

Shanya Energy (Pty) Ltd

**Environmental Management Plan (EMP) Report to Support the
Application for Environmental Clearance Certificate (ECC) for
the Development of Warehousing and Storage Facilities for Oil
and Gas Exploration and Production Support Services on a 5
Ha Municipal Leased Land on Farm 38,
Walvis Bay Municipality, Erongo Region**

May 2024

Shanya Energy (Pty) Ltd
ERF 802, Nehale Lya Mpingana Street,
Academia Extension 1, Windhoek

PROPONENT, LISTED ACTIVITIES AND RELATED INFORMATION SUMMARY

Proponent

Shanya Energy (Pty) Ltd

Type of Authorisation Requiring

Environmental Clearance Certificate (ECC)

Development of Warehousing and Storage Facilities for Oil and Gas Exploration and Production Support Services on a 5 Ha Municipal Leased Land on Farm 38, Walvis Bay Municipality, Erongo Region

Ministry of Environment, Forestry and Tourism (MEFT)

ECC Reference Application No.

APP- 240502003528

Competent Authority

Ministry of Mines and Energy (MME)

Project Title / Subject on the ECC

Development of Warehousing and Storage Facilities for Oil and Gas Exploration and Production Support Services on a 5 Ha Municipal Leased Land on Farm 38, Walvis Bay Municipality, Erongo Region

Location of the Project Area

Walvis Bay Municipality, Erongo Region
(Latitude: -23.002, Longitude: 14.5992)

Environmental Regulator and National Regulatory Framework

Ministry of Environment, Forestry and Tourism (MEFT), Environmental Management Act, (EMA), 2007, (Act No. 7 of 2007) and Environmental Impact Assessment (EIA) Regulations No. 30 of 2012

Address of the Proponent and Contact Person

Shanya Energy (Pty) Ltd
ERF 802, Nehale Lya Mpingana Street,
Academia Extension 1
WINDHOEK, NAMIBIA

Permitting // Environmental Consultants

10 Schützen Street, Erf No. 7382, Sivieda House
Windhoek Central Business District (CBD),
Tel: +264-61-306058, +264817016851
Email: emeritaashipala@gmail.com

Environmental Assessment Practitioner (EAP)

Environmental Assessment Practitioner (EAP)
Ms Emerita Ashipala

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NON-TECHNICAL SUMMARY

Shanya Energy (Pty) Ltd (the Proponent) had applied to the Walvis Bay Municipality to lease 5 Ha portion of land which form part of Farm 38. The Walvis Bay Municipality has approved the land lease application by the Proponent subject to the fulfilment of certain conditions, including obtaining Environmental Clearance Certificate (ECC) with respect to the proposed activities. The leased land falls within Farm 38, situated in the Walvis Bay Municipality town boundary in the Erongo Region. The leased land has existing infrastructure and supporting services with limited additional infrastructure likely to be added within the demarcated portion of Farm 38. The Proponent intends to use the leased land for warehousing and storage with respect to the oil and gas exploration and production services. The Proponent is involved in storage and warehousing, permitting and licensing for oilfield service companies, marine services, logistics and custom clearance, tubular services, fabrication, engineering works, manpower supply, training, and development.

The activities to be undertaken on the leased land are listed in the Environmental Management Act, 2007, (Act No. 7 of 2007) and cannot be undertaken without an Environmental Clearance Certificate (ECC). The leased land by the Proponent form part of the 5 Ha portion of Farm 38 land.

This EMP Report covers the impact assessment and management of the activities associated with the proposed operation of the warehouse and storage facility on the leased land covering the following project developmental stages:

- (i) Permitting and preconstruction activities may be required.
- (ii) Construction of the warehousing and storage infrastructure.
- (iii) Operation, ongoing monitoring, and rehabilitation of the warehousing and storage and.
- (iv) Decommissioning, closure, and aftercare of the site.

Walvis Bay municipal area which is home to the country's biggest Port, covers 1124 km² which includes 60 km of coastline. It is situated on the edge of the Namib Desert, which is the world's oldest desert. Relative humidity is approximately 80% and rainfall is less than 20 mm per annum. Walvis Bay has an estimated pollution of 67 201 people with the industrial base dominated by the operations of the Port of Walvis Bay, fisheries, tourism, mining, and trading.

It is estimated that at least 54 reptile, 7 amphibian, 42 mammal and 182 bird species (breeding residents) are known to or expected to occur in the general area of which a large proportion are endemics species. Endemics species include at least 50% of the reptiles, 43% of the amphibians, 29% of the mammals and 4% (7 of the 14 Namibian endemics species) of all the breeding and/or resident birds known and/or expected to occur in the general area. Between 26 and 39 species of larger trees and shrubs are known and/or expected to occur in the general area of which 6 species are classified as endemic (i.e., 15.4%) while up to 48 grasses – 6 to 37 species – occur in the general area around.

The construction of warehousing and storage facilities on the portion of land falling on Farm 38 within the Walvis Bay municipal area will have insignificant impacts on the local receiving environment with extremely unlikely probability of occurrence without mitigations. Overall significant impacts will be negligible except for the socioeconomic components which will be low positive. The leased land is already disturbed with existing infrastructure and the surrounding areas are also not pristine. Based on the findings of EIA, it is hereby recommended that the leased land to be used for warehousing and storage facilities be issued with an ECC with key conditions of adhering to all the provisions of the EMP and requirements and conditions of the Lease Agreement and all applicable by-laws and national regulations. Mitigation measures shall be implemented as detailed in Section 3 (EMP) of this report.

1. BACKGROUND

1.1 Introduction

Shanya Energy (Pty) Ltd (SE) (the Proponent) holds approval to lease the 5 Ha portion of land which forms part of Farm 38 from the Walvis Bay Municipality. The Walvis Bay Municipality has approved the land lease application subject to the fulfillment of certain conditions, including obtaining an Environmental Clearance Certificate (ECC) with respect to the proposed activities.

Shanya Energy (Pty) Ltd (SE) is a wholly owned Namibian energy, oilfield services, and infrastructure development company set up to provide support services to the upstream Oil and Gas industry. SE is committed to enhancing local content and developing the capacity of Namibian individuals and businesses throughout our operations. In partnership with international market leaders in oil and gas services, the proponent aim to fill the gaps identified in the local industry and ensure our clients get world-class services while simultaneously developing the local competency of Namibia and the rest of Africa.

The Proponent is involved in storage and warehousing, permitting and licensing for oilfield service companies, marine services, logistics and customs clearance, tubular services, fabrication, engineering works, manpower supply, training, and development. The Proponent has the financial capacity to make use of the leased land, put up the required temporary structures, and pay the lease fees. The financial backing of the Proponent is from the combination of own capital contribution and investor equity.

1.2 Regulatory Requirements

The activities to be undertaken by the Proponent on the leased land covering warehousing and storage support services to the oil and gas, and energy companies, are listed in the Environmental Management Act, 2007, (Act No. 7 of 2007) and cannot be undertaken without an Environmental Clearance Certificate (ECC).

The following are the listed activities triggered by the project:

Energy Generation, Transmission, and Storage Activities:

1. The construction of facilities for - (a) The generation of electricity

- ✚ Electricity needs will be supplied by a generator and later connected to the ErongoRED Network, the regional electricity distributor.

Waste Management, Treatment, Handling and Disposal Activities

- The construction of facilities for waste sites, treatment of waste, and disposal of waste.
- The import, processing, use and recycling, temporary storage, transit or export of waste
- ✚ Although the primary focus of the project is not waste management, there may be incidental waste generated during operations. Shanya Energy will need to ensure proper waste management practices are in place, which may include temporary storage of waste and adherence to waste disposal regulations.

Hazardous Substance Treatment, Handling and Storage

- The manufacturing, storage, handling or processing of a hazardous substance defined in the Hazardous Substances Ordinance, 1974.
- The storage and handling of a dangerous goods, including petrol, diesel, liquid petroleum gas or paraffin, in containers with a combined capacity of more than 30 cubic meters at any one location.
- ✚ Shanya Energy will store chemicals for use in oil and gas/energy-related activities. These chemicals may be considered hazardous substances and will need to be stored and handled in compliance with relevant regulations and safety standards.

- ✚ The project will involve the storage of oil and gas-related consumables, including petrol, diesel, liquid petroleum gas, or paraffin.
- ✚ The project will involve the storage of radioactive sources and tools utilised for exploration, drilling, production, and well logging purposes. SE will ensure adherence to strict protocols for handling, storage, transportation, and disposal of radioactive materials. The radioactive source will be stored in a designated radiation bunker, as per the requirement in the Atomic Energy and Radiation Protection Act, Act 5 of 2005, and the associated Regulations, the Radiation Protection and Waste Disposal Regulations of 2011.

This Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) Report has been prepared by the Earth Environmental Services CC on behalf of the Proponent to support the application for the proposed project over the leased land on Farm 38.

1.3 Location, Land Use, and Supporting Infrastructure

1.3.1 Location

The leased land by the Proponent falls within Farm 38, situated in the Walvis Bay Municipality town boundary in the Erongo Region. The regional terrain around the leased land is flat and sandy with no major drainage or Ephemeral streams. The local sandy terrain forms part of the surrounding Namib Desert sand dune area.

1.3.2 Current Land Uses

The land use surrounding the leased land area is primarily dominated by industrial activities and governmental installations. The surrounding leased land area is not pristine and is dominated by a number of old excavations, waste rock, and litter linked to historical activities and other associated current land uses.

The land use around the leased land area falls within a farm and is dominated by gravel and dimension stone quarrying operations, telecommunication services towers, and the Namibia Defence Force shooting range. Overall, the surrounding land uses paint a diverse picture of industrial, military, and governmental activities, contributing to the unique character and functionality of the area (Fig 1.6).

1.3.3 Supporting Infrastructure

The leased land area is accessible via the C14 Road from Walvis Bay. A number of minor gravel roads linked to the C14 provide good access to Farm 38 and the leased land area (Figs. 1.6 -1.7).

Water requirements for the warehousing and storage facilities will be transported from Walvis Bay and stored onsite in tanks. Electricity needs will be supplied by a generator and later connected to the Erongo Red Network, the regional electricity distributor.

All fuel products may be stored on-site, and fuels are to be banded to hold 110% of the capacity of the tanks, this is to provide a buffer to accommodate any unexpected volume changes due to temperature variations, expansion, or contraction of the fuel. It further helps ensure that the storage facility can handle overfills without causing spills or environmental damage.

Likely limited liquid and solid wastes will be managed as follows:

- (i) Management of wastewater will utilise a French Drain or Septic Tanks system. Once the onsite storage is full, it will be emptied and wastewater will be disposed of at the Walvis Bay Sewage Works, and.

- (ii) Generated solid waste will be stored in separated containers marked as hazardous and non-hazardous waste and occasionally taken for recycling or disposed of at the general or hazardous waste as may be applicable and in line with the Walvis Bay Municipality Water Management by-laws.

The additional infrastructure of the warehousing and storage facility will consist of but not limited to (Fig 1.6 – 1.7):

- ❖ Containerised offices will be replaced on-site serving as the administrative hub, providing space for management personnel, administrative staff, and operational coordination.
- ❖ An expansive laydown area for the temporary storage of equipment, materials, and supplies. This area will be strategically organised to optimise space utilisation and facilitate easy access. It includes designated zones for different types of equipment, materials, and project-specific laydown needs.
- ❖ Hazardous Materials are stored in designated areas equipped with bunded containment systems (110% of the capacity of the tanks) to ensure safe storage practices for various chemicals (including but not limited to Barite, Bentonite, Potassium Chloride, Calcium Chloride, Glycol, etc.) essential to operational activities. These chemicals encompass substances utilised in drilling and well completion, including:
 - (i) Drilling Fluids: These substances are integral to the process of mixing drilling fluids (mud) utilised during well drilling operations.
 - (ii) Cementing: Cementing materials are used to ensure the integrity of well casings and zonal isolation during drilling operations.
 - (iii) Radioactive Sources: A dedicated storage area is allocated for radioactive sources used in oil and gas exploration tools and data acquisition processes. The radioactive source will be stored in a designated radiation bunker, as per the requirement in the Atomic Energy and Radiation Protection Act, Act 5 of 2005, and the associated Regulations, the Radiation Protection and Waste Disposal Regulations of 2011.
 - (iv) Lithium Batteries: These are batteries installed in the service tools, the aim is for powering the tools to acquire memory mode data. Lithium batteries are classified as hazardous materials hence the need for proper storage and handling protocols within these designated areas.

These areas adhere to strict safety regulations and incorporate ventilation, segregation protocols, and spill containment measures to minimise risks. All hazardous material requiring permitting shall be obtained as may be required.

- ❖ Purpose-built Workshop Areas equipped with tools, equipment, and machinery for maintenance, repair, and fabrication tasks.
- ❖ Spooling facilities dedicated to the preparation and handling of pipes, hoses, and cables used in oil and gas operations. These facilities feature specialised equipment and machinery for spooling, cutting, and handling operations, ensuring the efficient deployment and management of flexible piping systems.
- ❖ A laboratory facility supports quality control, testing, and analysis activities related to oil and gas products and processes.
- ❖ Robust security measures, including perimeter fencing, access control systems, and security room and personnel, are implemented to protect assets and personnel.

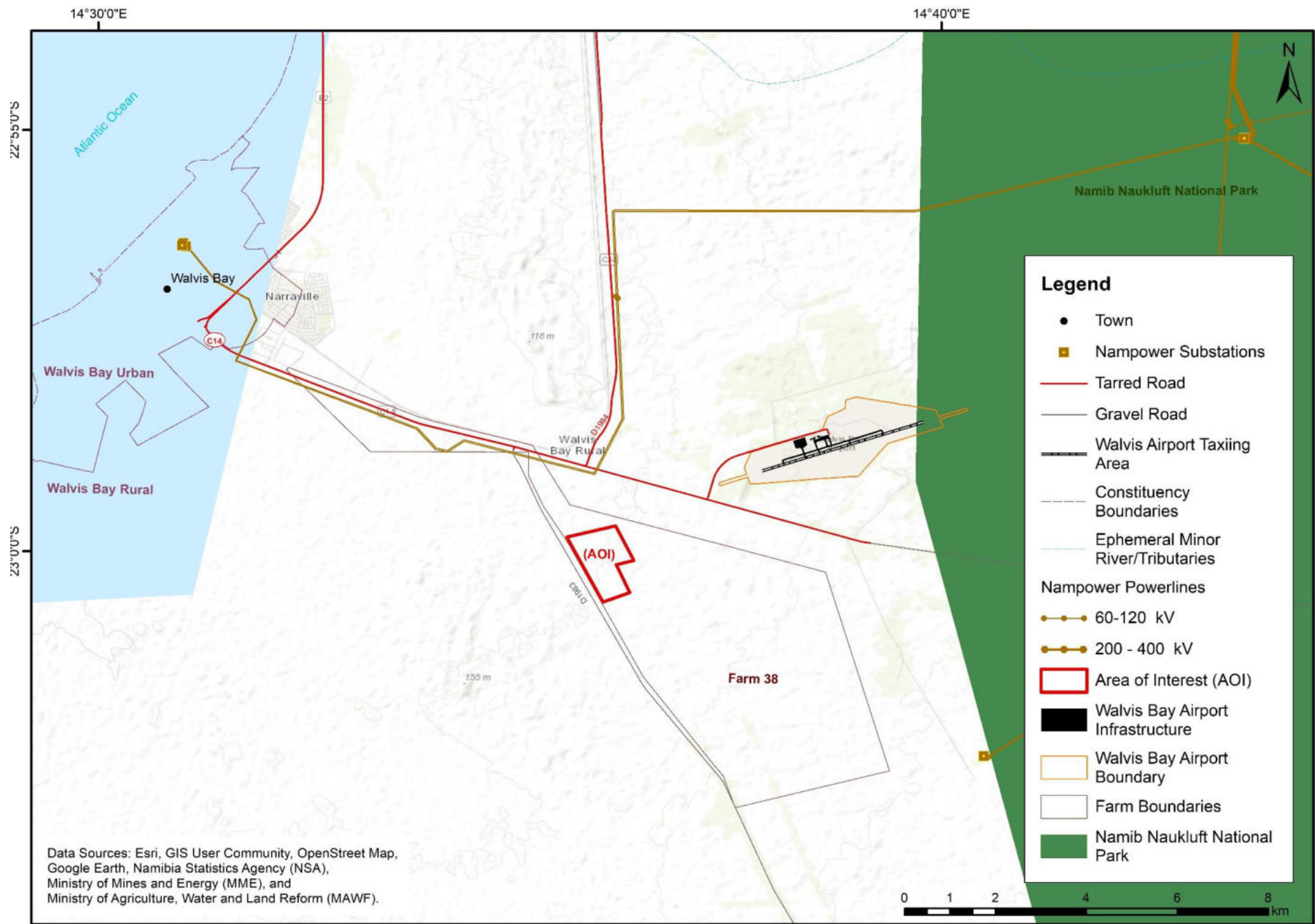


Figure 1.2: Detailed regional location of the leased land portion of Farm 38, Walvis Bay municipal area.

