

**LODESTONE NAMIBIA (PTY) LTD**

**ENVIRONMENTAL PERFORMANCE REPORT**

**FOR LODESTONE NAMIBIA**

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## ENVIRONMENTAL PERFORMANCE REPORT FOR LODESTONE NAMIBIA

### CONTENTS

<b>1</b>	<b>INTRODUCTION .....</b>	<b>4</b>
1.1	BACKGROUND.....	4
1.2	ENVIRONMENTAL IMPACT ASSESSMENT AND ENVIRONMENTAL CLEARANCE CERTIFICATE.....	5
1.3	OBJECTIVE OF THIS REPORT.....	6
1.4	AUDIT METHODOLOGY .....	6
<b>2</b>	<b>PROJECT DESCRIPTION .....</b>	<b>8</b>
2.1	GENERAL PROJECT BACKGROUND.....	8
2.2	CURRENT OPERATIONS.....	8
2.2.1	OPERATIONAL ACTIVITIES .....	8
2.2.2	WASTE MANAGEMENT .....	9
2.2.3	WATER SUPPLY .....	11
2.2.4	POWER SUPPLY .....	12
2.2.5	EMPLOYMENT.....	13
<b>3</b>	<b>ENVIRONMENTAL MANAGEMENT / PERFORMANCE.....</b>	<b>14</b>
3.1	PARTIES RESPONSIBLE FOR THE IMPLEMENTATION OF THE EMP .....	14
3.1.1	ENVIRONMENTAL MANAGER / OFFICER .....	14
3.2	SOLID AND LIQUID WASTE (INCLUDING SEWAGE) MANAGEMENT.....	16
3.2.1	COLLECTIONS, STORAGE AND DISPOSAL OF WASTE.....	16
3.3	STAKEHOLDER CONSULTATION / COMMUNICATION MANAGEMENT PLAN.....	17
3.3.1	GENERAL STAKEHOLDER COMMUNICATION .....	17
3.4	SAFETY AND SECURITY MANAGEMENT PLAN .....	18
3.4.1	GENERAL THIRD-PARTY SAFETY AND SECURITY .....	18
3.5	LAND CAPABILITY MANAGEMENT PLAN.....	20
3.5.1	TOPSOIL .....	20
3.6	FLORA MANAGEMENT PLAN.....	22
3.6.1	DESTRUCTION OF FLORA HABITATS .....	22
3.7	AIR QUALITY MANAGEMENT PLAN.....	24
3.7.1	DUST.....	24
<b>4</b>	<b>SUMMARY AND CONCLUSION .....</b>	<b>27</b>
<b>5</b>	<b>REFERENCES .....</b>	<b>28</b>

### LIST OF FIGURES

<b>FIGURE 1: LOCATION OF ML 182.....</b>	<b>4</b>
<b>FIGURE 2: LOCATION OF ML 182 IN RELATION TO EPL 7352 AND NEIGHBOURS .....</b>	<b>5</b>
<b>FIGURE 3: LATEST LAYOUT OF THE MINE.....</b>	<b>9</b>
<b>FIGURE 4: STORAGE OF USED OIL, EMPTY CONTAINERS AND HYDROCARBON-CONTAMINATED WASTE IN A SEALED, BUNDED AREA.....</b>	<b>10</b>
<b>FIGURE 5: FACILITY FOR THE CONTAINMENT OF SEWAGE .....</b>	<b>10</b>
<b>FIGURE 6: ONE OF THE ABSTRACTION BOREHOLES .....</b>	<b>11</b>
<b>FIGURE 7: THE PLASTIC TANKS TO WHICH THE WATER IS PUMPED FOR DISTRIBUTION ONSITE .....</b>	<b>12</b>
<b>FIGURE 8: THE POWERLINE THAT PROVIDES ELECTRICITY TO THE ABSTRACTION BOREHOLES .....</b>	<b>12</b>
<b>FIGURE 9: THE DOUBLE-CONTAINERIZED FUEL TANK FACILITY OF ENGEN ONSITE .....</b>	<b>16</b>
<b>FIGURE 10: GAME FENCE ON THE BOUNDARY WITH THE NEIGHBOURING FARM.....</b>	<b>19</b>
<b>FIGURE 11: UNLOCKED MONITORING BOREHOLES .....</b>	<b>20</b>

<b>FIGURE 12: PIONEER VEGETATION ON THE REJECT DEPOSITORY .....</b>	<b>21</b>
<b>FIGURE 13: GULLY EROSION ON THE REJECT DEPOSITORY .....</b>	<b>22</b>
<b>FIGURE 14: A CAMELTHORN TREE THAT WAS SAVED DURING LAND CLEARING ONSITE.....</b>	<b>24</b>
<b>FIGURE 15: DUST GENERATED BY SCREENING, LOADING AND HAULING.....</b>	<b>25</b>
<b>FIGURE 16: NEW WEATHER STATION ONSITE .....</b>	<b>26</b>

