, covering upstream and downstream of the mine, around the WRD and CDF | <ul style="list-style-type: none"> • Quarterly monitoring must be initiated at the start of the mining activity. |

| Monitoring Element | Description | Frequency |
|--------------------|--|--|
| | <ul style="list-style-type: none"> The monitoring parameters should be representative of the mining environment and include major ions and any potential contaminants identified through the study With the use of semi purified water from Ujams, the following parameters must be added to the groundwater monitoring list in order to satisfy the conditions of the quality of water to be released into the environment as per Water Act 2013. The parameters are, Sodium, Arsenic as As Boron as B, Chromium, hexavalent as Cr (VI), Chromium, total as Cr, Copper as Cu, Lead as Pb, Sulphide as S, Fluoride as F, Zinc as Zn, and dissolved oxygen The location of boreholes is given in Figure 2, including tentative borehole locations of new monitoring wells around the CDF and WRD. Groundwater quality monitoring should be done post mine closure. This should extend to at least 5 years after decommissioning of the mine. | <ul style="list-style-type: none"> Bi-annual regional monitoring Groundwater sampling will be conducted at WW 202501, WW2 02502, WW 202503, WW 202504, WW 202505, WW 202506, WW 204047, TS- 4, Additional Boreholes (AB1, AB2, AB3 and AB4) and at regional boreholes to be determined in the updated hydrocensus. Monitoring needs to carry on after the project has ceased and the results reach a steady state to detect residual impacts. |
| Water Levels | <ul style="list-style-type: none"> Monitoring of groundwater levels in the boreholes within the ML, upstream and downstream of the ML and regionally (upstream and downstream of the ML) should be conducted. Additional groundwater monitoring boreholes may be drilled in the alluvium east of CDF to monitor any potential seepage into the Schaap River and further downstream of the Schaap River Monitoring boreholes will also be drilled around the CDF and WRD. The exact locations of the additional boreholes will be confirmed once the plant layout is made available. These on the Figure 2 are tentative. | <ul style="list-style-type: none"> Monthly groundwater level monitoring should be done, and even beyond mine closure. Groundwater level monitoring will be done at WW 202501, WW2 02502, WW 202503, WW 202504, WW 202505, WW 202506, WW 204047,, WW 204047, TS-4, (AB1, AB2, AB3 and AB4) and at regional boreholes to be determined in the updated hydrocensus. |

Monitoring requiems shall be stipulated as part of the Effluent Discharge permit relating to sewage management / discharge.