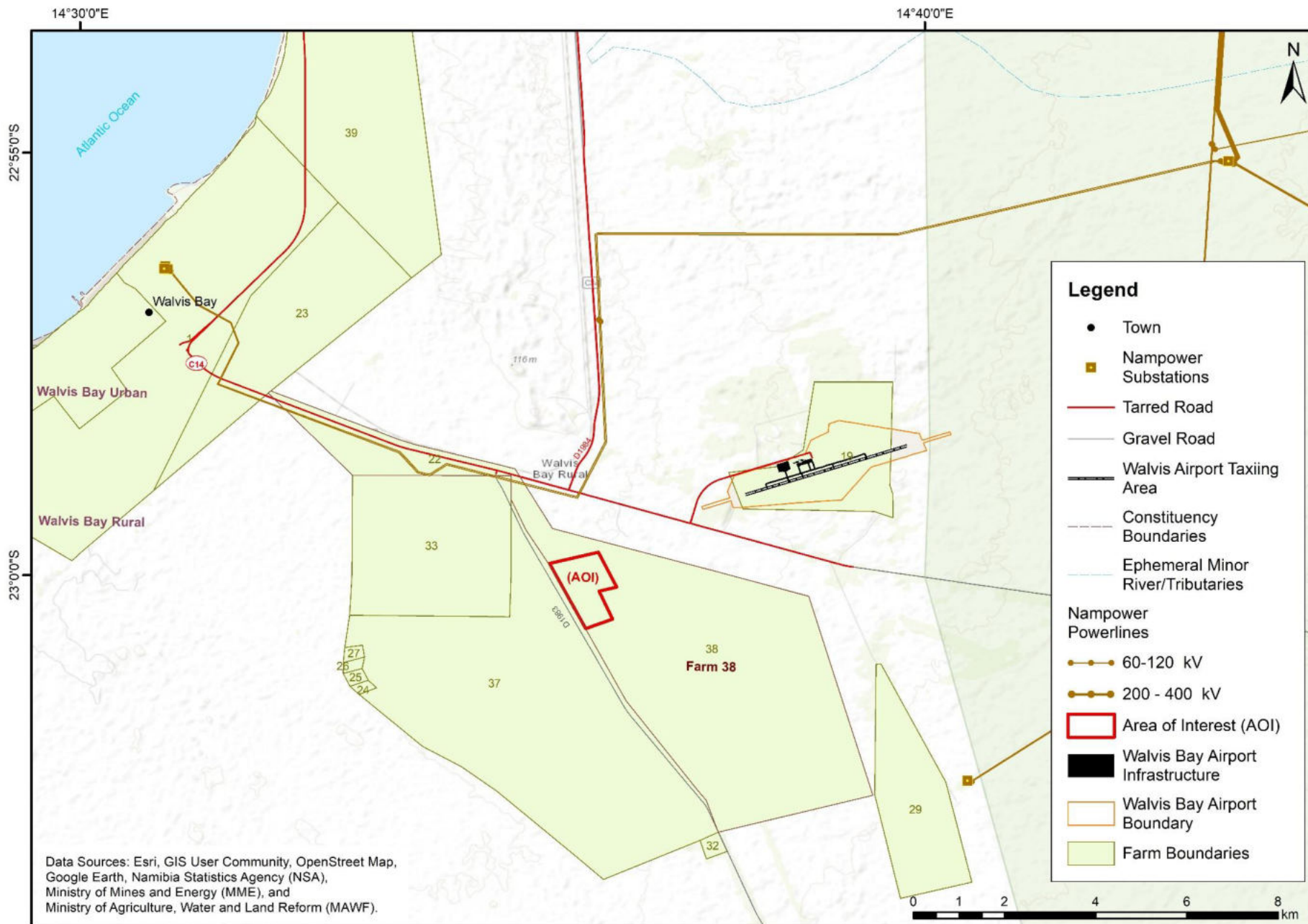


Figure 1.3: Detailed location of the leased land portion of Farm 38, Walvis Bay municipal area.

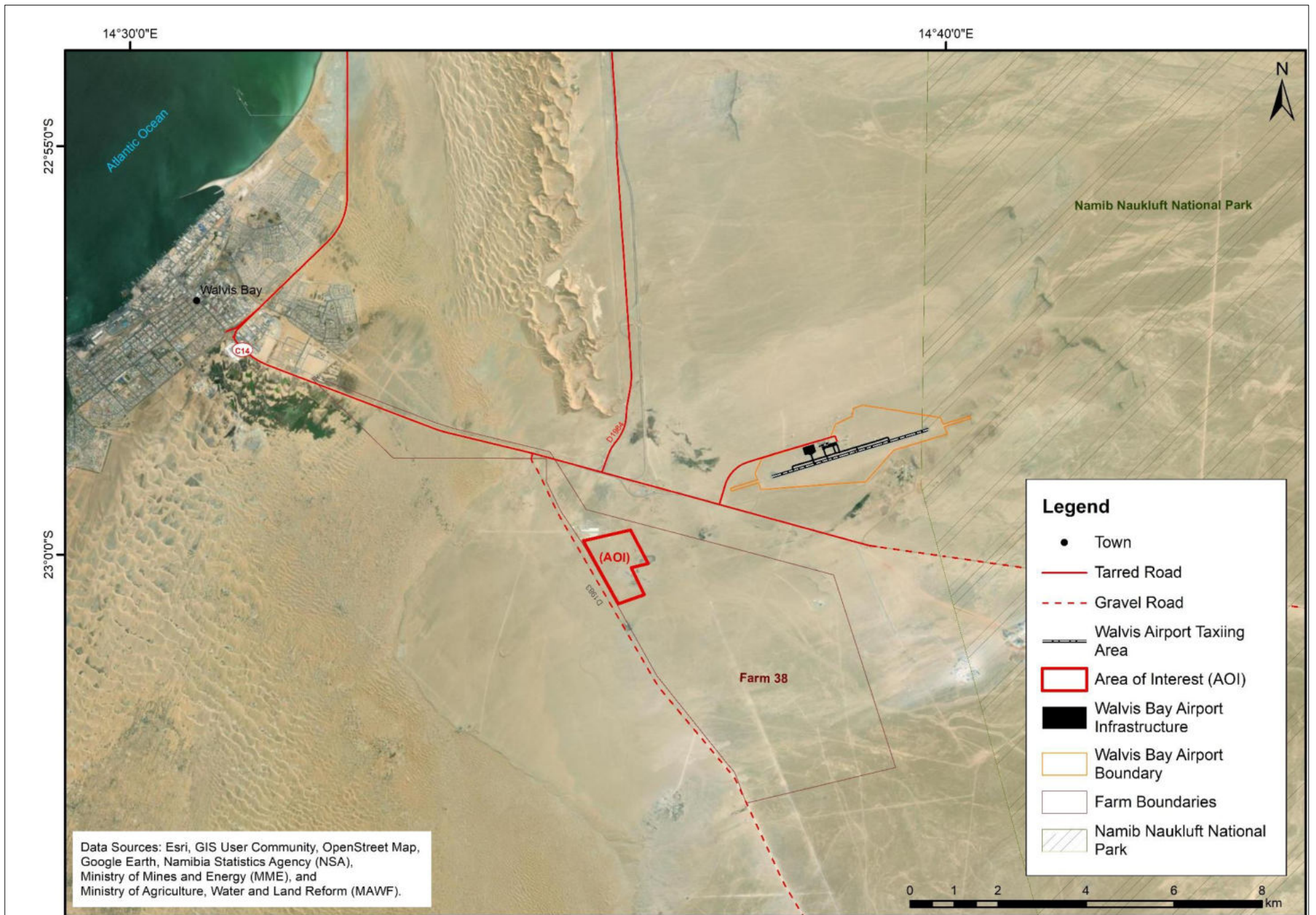


Figure 1.4: Detailed satellite image location of the leased land portion of Farm 38, Walvis Bay municipal area.