## ACRONYMS AND ABBREVIATIONS

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

<b>Acronyms / Abbreviations</b>	<b>Definition</b>
CDF	Co-Disposal Facility
DEA	Department of Environmental Affairs
DWA	Directorate of Water Affairs
ECC	Environmental Clearance Certificate
EIA	Environmental Impacts Assessment
EMP	Environmental Management Plan
EMP	Environmental Management System
EPL	Exclusive Prospecting License
I&AP	Interested and Affected Party
km	Kilometer
kV	Kilowatt
ML	Mining License
MET	Ministry of Environment and Tourism
MEFT	Ministry of Environment, Forestry and Tourism
MME	Ministry of Mines and Energy
PBS	Performance-Based Standards

## ENVIRONMENTAL PERFORMANCE REPORT FOR LODESTONE NAMIBIA

### 1 INTRODUCTION

#### 1.1 BACKGROUND

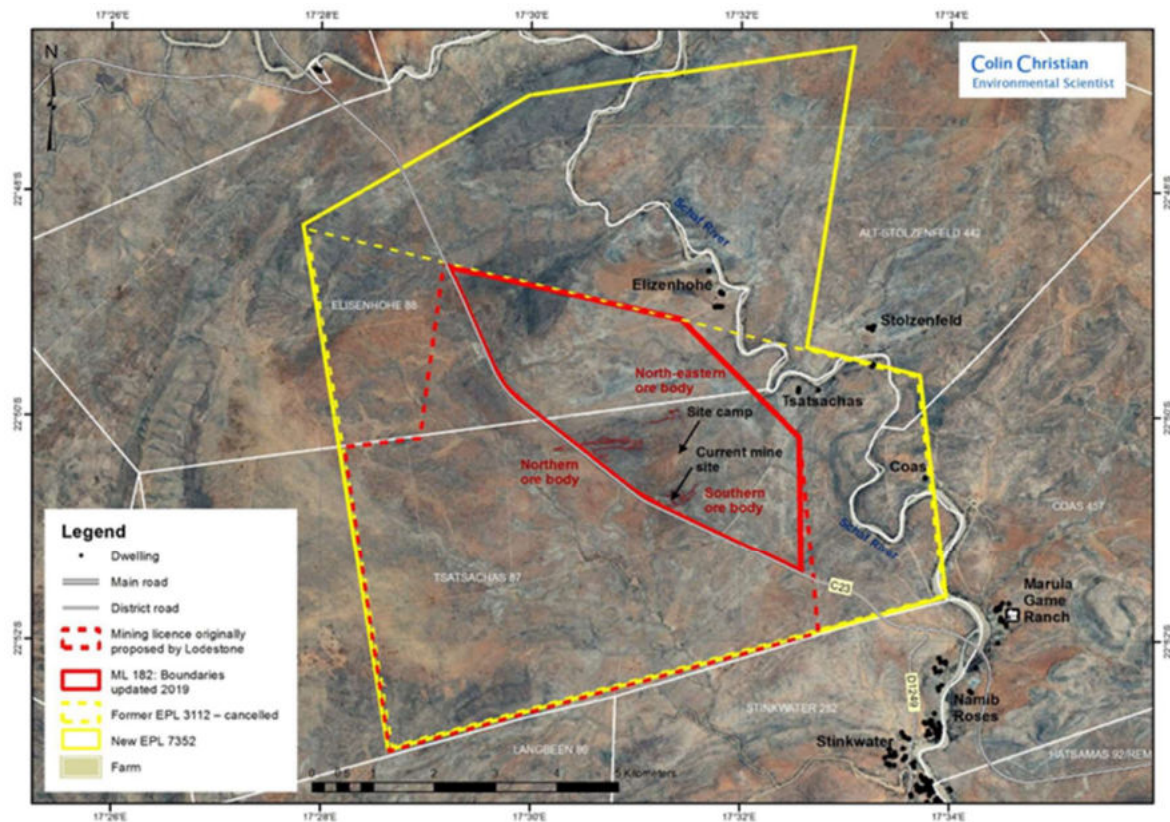
Lodestone Namibia (Pty) Ltd (Lodestone), a privately funded mining company, holds Mining Licence (ML) 182, within their Exclusive Prospecting License (EPL) 7352, which replaced EPL 3112. ML 182 is located in the Khomas Region, approximately 20 km north-west of Dordabis and 75 km southeast of Windhoek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



**FIGURE 1: LOCATION OF ML 182**

EPL 7352 spans the area on both sides of the C23 road, but ML 182 is situated entirely on the eastern side of the road (see Figure 2). The surrounding area is farmland and ML 182 stretches over two commercial farms where extensive livestock rearing is practiced, Tsatsachas 87 in the south and Elisenhöhe 88 in the north. The ephemeral Schaap River flows across EPL 7352 and to the east of the entire ML. Neighbouring farms are Stolzenfeld 442 (to the east), Coas 457 to the southeast and Stinkwater 282 and Langbeen 86 to the south.