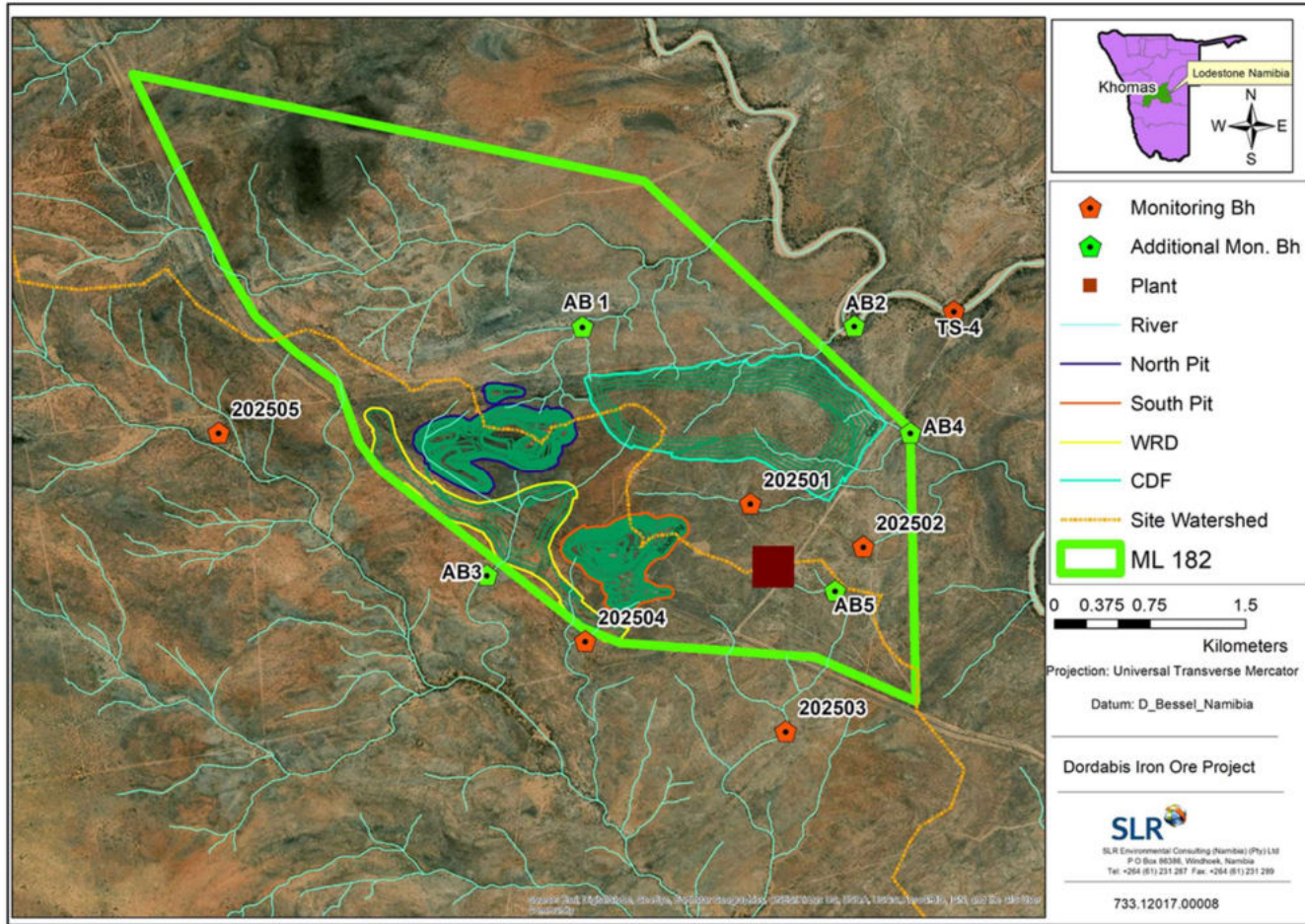


FIGURE 2: TENTATIVE MONITORING BOREHOLES

3.17.3 AIR QUALITY MONITORING

It is recommended that a dust fallout network comprising of seven (7) single dust fallout buckets be installed before construction commences. The buckets should follow the American Society for Testing and Materials standard method for collection and analysis of dust fall (ASTM D1739-98) as per the SANS requirements. This will provide management with an indication of what the reduction in fugitive dust levels are once mitigation measures are implemented.

The proposed dust fallout network overlaid onto the proposed mine plan is provided in Figure 3 with a description of the locations as follows:

- LM01 – downwind from the receptor Elizenhöhe
- LM02 – at the receptor Tsatsachas
- LM03 – on the northern boundary of the CDF
- LM04 – at the primary crusher and screen
- LM05 – downwind from the South Pit
- LM06 – upwind from the North pit
- LM07 – in the south-eastern corner of the mine area

It is recommended that a PM10 sampler be installed at the nearest sensitive receptor to the mine, which in this case will be the receptor Tsatsachas (Figure 3). The PM10 sampler can be either continuous or a manual operated device recording PM10 concentrations on a daily basis. Manual sampling can be done on a basis of 1 day out of every 6 days to ensure representative sampling of ambient PM10 concentrations in the region. In addition to the ambient PM10 concentrations, these samples (filter based) can be analysed for metals and other compounds. A monitoring protocol will need to be established.