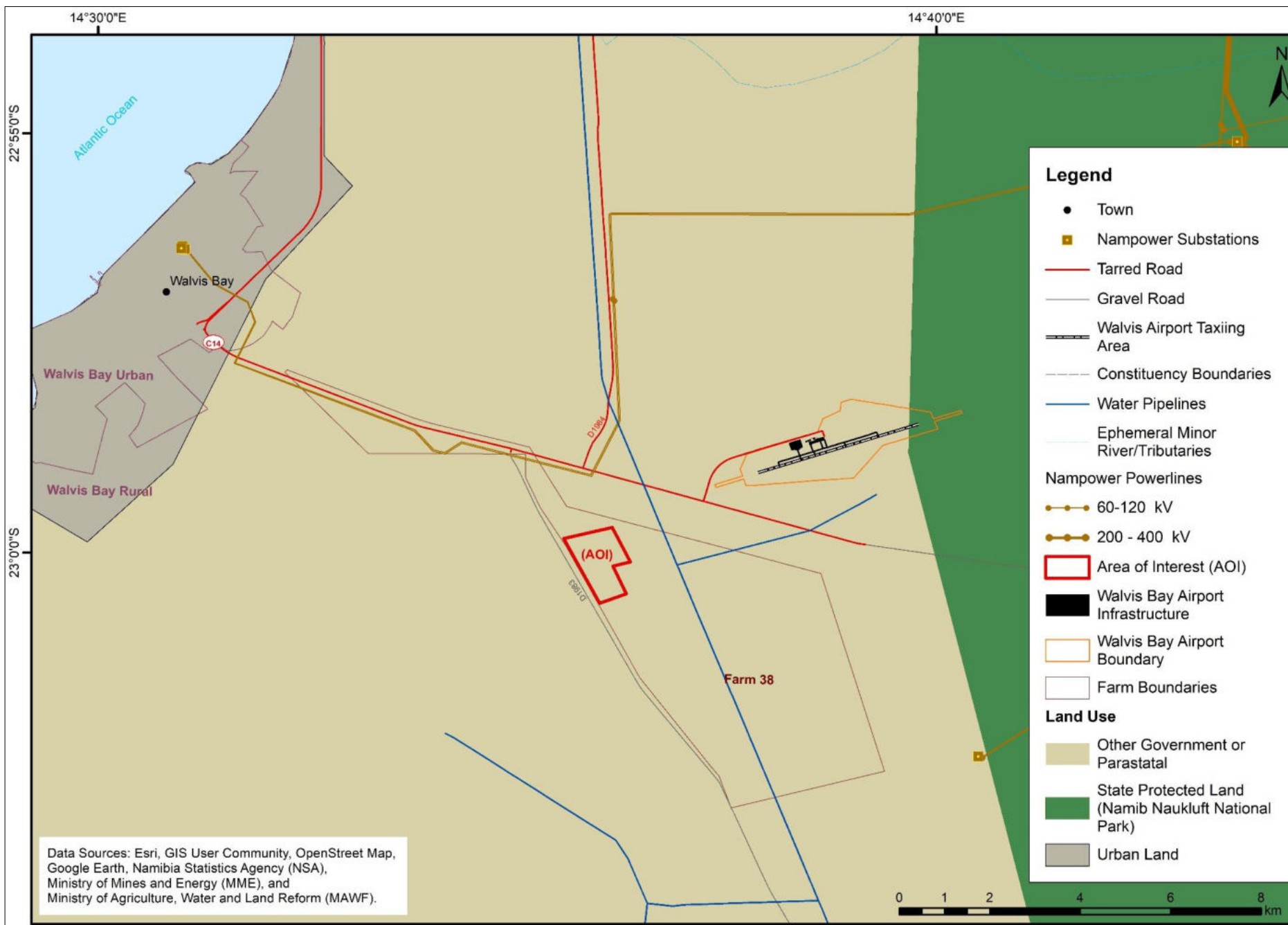


Figure 1.5: Detailed regional land uses around the leased land portion of Farm 38, Walvis Bay municipal area.

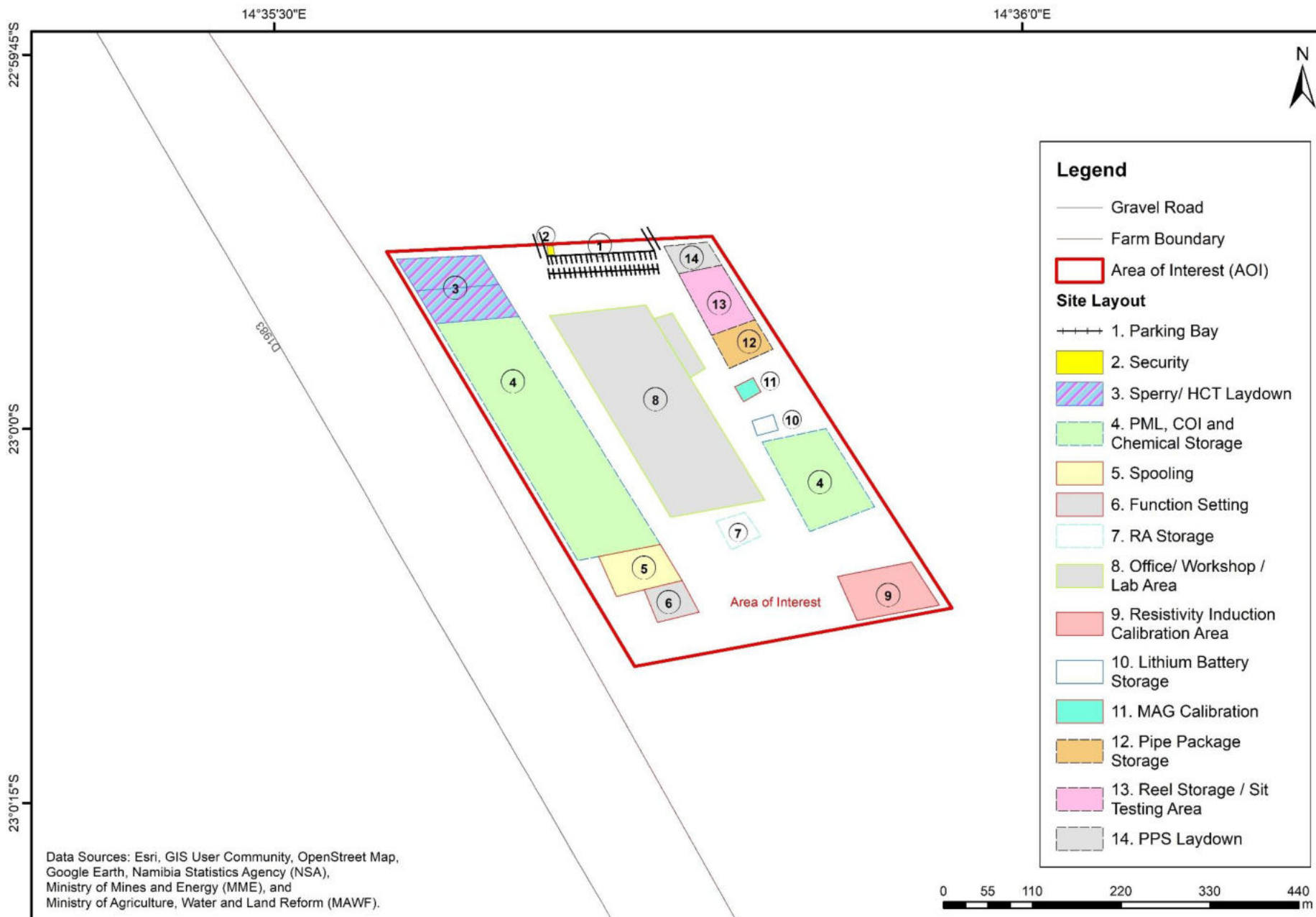


Figure 1.6: Detailed satellite image location of the leased land portion of Farm 38, Walvis Bay municipal area.