**FIGURE 2: LOCATION OF ML 182 IN RELATION TO EPL 7352 AND NEIGHBOURS**

Lodestone is in the process of developing an open pit mine and processing plant on ML 182, aiming to produce 68% high-grade iron ore concentrate for export.

## 1.2 ENVIRONMENTAL IMPACT ASSESSMENT AND ENVIRONMENTAL CLEARANCE CERTIFICATE

Lodestone undertook an Environmental Impact Assessment (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 Namisun Environmental Projects and Development (Namisun) to assist in addressing the required renewal of the ECC. Part of the request was to review the existing EMP and to make it a stand-alone document, with minor (editorial) changes. Namisun was also tasked with the conducting of an environmental audit of their current operations against the approved EMP commitments and to compose an “Environmental Performance Report” (this report). The revised, stand-alone EMP and the Environmental Performance Report will accompany the application for the renewal of the ECC.

### 1.3 OBJECTIVE OF THIS REPORT

With reference to this report, Namisun’s scope of work entails an environmental performance audit of Lodestone against its EMP commitments. The objective of this report is thus to document the relevant information in this regard. The following topics are covered:

- The current activities of Lodestone on ML 182.
- General management of environmental issues.
- Compliance in terms of the environmental commitments, where relevant, outlined in the EMP.

### 1.4 AUDIT METHODOLOGY

Namisun had various interactions with Lodestone prior to the audit and to initiate the way forward. A site visit to ML 182 was conducted on 12 May 2023, to audit the existing facilities and activities against the current EMP commitments. The relevant areas on ML 182, where activities were carried out and infrastructure installed, were inspected.



The following people from Lodestone were present during the audit and / or were consulted as part of the audit process:

- Mr. Danny Castelyn (Chief Operational Officer of Lodestone)
- Mr. Mervin Titus (Site Supervisor, ML 182).

The information in this document, the “Environmental Performance Report”, is based on the author’s best scientific and professional knowledge, a site visit and onsite inspection conducted by Namisun, input of personnel of Lodestone, referencing to the relevant environmental legislation and the existing EMP and other relevant literature, as well as other documents shared by Lodestone. Namisun cannot verify all information contained in this report and relies on the information shared by the team of Lodestone as being accurate.

## 2 PROJECT DESCRIPTION

### 2.1 GENERAL PROJECT BACKGROUND

The iron ore deposit on ML 182 is known since the 1950s, when extensive exploration and research was conducted in the area.

In 2011 Lodestone Namibia was founded, acquired the project and obtained the ML in November 2014, valid for twenty years. Further exploration and drilling were done, and a prefeasibility study and an EIA with an accompanying EMP were conducted in 2014.

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.

Two possible bulk water supply options have been identified for the future, full-scale operations of the mine. Both options are still under investigation, while the current (small-scale) supply of water onsite comes from abstraction boreholes.

Bulk power supply is planned via the proposed 44 km-long 132 kV overhead powerline from the 400 kV Auas Substation of NamPower.