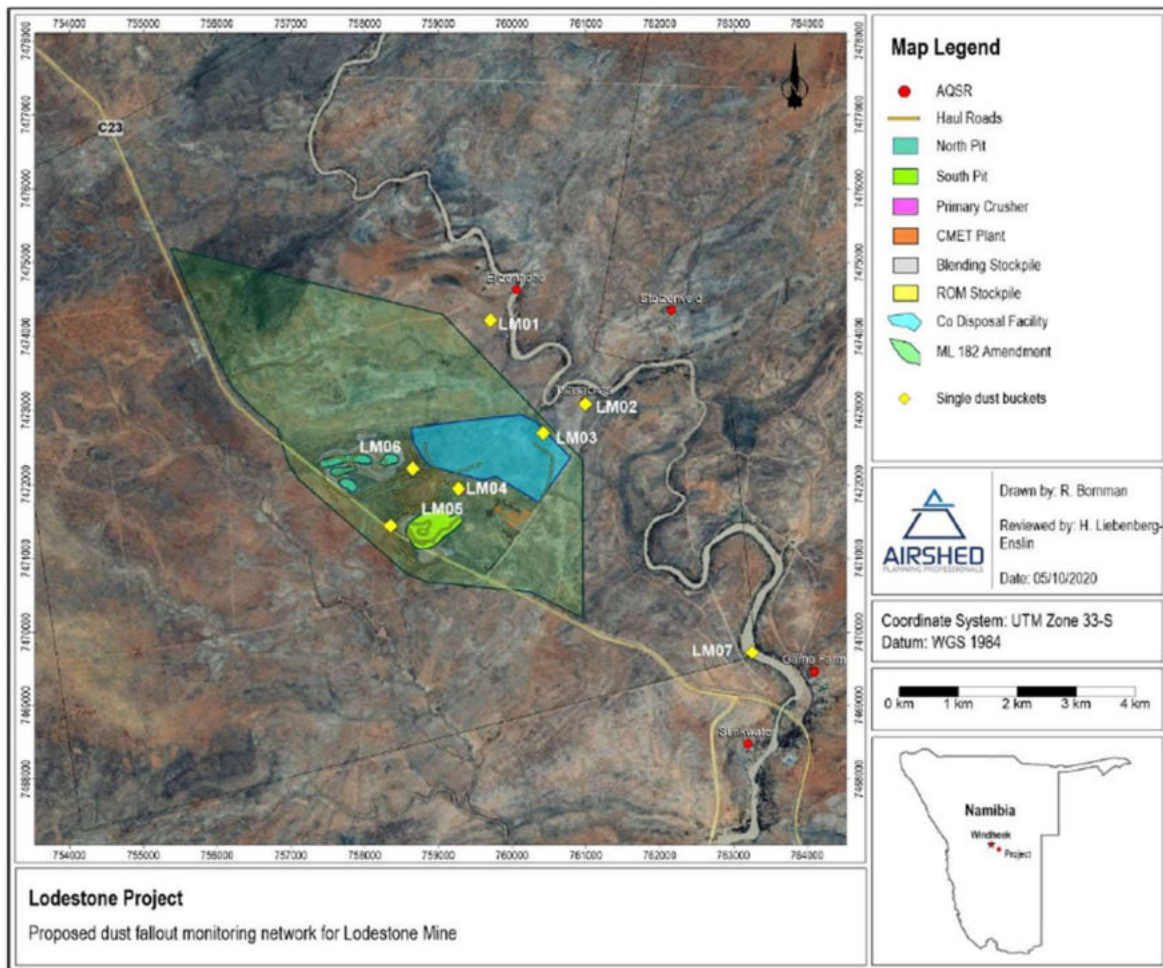


FIGURE 3: PROPOSED DUST FALLOUT MONITORING NETWORK FOR LODESTONE MINE

3.17.4 NOISE MONITORING

Noise monitoring at sites where noise is an issue or may become an issue is essential. Annual noise sampling over a period of 10 to 30 minutes for day- and night-time at NSR 1, NSR 2, NSR 3, NSR 4, NSR 5, NSR 6, NSR 15, NSR 16 and NSR 17 should be incorporated in an annual environmental noise monitoring programme (see Noise Specialist Report [attached to the EIA \(Amendment\) Report of 2020](#)).

Also, in the event that noise related complaints are received short term (24-hour) ambient noise measurements should be conducted as part of investigating the complaints. The results of the measurements should be used to inform any follow up interventions. The investigation of complaints should include an investigation into equipment or machinery that likely result or resulted in noise levels annoying to the community. This could be achieved with source noise

measurements. Refer to the Noise Specialist Report [attached to the EIA \(Amendment\) Report of 2020](#) for the procedure should be adopted for all noise surveys.

3.17.5 MANAGEMENT AND MITIGATION MEASURES SPECIFIC FOR 132 KV POWERLINE

The generic management plans (management and mitigation measures) are relevant to the proposed powerline and must be implemented by Lodestone and their relevant contractors (see Section 2.1).

In addition to this, a Specific EMP was developed for the proposed 132 kV powerline ([attached to the EIA \(Amendment\) Report of 2020](#)), with management and mitigation (and monitoring) requirements, specific to the implementation of the powerline.

4 REFERENCES

African Conservation Services, 2020. EIA Amendment for Lodestone's Dordabis Iron Ore Mining Project and Associated Infrastructure. Construction of new 132 kV and 33 kV overhead powerlines. Avifauna baseline / scoping and assessment.

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