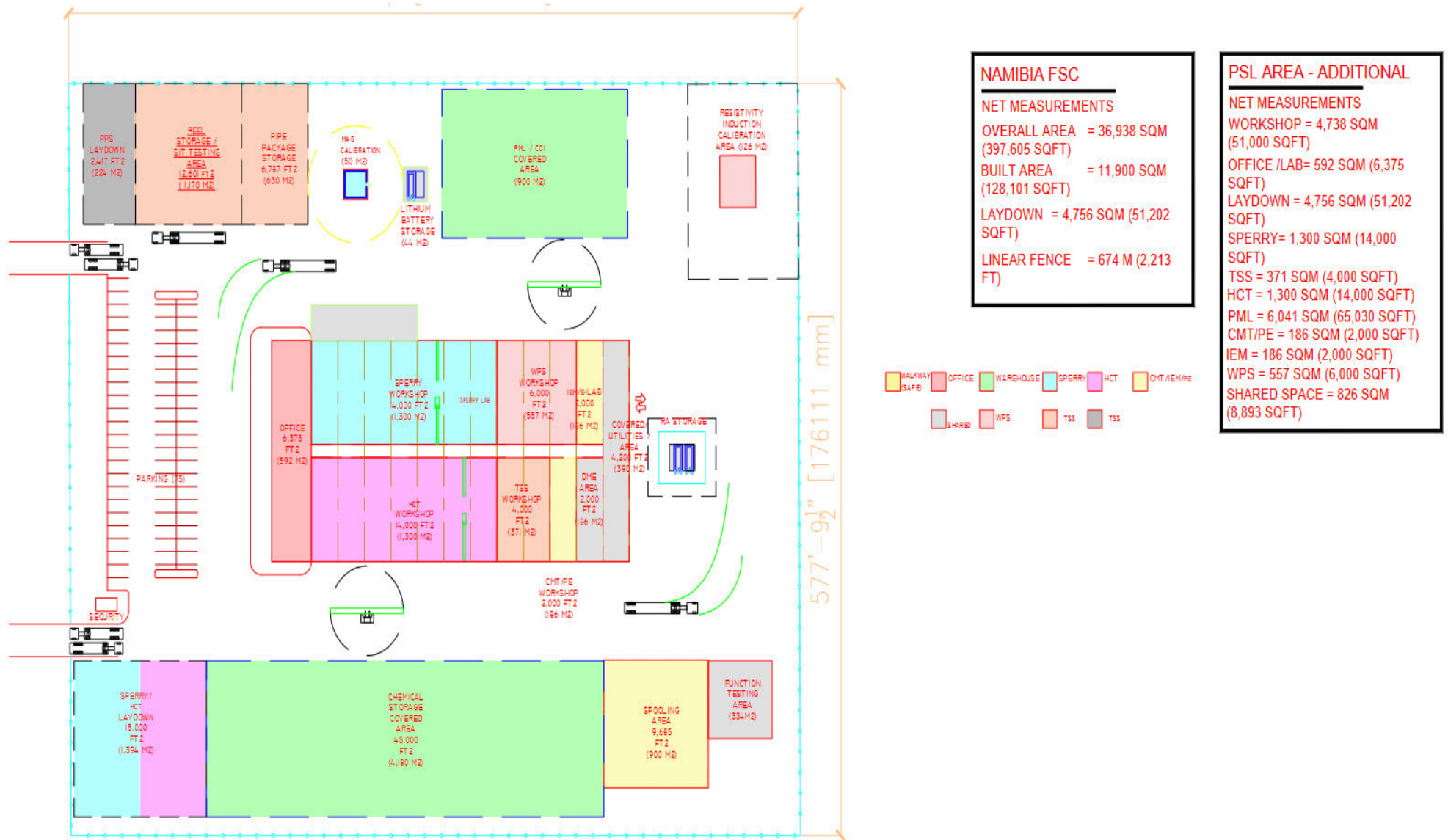


Figure 1.7: Overview of the leased land to be used for warehousing and storage support services to the oil and gas, and energy companies.

2. PROPOSED PROJECT AND ASSESSMENT METHODOLOGY

2.1 Summary of the Proposed Project Activities

Shanya Energy (Pty) Ltd (the Proponent) holds approval to lease the 5 Ha portion of land which forms part of Farm 38 from the Walvis Bay Municipality. The leased land will be used for warehousing and storage support services to the oil gas, and energy companies. Temporary structures for warehousing and storage of oil and gas-related consumables and tools, and storage of chemicals. All the storage facilities for oil and gas tools will be built in accordance with the international required standards and national regulatory building codes.

The following is the summary of the land lease and proposed activities:

- ❖ **Type of proposed activities to be undertaken on the leased land:** Warehousing and storage support services to the oil and gas, and energy companies.
- ❖ **Current land owner:** Walvis Bay Municipality.
- ❖ **Proponent:** Shanya Energy (Pty) Ltd
- ❖ **Size of the leased land:** 5 Ha portion of Farm 38, Walvis Bay Municipal Area, and.
- ❖ **Type of Authorisation Requiring Environmental Clearance Certificate (ECC):** Development of Warehousing and Storage Facilities for Oil and Gas Exploration and Production Support Services on a 5 Ha Municipal Leased Land on Farm 38, Walvis Bay Municipality, Erongo Region.

This EIA Report covers the impact assessment of the activities associated with the proposed development of the warehouse and storage facility on the leased land covering the following project developmental stages:

- (i) Permitting and preconstruction activities may be required.
- (ii) Construction of the warehousing and storage infrastructure.
- (iii) Operation, ongoing monitoring and rehabilitation of the warehousing and storage and.
- (iv) Decommissioning, closure and aftercare of the site.

2.2 Project Motivation (Needs and Desirability)

Shanya Energy Pty Ltd (SE) is a leading wholly-owned Namibian upstream and downstream oil and gas entity that specializes in oil and gas exploration as well as infrastructure development to provide support services to the upstream Oil and Gas industry. SE is committed to enhancing local content by developing the capacity of Namibian individuals and businesses throughout our operations. In partnership with international market leaders in logistics services for onshore and offshore oil and gas services, they aim to fill the gaps identified in the local industry and ensure our clients get world-class services while simultaneously developing the local competency of Namibia and the rest of Africa.

Together with its local and offshore partner companies, SE is a reliable source for labour force solutions in Namibia and Africa's industrial goods storage facility industry. SE will provide skilled labor solutions, creating employment opportunities for both unskilled and semi-skilled workers, particularly benefiting Walvis Bay's unemployed youth and women will be made available during the construction and operational phases of this development. The leasing of land to SE not only generates employment but

also boosts Walvis Bay's value and stimulates skills development in key sectors like oil, gas, mining, and energy. SE demonstrates its commitment to community development by allocating profits to support vocational training centers in Walvis Bay, reinforcing its dedication to local empowerment.

3. THE EMP

3.1 Summary of the EMP Objectives

The Environmental Management Plan (EMP) provides a detailed plan of action required in the implementation of the mitigation measures for minimising and maximising the identified negative and positive impacts respectively, for the proposed warehousing and storage infrastructure development on the leased land portion of Farm 38, Walvis Bay municipal area covering the following developmental project stages:

- (i) Permitting and preconstruction activities may be required.
- (ii) Construction of the warehousing and storage infrastructure.
- (iii) Operation, ongoing monitoring and rehabilitation of the warehousing and storage, and.
- (iv) Decommissioning, closure and aftercare of the site.

The EMP gives commitments including financial and human resources provisions for effective management of the likely environmental liabilities for the proposed warehousing and storage infrastructure on the leased land portion of Farm 38, Walvis Bay municipal area.

Regular assessments and evaluation of the environmental liabilities during the permitting, construction, operation, and closure of the proposed warehousing and storage infrastructure on the leased land portion of Farm 38, Walvis Bay municipal area will need to be undertaken and will ensure adequate provision of the necessary resources towards good environmental management at various stages of the project development.

3.2 Implementation of EMP

3.2.1 Roles and Responsibilities

Management of the environmental elements that may be affected by the different activities of the proposed warehousing and storage infrastructure on the leased land portion of Farm 38, Walvis Bay municipal area is an important element of the EMP provisions.

The EMP also identifies the activity groups / environmental elements, the aspects / target, the indicators, the schedule for implementation, and who should be responsible for the management to prevent major impacts that the proposed warehousing and storage infrastructure on the leased land portion of Farm 38, Walvis Bay municipal area may have on the receiving environment (physical and biological environments).

3.2.2 Proponent's Representative (PR) / Project Manager (PM)

The proponent is to appoint a **Proponent's Representative (PR) / Project Manager (PM)** with the following responsibilities with respect to the EMP implementation covering the permitting, construction, operation, and closure of the proposed warehousing and storage infrastructure on the leased land portion of Farm 38, Walvis Bay municipal area:

- ❖ Act as the site project manager and implementing agent.
- ❖ Ensure that the proponent's responsibilities are executed in compliance with the relevant legislation.
- ❖ Ensure that all the necessary environmental authorizations and permits have been obtained.
- ❖ Assist the contractor/s in finding environmentally responsible solutions to challenges that may arise.

- ❖ Should the PR be of the opinion that a serious threat to, or impact on the environment may be caused by the proposed activities, he/she may stop work. the proponent must be informed of the reasons for the stoppage as soon as possible.
- ❖ The PR has the authority to issue fines for transgressions of basic conduct rules and/or contravention of the EMP.
- ❖ Should the Contractor or his/her employees fail to show adequate consideration for the environmental aspects related to the EMP, the PR can have the person(s) and/or equipment removed from the site or work suspended until the matter is remedied.
- ❖ Maintain open and direct lines of communication between the landowners and proponent, as well as any other identified Interested and Affected Parties (I&APs) with regards to environmental matters, and.
- ❖ Attend regular site meetings and inspections as may be required.

3.2.3 Project Health, Safety and Environment (Project HSE)

The proponent is to appoint a Project Health, Safety and Environment (Project HSE) with the following responsibilities with respect to the EMP implementation covering the permitting, construction, operation and closure of the proposed warehousing and storage infrastructure on the leased land portion of Farm 38, Walvis Bay municipal area:

- ❖ Assist the PR in ensuring that the necessary environmental authorizations and permits have been obtained.
- ❖ Assist the PR and Contractor in finding environmentally responsible solutions to challenges that may arise.
- ❖ Conduct environmental monitoring as per EMP requirements.
- ❖ Carry out regular site inspections (on average once per week) of all operational areas with regards to compliance with the EMP. report any non-compliance(s) to the PR as soon as possible.
- ❖ Organise annual independent internal audit on the implementation of and compliance to the EMP.
- ❖ Continuously review the EMP and recommend additions and/or changes to the EMP document.
- ❖ Monitor the Contractor's environmental awareness training for all new personnel coming onto site.
- ❖ Keep records of all activities related to environmental control and monitoring and the latter to include a photographic record of the project activities, rehabilitation process, and a register of all major incidents, and.
- ❖ Attend regular site meetings.