### 2.2 CURRENT OPERATIONS

#### 2.2.1 OPERATIONAL ACTIVITIES

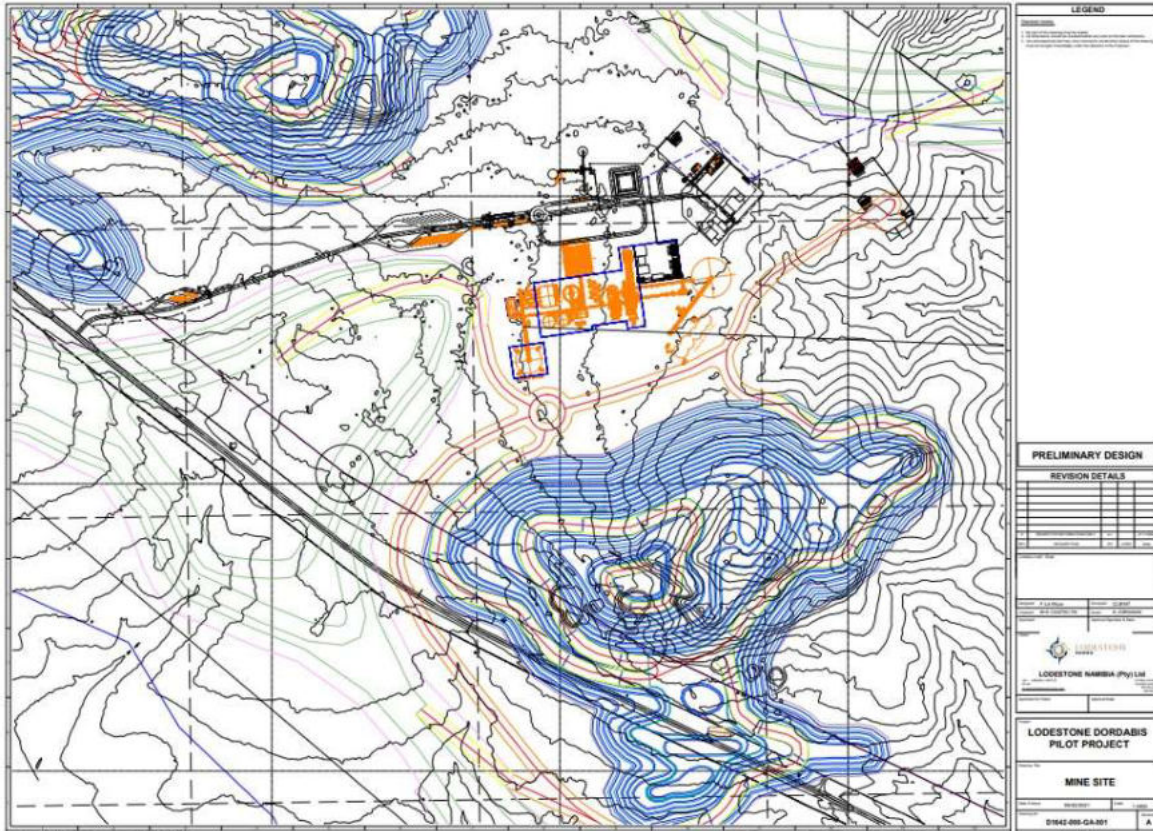
Lodestone started small-scale mining in 2015 to supply the local cement industry with iron ore required in the production of clinker. A decision was made in August 2021 to export an inaugural shipment of 52,000 tons of iron ore fines through the Port of Walvis Bay, which was done.

Shortly hereafter, in September 2021 the operational activities ceased. In May 2022 low-intensity operations (land clearing, loading and hauling, screening and separation) recommenced, and caused a short spur of activity from May to July 2022. Between July 2022 and March 2023 operational activities were ceased again and in April 2023 the similar low-intensity operations recommenced again, expected to continue until August / September 2023. The production during this time is aimed for offtake to the two cement factories of Namibia – Ohorongo and Cheetah.

Currently the surface deposits are mined. No blasting takes place, as no subsurface mining is yet done. The surface layer is graded into piles, which is then screened and separated to distinguish

between ore-containing material and rejected material. It is a dry process, based on magnetic separation. No water or chemical processing is involved. Both the ore-containing material and the rejects are stockpiled, separated from each other.

Figure 3 presents the latest layout of the mine.



**FIGURE 3: LATEST LAYOUT OF THE MINE**

### 2.2.2 WASTE MANAGEMENT

Non-mineralized, non-hazardous waste is disposed of in general waste containers. Rent-a-Drum, the appointed onsite contractor, collects, manages, and disposes this type of waste. Receptacles are placed at strategic points onsite and when full, they are emptied as mixed, unsorted content into a single skip, which is then removed from site. No segregation of waste is yet done.

Hazardous waste (only hydrocarbon-contaminated soil) is collected and placed in a bunded area where oil-contaminated containers and used oil are stored (see Figure 4). Used oil is collected in containers of Oil Tech, and when full, the containers are emptied, and the waste oils is taken

offsite. The hydrocarbon-contaminated soil is still small in quantity, and it is planned that this waste will be taken to a bioremediation facility onsite, where it will be treated.



**FIGURE 4: STORAGE OF USED OIL, EMPTY CONTAINERS AND HYDROCARBON-CONTAMINATED WASTE IN A SEALED, BUNDED AREA**

Sewage from the ablution facilities is contained and connected to French drains (see Figure 5).



**FIGURE 5: FACILITY FOR THE CONTAINMENT OF SEWAGE**



Mineral waste exists mainly of the rejects that originate from the screening and separation process. This type of waste is stockpiled, before it is deposited in an area which will become part of the Co-Disposal Facility (CDF) in future.

### 2.2.3 WATER SUPPLY

Current (small-scale) supply of water onsite comes from abstraction boreholes. Figure 6 is of such a borehole. The water is pumped to plastic tanks from where the water is distributed onsite (see Figure 7). The amount of water abstraction is monitored monthly for reporting to the Directorate of Water Affairs (DWA), as required by the abstraction permit.

During 2022 the average monthly abstraction varied between 5 m<sup>3</sup> and 204 m<sup>3</sup>, calculating to an annual total of 884 m<sup>3</sup>.



**FIGURE 6: ONE OF THE ABSTRACTION BOREHOLES**



**FIGURE 7: THE PLASTIC TANKS TO WHICH THE WATER IS PUMPED FOR DISTRIBUTION ONSITE**

#### **2.2.4 POWER SUPPLY**

Nampower provides power to the abstraction boreholes as well as the site via two 11kV overhead powerlines, both coming from the main Seeis line. Figure 8 shows the powerline to the abstraction boreholes and related pumps that provide the water to the tanks onsite.



**FIGURE 8: THE POWERLINE THAT PROVIDES ELECTRICITY TO THE ABSTRACTION BOREHOLES**

### 2.2.5 EMPLOYMENT

Lodestone currently employs 8 (permanent) people. The current contractors onsite employ a further 6 (security) and 8 (machine operators) workers.

Most of these workers are from the local communities.

The security workers are currently in a temporary accommodation onsite, to allow a better and continuous surveillance and work conditions for the guards.

During the times when mining activities take place, the contractors and the employees involved in exploration drilling are allowed to set up temporarily onsite.

Between April 2021 and September 2022 no one was permitted to be accommodated onsite. The same rule will apply when the mine operates full-scale.



### 3 ENVIRONMENTAL MANAGEMENT / PERFORMANCE

Namisun conducted an environmental audit and composed an “Environmental Performance Report” (this report), as per appointment by Lodestone, for submission to the authorities. The objectives and methodology of this task are described in Sections 1.3 and 1.4 respectively. The audit focused largely on the current activities of Lodestone, and therefore the audit did not cover all of the aspects contained in the EMP. As a result, some spot checks were carried out to verify. During the site visit and inspection, Namisun used the existing EMP (which is contained in the approved EIA Amendment Report of 2021) as the basis to measure the current environmental performance of Lodestone. Further information was obtained from input of personnel of the company, relevant environmental legislation and other relevant literature, as well as other documents shared by Lodestone. In addition, “general / typical” good practice measures were also considered and inspected by Namisun.

The findings from the EMP review (i.e. “desktop audit”) are presented in the sections below. The findings are thematically organized, according to the structure and headings of the existing EMP.

Please note: Namisun cannot verify all information contained in the findings below and relies on the information shared by Lodestone. Compliance to the various EMP commitments, etc. is therefore assumed and accepted by Namisun to be correct, based on the input from the team of Lodestone as well as visual inspections by Namisun during the site inspection.

The following abbreviations are used in the sections below:

- **C** = Compliance
- **PC** = Partial compliance
- **NC** = Non-compliance

#### 3.1 PARTIES RESPONSIBLE FOR THE IMPLEMENTATION OF THE EMP

##### 3.1.1 ENVIRONMENTAL MANAGER / OFFICER

Lodestone appointed a permanent Environmental Officer who filled this position until February 2022. The same person continued with some of the tasks on a contractual basis until October 2022. Since then, some of the responsibilities were transferred to the Site Supervisor, but not all of the required duties implied by the position could be fulfilled.

Four of the key tasks of the Environmental Manager / Officer are to

- *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 the EMP and permits and authorisations issued to Lodestone by relevant authorities,*
- *submit required information to relevant authorities such as reporting on compliance with the EMP, permit and relevant authorisations.*
- *Ensure the periodical review and, if necessary, revision of the EMP and related procedures.*

#### **AUDIT FINDING: NC**

- The monitoring of boreholes is continuing, and abstraction rates are recorded, but the reporting on water to the DWA ceased in February 2022. (This finding also relates to the Groundwater Management Plan).
- Dust monitoring is dormant currently (see also Section 3.7).
- The water abstraction permit expired in April 2023.
- The last bi-annual environmental report (i.e. July to December 2022) required by the MEFT has been partially composed but not finalized and was not submitted yet.
- On inspection it was noticed that some electronic versions of the procedures and work instructions required by the implementation of the EMP were drafted, but these documents are not yet refined and finalized, i.e. they are not distributed and implemented.

#### **RECOMMENDATION AND COMMENT:**

The absence of a person in the position of Environmental Manager / Officer explains the interruption in the reporting on water and the belated submission of the bi-annual report to the MEFT, the expiry of the water abstraction permit and the incomplete state of the procedures and work instructions which hampers the implementation of the EMP. Also, ongoing inspections, internal auditing, monitoring and reporting on environmental management lack.

Lodestone is already addressing this challenge by prioritizing the re-appointment of a person in the position of Environmental Manager / Officer. Given the current uncertainty of Lodestone's planned operational schedule the company also considers, alternatively, the option to appoint a sourced-out service provider to assist in establishing an environmental management system

(EMS), including the management of environmental information, the development and implementing of protocols and the follow-up work on corrective actions and continuous improvement.