3.2.4 Contractors and Subcontractors

The responsibilities of the **Contractors and Subcontractors** that may be appointed by the proponent to undertake certain permitting, construction, operation, and closure of the proposed warehousing and storage infrastructure on the leased land portion of Farm 38, Walvis Bay municipal area, include:

- ❖ Comply with the relevant legislation and the EMP provision.

- ❖ Preparation and submission to the proponent through the Project HSE of the following Management Plans:
 - Environmental Awareness Training and Inductions.
 - Emergency Preparedness and Response.
 - Waste Management, and.
 - Health and Safety.
- ❖ Ensure adequate environmental awareness training for senior site personnel.
- ❖ Environmental awareness presentations (inductions) to be given to all site personnel prior to work commencement.
- ❖ The Project HSE is to provide the course content and the following topics, at least but not limited to, should be covered:
 - The importance of complying with the EMP provisions.
 - Roles and Responsibilities, including emergency preparedness.
 - Basic Rules of Conduct (Do's and Don'ts).
 - EMP: aspects, impacts and mitigation.
 - Fines for Failure to Adhere to the EMP, and.
 - Health and Safety Requirements.
- ❖ Record keeping of all environmental awareness training and induction presentations, and.
- ❖ Attend regular site meetings and environmental inspections.

3.3 Specific Mitigation Measures

3.3.1 Hierarchy of Mitigation Measures Implementation

A hierarchy of methods for mitigating significant adverse effects has been adopted in order of preference and as follows:

- (i) Enhancement, e.g., provision of new habitats.
- (ii) Avoidance, e.g., sensitive design to avoid effects on ecological receptors.
- (iii) Reduction, e.g., limitation of effects on receptors through design changes, and.
- (iv) Compensation, e.g., community benefits.

3.3.2 Specific Mitigation Measures Implementation

The Environmental Management Plan (EMP) provides a detailed plan of action required in the implementation of the mitigation measures for minimising and maximising the identified negative and positive impacts respectively.

The EMP also provides the management actions with roles and responsibilities requirements for the implementation of environmental management strategies by the proponent through the Contractors and Subcontractors who will be undertaking the activities.

The EMP gives commitments including financial and human resources provisions for effective management of the likely environmental liabilities during and after the implementation of the proposed project.

Based on the findings of the impact assessment undertaken, the following specific mitigations have been provided for the proposed warehousing and storage infrastructure on the leased land portion of Farm 38, Walvis Bay Municipal area:

1. Management of likely negative impacts of project planning and permitting noncompliance.
2. Measures to enhance positive socioeconomic impacts.
3. Management of likely negative impacts associated with the traffic, equipment movements and access
4. Management of likely negative impacts on ground components, geology, water, and construction.
5. Management of likely positive socioeconomic impacts.
6. Management of likely negative socioeconomic impacts.
7. Management of likely negative impacts health and safety impacts.
8. Management of likely negative impacts of visual impacts.
9. Management of likely negative impacts of waste (solid and liquid) generation
10. Management of likely negative impacts on water resources and water supply infrastructure.
11. Management of likely negative impacts of operational spillages or fuel leaks.
12. Management of likely negative impacts of major accidental / emergency scenarios.

Table 3:1 Management of likely negative impacts of project planning and permitting noncompliance.

MITIGATION MEASURES	OBJECTIVE	SCHEDULE	RESPONSIBILITY
<p>Obtained the following applicable permits, authorisations, and consents before the start of the project activities on each of the proposed storage:</p> <ol style="list-style-type: none"> 1. Environmental Clearance Certificate (ECC) issued by the Environmental Commissioner in the Ministry of Environment, Forestry and Tourism (MEFT) 2. Emergency Response Plan (ERP) approved by the Ministry of Mines and Energy (MME) – Office of the Petroleum Commissioner 3. Radioactive Authorisation (Import, Storage, Transport, Use, and Export Permits) of radioactive sources for logging and authorisation issued by the National Radiation Protection Authority (NRPA), Ministry of Health and Social Services (MHSS) 4. Surface user rights consent, endorsement, leasehold, or permission to occupy (PTO) from the land owner, as may be applicable. 	<p>Compliance with all national legislation, regulations</p> <p>and permits, authorisations, consents</p> <p>, and international best practices</p>	<ol style="list-style-type: none"> 1. Permitting and planning 2. Site preparation, preconstruction, construction and operational stages 3. Rehabilitation, site closure, restoration, and handover to landowner 	<ol style="list-style-type: none"> 1. Proponent's Representative (PR) 2. Project Manager (PM) 3. Project HSE 4. EMP Coordinator 5. Contractors Subcontractors

Table 3:2: Mitigation Measures For Vehicle Movements And Access Track Management.

MITIGATION MEASURES	OBJECTIVE	SCHEDULE	RESPONSIBILITY
<ul style="list-style-type: none"> ❖ Avoid unnecessarily affecting areas viewed as important habitats – i.e., Local ephemeral rivers. rocky outcrops. lithops/lichen fields. ❖ Make use of existing tracks/roads as much as possible throughout the area. ❖ Do not drive randomly throughout the area (could cause mortalities to vertebrate fauna and unique flora, this can cause erosion-related problems, etc.). ❖ Avoid off-road driving at night as this increases mortalities of nocturnal species. ❖ Implement and maintain off-road track discipline with maximum speed limits (e.g. 30km/h) as this would result in fewer faunal mortalities and limit dust pollution. ❖ Where tracks have to be made to off the main routes, the new routes should be selected causing minimal damage to the environment – e.g., use the same tracks. cross drainage lines at right angles. avoid placing tracks within drainage lines. avoid collateral damage (i.e., select routes that do not require the unnecessary removal of trees/shrubs, especially protected species). ❖ Rehabilitate all new unused tracks created, and. ❖ Rehabilitate all excavated or disturbed areas. 	<p>Management of any likely increased traffic</p> <p>and equipment movements around the area</p> <p>operational sites</p> <p>such</p> <p>as</p> <p>a borrow pit</p>	<ol style="list-style-type: none"> 1. Permitting and planning 2. Site preparation, preconstruction, construction, and operational stages 3. Rehabilitation, site closure, restoration, and handover to landowner 	<ol style="list-style-type: none"> 1. Proponent's Representative (PR) 2. Project Manager (PM) 3. Project HSE 4. EMP Coordinator 5. Contractors Subcontractors

Table 3:3 Mitigation measures to be implemented with respect to the construction process.

MITIGATION MEASURES	OBJECTIVE	SCHEDULE	RESPONSIBILITY
<ul style="list-style-type: none"> ❖ Select camp sites and other temporary lay over sites with care – i.e., avoid important habitats. ❖ Use portable toilets to avoid faecal pollution around camp. ❖ Initiate a suitable and appropriate refuse removal policy as littering could result in certain animals becoming accustomed to humans and associated activity and result in typical problem animal scenarios – e.g., black-backed jackal, etc. ❖ Prevent the killing of species viewed as dangerous – e.g., various snakes – when on site. ❖ Prevent collection of unique plants (e.g., various Aloe and Lithop) or any form of illegal activities. ❖ Avoid introducing dogs and cats as pets to site as these can cause significant mortalities to local fauna (cats). ❖ Remove and relocate slow moving vertebrate fauna (e.g., tortoises, chameleon, snakes, etc.) to suitable habitat elsewhere on property. ❖ Avoid the removal and/or damaging of protected flora potentially occurring in the general area. ❖ Avoid introducing ornamental plants, especially potential invasive alien species, as part of the landscaping of the site, etc., but rather use localised indigenous species, should landscaping be attempted, which would also require less maintenance (e.g., water). ❖ Remove all invasive alien species on site, especially Prosopis sp. ❖ Inform contractors/workers regarding the EMP provisions and monitor for compliance thereof throughout. ❖ Rehabilitate all disturbed areas. ❖ Ensure that adequate firefighting equipment (e.g., fire beaters, extinguishers, etc.) is available at the sites and always manage accidental fires, and. ❖ Employ an independent environmental auditor to ensure compliance, especially of the rehabilitation of all the affected areas after construction. 	<p>Compliance with all national legislation, regulations</p>	<p>Prevent flora and ecosystem destruction and promote conservation Compliance with the provisions of this EMP linked to the national legislation, regulations and permits, authorisations, consents and international best practices</p>	<p>1. Permitting and planning 2. Site preparation, preconstruction, construction, and operational stages 3. Rehabilitation, site closure, restoration, and handover to landowner</p> <p>1. Proponent's Representative (PR) 2. Project Manager (PM) 3. Project HSE 4. EMP Coordinator 5. Contractors Subcontractors</p>

Table 3: 4: Mitigation measures for ground components including geology, water, and construction materials.