### 3.2 SOLID AND LIQUID WASTE (INCLUDING SEWAGE) MANAGEMENT

#### 3.2.1 COLLECTIONS, STORAGE AND DISPOSAL OF WASTE

Due to the limited scale of the current operations, only small volumes of waste are generated. This applies to the non-hazardous (mainly) domestic waste as well as the hazardous waste.

No empty drums for petrol and diesel are kept onsite as a containerised reservoir for fuel is supplied by Engen. The facility is completely closed, with its own second containment as part of the structure, meaning that no concrete bunded structure is required. Refilling of vehicles happen on a sealed surface at the fuel container (see Figure 9).

A few containers (less than 200 L) for hydrocarbons other than petrol and diesel are stored in a dedicated area, within appropriate bunding.



**FIGURE 9: THE DOUBLE-CONTAINERIZED FUEL TANK FACILITY OF ENGEN ONSITE**

#### **AUDIT FINDING: C**

- Non-hazardous waste is collected and disposed of at the receptables provided by Rent-a-Drum. Segregation and recycling are not done onsite, due to the small volumes of waste that is generated. Rent-a-Drum takes the full skip offsite to their recycling plant where the

rubbish is segregated before recyclables are retained and non-recyclables are disposed of at the landfill sites of Windhoek.

- No hazardous waste was taken offsite yet.
- Oil-contaminated soil is collected and temporary stored at the same bunded facility where waste oil is collected and stored (see Figure 4). A bioremediation facility is in place but not in use yet, and the oil-contaminated soil will be taken there for treatment.
- Spill kits are in place at the workplaces where vehicles and equipment are maintained and where hydrocarbons can be spilled or leaked.
- The fuel facility of Engen (see Figure 9) is commendable – no uncontained spill or leak is possible.
- On inspection the entire mine site was free from litter, wind-borne and discarded waste.
- No sign of animals scavenging for food and leftovers in the receptacles was observed.

#### **RECOMMENDATION AND COMMENT:**

- Despite the small volumes of waste that is generated currently, the onsite segregation and recycling of non-hazardous must be introduced and encouraged as it establishes best practice and generally advocate environmental awareness.

### **3.3 STAKEHOLDER CONSULTATION / COMMUNICATION MANAGEMENT PLAN**

#### **3.3.1 GENERAL STAKEHOLDER COMMUNICATION**

A stakeholder register exists and was maintained until September 2021. A complaints register also exists and was updated until February 2022.

An important key task related to the maintenance of the stakeholder register and the upkeep of a complaints register is to develop and implement a Communication and Engagement Strategy. Such a strategy can ensure regular (and proactive) communication with interested and affected parties (I&APs) about environmental management performance and create the necessary channels of liaison with relevant authorities and related institutional bodies.

Also, such a strategy is a key tool to manage perceptions, issues and complaints and to provide a platform for I&APs for raising comments and concerns, i.e. to ensure healthy interactions with stakeholders and to build reputational community relations.

**AUDIT FINDING: PC**

- Although both the stakeholder and the complaints register exist, both are not up-to-date. No recent complaints have been received and or recorded by Lodestone.
- An overarching Communication and Engagement Strategy is absent.
- No person responsible for communication / stakeholder engagement / community relations is appointed yet.

**RECOMMENDATION AND COMMENT:**

- Without an overarching Communication and Engagement Strategy and without a Communication Specialist appointed, there is always a risk of reputation damage and a reactive approach to community relations and communications. Also, important proactive communication and relations with relevant authorities and institutions cannot be done.
- The need for an overarching Communication and Engagement Strategy is a high priority for the current management team of Lodestone. Lodestone is aware of the importance to manage perceptions and complaints through a constructive and proactive approach in community relations and communications with stakeholders.
- With the recommencement of low intensity activities expected to continue until August / September 2023 in mind, the need for the appointment of a Communication (and Community Relations) Specialist (or alternatively a sourced-out service provider) is becoming pressing. The need is also strongly emphasised in Lodestone's efforts to complete the further environmental assessments related to the operations of the mine in the near future.

**3.4 SAFETY AND SECURITY MANAGEMENT PLAN****3.4.1 GENERAL THIRD-PARTY SAFETY AND SECURITY**

Security control and fences are in place at the main entrance to the mine to prevent uncontrolled vehicle and pedestrian access. Not all of the operational area is yet fenced, but the stockpiles, yards and water facilities are fenced. Warning signs are on the C23 road in vicinity of Lodestone' access road, in both directions. Fences are on the site boundary and the entrance to the farm (see Figure 10).



**FIGURE 10: GAME FENCE ON THE BOUNDARY WITH THE NEIGHBOURING FARM**

Visitors and employees have to do a compulsory alcohol test and induction at the entrance.

A fire management plan, as part of an Emergency Response Plan, is in place.

No blasting has been done yet.

**AUDIT FINDING: C**

- As far as possible and practical, the necessary arrangements to provide safety and security to third parties are in place.
- The gate into the farm was locked and entrance into the farm to inspect the boreholes was reported to the farm manager, which is commendable.