MITIGATION MEASURES	OBJECTIVE	SCHEDULE	RESPONSIBILITY
<ul style="list-style-type: none"> ❖ Limit the operation to a specific site and avoid sensitive areas (Ephemeral River Channels and protected flora). This would sacrifice the actual area for other 	<p>Protection and monitoring of water</p>	<p>1. Permitting and planning 2. Site preparation,</p>	<p>1. Proponent's Representative (PR)</p>

MITIGATION MEASURES	OBJECTIVE	SCHEDULE	RESPONSIBILITY
<p>adjacent Ephemeral River areas and thus minimise the effect on fauna and flora associated with these areas.</p> <ul style="list-style-type: none"> ❖ Avoid placing dumping sites, overburden/storage sites, and associated infrastructure in sensitive areas. This would minimise the negative effect on the local environment. ❖ Avoid driving randomly through the area (i.e., “track discipline”), but rather stick to permanently placed roads/tracks. ❖ All solid and liquid wastes generated from the proposed project activities shall be reduced, reused, or recycled to the maximum extent practicable. ❖ Burial of waste on anywhere is not allowed and all waste must be disposed of at the Municipal Waste Disposal site. ❖ No littering in the site area including access roads is allowed. ❖ Packaging, oil cans, and all other forms of litter must be removed. ❖ Trash may not be burned or buried, except at approved sites under controlled conditions in accordance with municipal regulations. ❖ Disposal of wastewater into any public stream is prohibited, and ❖ All appropriate permits must be obtained before the implementation of the project activities. 	resources soil and infrastructure in the local area of interest	<p>preconstruction, construction, and operational stages</p> <p>3. Rehabilitation, site closure, restoration, and handover to landowner</p>	<p>2. Project Manager (PM)</p> <p>3. Project HSE</p> <p>4. EMP Coordinator</p> <p>5. Contractors Subcontractors</p>

Table 3:5: Mitigation measures to enhance positive socioeconomic impacts include the following actions to be implemented by the proponent.

MITIGATION MEASURES	OBJECTIVE	SCHEDULE	RESPONSIBILITY
<ul style="list-style-type: none"> ❖ Stipulate a preference for local contractors in its tender policy. Preference to local contractors should still be based on competitive business principles and salaries and payment to local service providers should still be competitive. ❖ Develop a database of local businesses that qualify as potential service providers and invite them to the tender process. ❖ Scrutinise tender proposals to ensure that minimum wages were included in the costing. ❖ Stipulate that local resident should be employed for temporary unskilled/skilled and where possible in permanent unskilled/skilled positions as they would reinvest in the town’s economy. However, due to low skills levels of the local population, the majority of skilled positions would be filled with people from outside the area. ❖ Must ensure that potential employees are from Walvis Bay, they need submit proof of having lived in the area for a minimum of 5 years. ❖ Must ensure that contractors adhere to Namibian Affirmative Action, Labour and Social Security, Health and Safety laws. This could be accomplished with a contractual requirement stipulating that monthly proof should be submitted indicating payment of minimum wages to workers, against their ID numbers, payment of social security and submission of affirmative action data, and. ❖ Encouraged to cater for the needs of employees to increase the spending of wages locally in Walvis Bay. 	<p>Promote effective management of socioeconomic benefits from the proposed project activities within the AOlin PEL No. 73 withdirect links to Corporate Social Responsibility(CSR)</p>	<p>1. Permitting and planning</p> <p>2. Site preparation, preconstruction, construction and operational stages</p> <p>3. Rehabilitation, site closure, restoration, and handover to landowner</p>	<p>1. Proponent’s Representative (PR)</p> <p>2. Project Manager (PM)</p> <p>3. Project HSE</p> <p>4. EMP Coordinator</p> <p>5. Contractors Subcontractors</p>

Table 3: 6 Mitigation Measures To Minimise Negative Socioeconomic Impacts.

MITIGATION MEASURES	OBJECTIVE	SCHEDULE	RESPONSIBILITY
<ul style="list-style-type: none"> ❖ The employment of local residents and local companies should be a priority. To ensure that potential employees are from the area, they need submit proof of having lived in the area for a minimum of 5 years. ❖ Providing information such as the number and types of jobs available, availability of accommodation facilities and rental costs and living expenses, could make potential job seekers wary of moving to the area. ❖ Addressing unrealistic expectations about large numbers of jobs would be created. ❖ Employ local residents and local companies as far as possible. ❖ Tender documents could stipulate that contractor have HIV/Aids workplace policies and programmes in place and proof of implementation should be submitted with invoicing. ❖ Develop strategies in coordination with local health officers and NGO's to protect the local communities, especially young girls. ❖ Contract companies could submit a code of conduct, stipulating disciplinary actions where employees are guilty of criminal activities in and around the vicinity of the town. Disciplinary actions should be in accordance with Namibian legislation. ❖ Contract companies could implement a no-tolerance policy regarding the use of alcohol and workers should submit to a breathalyser test upon reporting for duty daily. ❖ Request that the Roads Authority erect warning signs of heavy vehicles on affected public roads as may be required. ❖ Ensure that drivers adhere to speed limits and that speed limits are strictly enforced. ❖ Ensure that vehicles are road-worthy and drivers are qualified, and. ❖ Train drivers in potential safety issues. 	<p>Manage unrealistic employment expectations, in-flux of job seekers, social friction with local people, increase in crime, protect family structures, reduce Covid-19 and other diseases, and reduce pressure on local resources (land, water and shelter etc)</p>	<ol style="list-style-type: none"> 1. Permitting and planning 2. Site preparation, preconstruction, construction and operational stages 3. Rehabilitation, site closure, restoration, and handover to landowner 	<ol style="list-style-type: none"> 1. Proponent's Representative (PR) 2. Project Manager (PM) 3. Project HSE 4. EMP Coordinator 5. Contractors Subcontractors

Table 3:7: Mitigation Measures To Minimise Health And Safety Impacts.

MITIGATION MEASURES	OBJECTIVE	SCHEDULE	RESPONSIBILITY
<ul style="list-style-type: none"> ❖ Physical hazards: Follow national and international regulations and guidelines provisions, use correct Personal Proactive Clothing at all times, training programme, as well as the implementation of a fall protection program in accordance with the Labour Act. ❖ Some of the public access management measures that may be considered in an event of vandalism occurring are: ❖ All equipment must be in good working condition and services accordingly. ❖ Control access to the site by using gates on the access road(s) if required. 	<p>Promotion of health and safe working environment in line with national Labour, Health and Safety Regulations and international best</p>	<ol style="list-style-type: none"> 1. Permitting and planning 2. Site preparation, preconstruction, construction, and operational stages 3. Rehabilitation, site closure, restoration, and handover to landowner 	<ol style="list-style-type: none"> 1. Proponent's Representative (PR) 2. Project Manager (PM) 3. Project HSE 4. EMP Coordinator 5. Contractors Subcontractors

<ul style="list-style-type: none"> ❖ The entire site must be fenced off and the type of fencing to be used would, however, be dependent on the impact on the visual resources and/or cost, and. ❖ Notice or information boards relating to public safety hazards and emergency contact details to be put up at the gate(s) to the site. 	practices		
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Table 3:8: Mitigation Measures To Minimise Visual Impacts.

MITIGATION MEASURES	OBJECTIVE	SCHEDULE	RESPONSIBILITY
<ul style="list-style-type: none"> ❖ Consider the landscape character and the visual impacts of the site from all relevant viewing angles. ❖ Avoid the use of very high fencing. ❖ Minimise access roads. ❖ Minimise the presence of secondary structures: remove inoperative support structures., and. ❖ Remove all infrastructure and reclaim, or rehabilitate the project site the activities are completed or the lease agreement is terminated. 	Preserve the landscape character in the development of supporting infrastructure and choice of visual screening	<ol style="list-style-type: none"> 1. Permitting and planning 2. Site preparation, preconstruction, construction and operational stages 3. Rehabilitation, site closure, restoration, and handover to landowner 	<ol style="list-style-type: none"> 1. Proponent's Representative (PR) 2. Project Manager (PM) 3. Project HSE 4. EMP Coordinator 5. Contractors Subcontractors

Table 3:9: Mitigation Measures To Minimise Noise Impacts.