**RECOMMENDATION AND COMMENT:**

- The auditor did not receive any induction on arrival. No exception must be made – the EMP stipulates that all persons entering the mine area will be required to undergo a formal induction.
- Although the boundaries are fenced (see Figure 10), more could be done to warn third parties against the presence of a mine (and possible blasting in future).



- On inspection it was noticed that the monitoring boreholes are not locked, but only closed with a nut (see Figure 11). Although no deed of vandalism occurred yet, it is recommended that the boreholes must be closed with lock-and-key instead.



**FIGURE 11: UNLOCKED MONITORING BOREHOLES**

### 3.5 LAND CAPABILITY MANAGEMENT PLAN

#### 3.5.1 TOPSOIL

Currently the surface deposits are mined. The material is stockpiled and then feed for screening and magnetic separation to distinguish between ore-containing material and the rejected material. The rejects are deposited in an area near the future / proposed co-disposal facility (CDF). Previously some excavations were made, but the surface layers as well as the subsurface material contain ore, which made the setting aside of topsoil difficult.

#### **AUDIT FINDING: PC**

- No topsoil stockpiles exist currently, and no topsoil stripping was done yet. The EMP clearly stipulates that topsoil must be stripped and that the topsoil must be managed carefully.
- The deposition of rejects has not been shaped or landscaped but shows a dense cover of pioneer vegetation (see Figure 12). It clearly confirms that the current reject depository can be revegetated passively, without much effort.
- The passive revegetation of the reject depository happened by default, and without intervention. Although this is beneficial, more care must be given to the shaping of the



reject depository prior to its establishment of vegetation as it would do more harm than good to reshape revegetated manmade landforms later.

- Berms at the foot of the depository are in place to prevent that “dirty” water flows towards the Schaap River (this relates also to the Surface Water Management Plan).



**FIGURE 12: PIONEER VEGETATION ON THE REJECT DEPOSITORY**

**RECOMMENDATION AND COMMENT:**

- Shaping and landscaping of the final manmade landforms prior to the establishment of pioneer vegetation on them, is an important rehabilitation intervention, which can be a decisive closure cost-saving measure. This opportunity must be optimized by Lodestone.
- Also, the reshaping of the surfaces of manmade landforms is not only necessary for the purpose of passive revegetation, but also for the prevention of erosion (see Figure 13 for signs of gully erosion). The berms around the current reject depository are an important and commendable intervention to separate “dirty” and “clean” runoff and to capture stormwater, but more might be required in terms of recontouring of the entire manmade landform that will remain behind at closure.
- The suitability of the dry rejects for passive revegetation is an opportunity that must be optimized too. Rejects are a “waste” product, meaning that the reject depository might not require topsoil as a cover to ensure revegetation.

- Requirements related to topsoil in the EMP must be honoured, therefore the topsoil that could be stockpiled from areas not earmarked for mining activities must be done prior to its potential disturbance.
- The suitability of rejected material as a growth medium into which vegetation can re-establish must not be regarded as a replacement of the stripping of topsoil and the careful management of topsoil stipulated in the EMP. As topsoil acts as an important medium to contain seeds of perennials and captured nutrients, its value in establishing permanent vegetation must not be underestimated.
- The potential of passive revegetation on the depository and berms (as observed during the site visit), makes the early involvement of a mine rehabilitation specialist necessary and Lodestone must consider this opportunity seriously at this early stage. An early start on this front can have significant closure cost-savings.



**FIGURE 13: GULLY EROSION ON THE REJECT DEPOSITORY**

### **3.6 FLORA MANAGEMENT PLAN**

#### **3.6.1 DESTRUCTION OF FLORA HABITATS**

The Flora Management Plan is closely connected to the Land Capability Management Plan, and the management of topsoil relates to both.

The Flora Management Plan stipulates requirements such as the rescuing and relocation of aloes, the re-establishment of floral communities and the removal of invasive vegetation. The plan also emphasises that the establishment of pioneering vegetation is important succession to restore perennials.

**AUDIT FINDING: NC**

- Stands of alien invasive plants (*Datura* spp.) were observed. It is common for these plants to establish on Namibian farmland and its presence onsite is probably related to historical reasons and not the current activities. Nevertheless, they must be removed (as the EMP stipulates) because they can easily infest large parts and become problematic to manage.
- Aloes were removed and relocated in the past. However, it is unclear if this was done with any approved plant removal permit in place. To prevent a similar situation, an early application for a plant removal permit must be obtained.
- Plant removal permits were also not in place for the removal / killing of protected species, which cannot be avoided during the clearing of land for roads – as was observed during the onsite visit. An example of a marked young camelthorn tree (*Acacia erioloba*), a protected species, which was saved during the clearing is commendable though (see Figure 14).

**RECOMMENDATION AND COMMENT:**

With the position of the Environmental Manager / Officer currently vacant, it is likely that the management of restoration and the re-establishment of floral communities do not receive the attention it deserves. In addition, care must be taken to avoid the killing of protected species and the necessary precaution by means of an onsite assessment by the Environmental Manager / Officer can assist in this regard.

Some small but significant interventions can be made:

- Remove invasive plants.
- Identify, remove and relocate plants that can be rescued.
- Prevent erosion through the early shaping of manmade landforms (see Figure 13).
- Apply for a plant removal permit which can be used and implemented site-wide with the necessary related work instruction / procedure / protocol.



**FIGURE 14: A CAMELTHORN TREE THAT WAS SAVED DURING LAND CLEARING ONSITE**

### **3.7 AIR QUALITY MANAGEMENT PLAN**

#### **3.7.1 DUST**

Dust management forms part of the overall Air Quality Management Plan. The Air Quality Management Plan contains specific management measures to suppress dust – for example by the application of dust-a-side on the roads and water sprays.

Although vehicle entrainment causes dust as well, the current mining activities – hauling and loading, screening and separation – are responsible for most of the dust generated onsite (see Figure 15). During the site visit it was clearly observed that the current mining activities, despite its low intensity, cause a dust plume that can be regarded as of concern and may cause a complaint.

Dust monitoring was done in the past. Dust buckets were installed, and they were monitored during operations in 2021. The results were recorded and reported. This program has been terminated when activities ceased in September 2021. To understand the impacts of airborne dust better, a weather station was installed and is monitored still (see Figure 16).

**AUDIT FINDING: NC**

- No dust-a-side is applied, and no water sprays are being done. Dust generated from the mining activities remains a concern, despite the low intensity activities currently.
- No dust monitoring is being done currently.
- No PM10 sampler has been installed, as the EMP requires.
- The weather station (Figure 16) is monitored, and the information is recorded for reporting purposes. However, this information is not applied for the purpose of managing dust.

**FIGURE 15: DUST GENERATED BY SCREENING, LOADING AND HAULING**





**FIGURE 16: NEW WEATHER STATION ONSITE**

**RECOMMENDATION AND COMMENT:**

- With the position of the Environmental Manager / Officer currently vacant, it is likely that a dust monitoring system is currently lacking. Monitoring of fall-out dust by means of the current network of dust buckets is not a logistically or technically difficult activity and must be restarted as soon as possible. Also, the information recorded must be reported – internally as well as externally – to ensure continuous improvements on this front and to understand the changes implied by the full-scale operations of the mine in future better.
- It is commendable that the weather station (see Figure 16) is monitored, and that the weather information is recorded, but this information does not mean much without the monitoring of dust. It is thus essential to restart the dust monitoring program – as the weather data will be supplementary to its management and may assist in identifying and describing certain dust trends in space and time.

## 4 SUMMARY AND CONCLUSION

Namisun was appointed by Lodestone to conduct an environmental audit against the approved EMP commitments and to compose an “Environmental Performance Report” (this report) for submission to the authorities – the DEA at the MEFT and the Ministry of Mines and Energy (MME): Directorate of Mines.

The findings and recommendations of the inspection / audit are outlined in Chapter 3 of this report.

Two compliances were identified – for waste management and for the management related to third party safety and security.

Two partial-compliances were identified – this relates to the communication, community relations and stakeholder engagement, and topsoil management.

Three non-compliances were identified – this relates to the vacancy of the position for an Environmental Manager / Officer, flora management and dust management.

Two key recommendations were made.

- In the absence of a person in the position of Environmental Manager / Officer it is recommended that the option must be considered to appoint a sourced-out service provider to assist in establishing an EMS, including the management of environmental information, the development and implementing of protocols and the follow-up work on corrective actions and continuous improvement. This will also assist in implementing the necessary corrective actions and the close-out of the non-compliance for flora management and dust management.
- In the absence of an overarching Communication and Engagement Strategy the option must be considered to appoint a Communication (and Community Relations) Specialist (or alternatively a sourced-out service provider) to build reputational community relations, to ensure regular (and proactive) communication with I&APs, to create liaisons with authorities and related institutional bodies to manage perceptions, issues and complaints and to provide a platform for I&APs for raising comments and concerns about environmental management.



## 5 REFERENCES

**Colin Christian & Associates CC, 2013.** Lodestone Namibia (Pty) Ltd: Proposed Dordabis Iron Mine, Phase 1 (EPL 3112) EIA and EMP.

**Namisun, 2020.** Environmental Impact Assessment (Amendment) Report and amended Environmental Management Plan for the Dordabis Iron Ore Mining Project and associated infrastructure and a proposed new 132 kV powerline to the mine. Unpublished report submitted to the authorities.