MITIGATION MEASURES	OBJECTIVE	SCHEDULE	RESPONSIBILITY
<ul style="list-style-type: none"> ❖ Limit vehicle movements and adhere to the speed of 60 km/h. ❖ Vehicles and all equipment must be properly serviced to minimise noise pollution. ❖ Use of protective equipment to minimise Occupational Health Safety impacts due to noise pollution around the site. ❖ National or international acoustic design standards must be followed at all times. 	Minimise the noise, vibrations, and other emissions associated with the equipment / vehicles movements	<ol style="list-style-type: none"> 1. Permitting and planning 2. Site preparation, preconstruction, construction and operational stages 3. Rehabilitation, site closure, restoration, and handover to landowner 	<ol style="list-style-type: none"> 1. Proponent's Representative (PR) 2. Project Manager (PM) 3. Project HSE 4. EMP Coordinator 5. Contractors Subcontractors

Table 3:10: Mitigation measures for waste (solid and liquid) management.

MITIGATION MEASURES	OBJECTIVE	SCHEDULE	RESPONSIBILITY
<ul style="list-style-type: none"> ❖ All generated solid waste must be disposed of at the Walvis Bay Municipal waste disposal site. ❖ Toilet and ablution facilities must be provided on-site. ❖ Provide clearly marked onsite waste stream system, namely: <ul style="list-style-type: none"> • General Waste, and • Hazardous Waste. ❖ Clearly mark containers, bins, drums, or bags for the different types of waste. ❖ Never dispose of hazardous waste in the bins or skips intended for general waste or construction rubble. ❖ Never burn or bury any waste around the site, it is prohibited. 	Promotion of effective waste (solid and liquid) management through the adoption of sound and hierarchical approach to waste management, which	<ol style="list-style-type: none"> 1. Permitting and planning 2. Site preparation, preconstruction, construction, and operational stages 3. Rehabilitation, site closure, restoration, and handover to landowner 	<ol style="list-style-type: none"> 1. Proponent's Representative (PR) 2. Project Manager (PM) 3. Project HSE 4. EMP Coordinator 5. Contractors Subcontractors

<ul style="list-style-type: none"> ❖ Never overfill any waste container, drum, bin or bag. Inform your Contractor or the Environmental Control Officer / Site Manager if the containers, drums, bins or skips are nearly full. ❖ Never litter or throwaway any waste on the site, in the field or along any road. ❖ No illegal dumping, and. ❖ Littering is prohibited. 	<p>would include waste minimisation, re-use, recovery, recycling, treatment, and proper disposal.</p>		
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Table 3:11: Mitigation measures for general water usage.

MITIGATION MEASURES	OBJECTIVE	SCHEDULE	RESPONSIBILITY
<ul style="list-style-type: none"> ❖ Always use as little water as possible. Reduce, reuse and re-cycle water where possible. ❖ Report any dripping or leaking taps and pipes to your Contractor or Environmental Control Officer or Site Manager. ❖ Never leave taps running. Close taps after you have finished using them. ❖ Never throw any hazardous substance such as fuel, oil, solvents, etc., onto the ground. ❖ Never allow any hazardous substance to soak into the soil. ❖ Immediately tell the Contractor or Environmental Control Officer / Site Manager when after a spill, or notice any hazardous substance being spilled onsite. ❖ Report to your Contractor or Environmental Control Officer / Site Manager when you notice any container, which may hold a hazardous substance, overflow, leak or drip. ❖ Immediately report to your Contractor or Environmental Control Officer / Site Manager when you notice overflowing problems or unhygienic conditions at the ablution facilities, and. ❖ Vehicles, equipment and machinery, containers and other surfaces shall be washed at areas designated by the Contractor or Environmental Control Officer/ Site Manager. 	<p>Promote effective use and management of local water resources</p>	<ol style="list-style-type: none"> 1. Permitting and planning 2. Site preparation, preconstruction, construction and operational stages 3. Rehabilitation, site closure, restoration, and handover to landowner 	<ol style="list-style-type: none"> 1. Proponent's Representative (PR) 2. Project Manager (PM) 3. Project HSE 4. EMP Coordinator 5. Contractors Subcontractors

Table 3:12: Management of likely negative impacts of operational spillages or fuel leaks.

MITIGATION MEASURES	OBJECTIVE	SCHEDULE	RESPONSIBILITY
<ul style="list-style-type: none"> ❖ Always adhere to site management procedures to prevent and manage spillages. ❖ Ensure that site refuelling or maintenance is performed in a bunded area or while using a drip tray with a spill-kit available. ❖ Refuelling areas shall be underlain with spill-proof hardstanding or bund, with spill kits readily available and operatives trained in their use only. ❖ All fuels and other non-aqueous fluids to be stored in suitable bunded enclosures. ❖ All refuelling operations to be carefully overseen and managed by trained personnel. ❖ Ensure that the integrity of any storage medium and its associated delivery point 	<p>Spill management with respect to trucks, and earthmoving equipment</p>	<ol style="list-style-type: none"> 1. Permitting and planning 2. Site preparation, preconstruction, construction, and operational stages 3. Rehabilitation, site closure, restoration, and handover to land owner 	<ol style="list-style-type: none"> 1. Proponent's Representative (PR) 2. Project Manager (PM) 3. Project HSE 4. EMP Coordinator 5. Contractors Subcontractors

<ul style="list-style-type: none"> are inspected on a regular basis. ❖ The personnel designated to receive deliveries of materials/fuel/ should receive practical training on how to prevent and respond to a spill ❖ The designated personnel should also be aware of any potential areas in their vicinity that are at risk of contamination, such as fauna, flora, Ephemeral River Channels, or water supply boreholes. ❖ Clean up any site spillages and no spills shall be allowed to enter the environment / soak into the ground. 			
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Table 3:13: Management of likely negative impacts of major accidental / emergency scenarios.

MITIGATION MEASURES	OBJECTIVE	SCHEDULE	RESPONSIBILITY
<ul style="list-style-type: none"> ❖ SE to prepare an Emergency Response Plan (ERP) ❖ Procedures for the notification and reporting of an emergency including large oil / chemical spills <ul style="list-style-type: none"> ○ Contact details of all relevant organisations requiring notification of an emergency including tier 3 spill ○ Emergency response strategies and oil spill clean-up guidelines for most probable and worst-case emergency /spill scenarios ○ Procedures for clean-up during the alert and action phase ○ Contact details of all relevant organisations requiring notification of an emergency including tier 3 spill ○ Emergency response strategies and oil spill clean-up guidelines for most probable and worst-case emergency /spill scenarios ○ Procedures for clean-up during the alert and action phase ○ Environmental sensitivity information such as villages, water supply, protected areas and resources in the vicinity of the well location ○ Available resources / facilities for an emergency / spill response. 	<p>Management of operational emergencies such as a major oil or fire</p>	<ol style="list-style-type: none"> 1. Permitting and planning 2. Site preparation, preconstruction, construction and operational stages 3. Rehabilitation, site closure, restoration, and handover to landowner 	<ol style="list-style-type: none"> 1. Proponent's Representative (PR) 2. Project Manager (PM) 3. Project HSE 4. EMP Coordinator 5. Contractors Subcontractors

4. REHABILITATION AND MONITORING

4.1 Rehabilitation Process

The following is the summary of the key rehabilitation process to be implemented by the proponent:

❖ **Step 1: Remove all waste and unwanted materials:**

- Collect remaining domestic waste on site and transport to an approved municipal waste disposal site.
- Clean out the oil traps, collect the waste material in drums, and transport it to a suitable site for disposal, and.
- Manually remove all weedy species that are present at the site (the entire plant can easily be removed because the plants tend not to root deeply).

❖ **Step 2: Remove all structures:**

- Unwanted permanent structures such as bunkers and shades etc.
- Disassemble all building structures including any structures and pre-fabricated buildings.
- Remove all building materials from the site and either:
 - Transporting to a new site if it is to be used or stored elsewhere. or
 - Disposing at a suitable site. or
 - Making them available to the local persons. or
 - Selling at an auction.
- Remove all machinery from the site and transport it to a new site where it is to be used or stored or sold at an Auction.
- Remove all fences that have been constructed and either make the material available to the local persons, dispose at a suitable site, or sell it at an Auction.
- Remove the generators from the sites from the site and either transport them to a new site for storage or sell them as may be required.
- Seal all containers and remove them from the site to a storage facility.
- Collect all scrap metal and dispose at a suitable site or sell it at an Auction.
- Break up all concrete slabs and structures on site and transport the fragments to a suitable site for disposal, and.
- The concrete reservoirs can probably remain intact provided that the land owner wishes to utilize them at some stage - this will need to be negotiated.

❖ **Step 3: Rehabilitate the excavated voids:**

- Replace the subsoil layer by backfilling the soil on top of the overburden and contour cap the subsoil with a topsoil layer about 10cm deep.
- Cap the topsoil containing the seed bank with a layer of gravel by manually spreading the fragments across the surface using a rake.

❖ **Step 4: Containment and Contamination Control:**



- Take steps to prevent the release of hazardous materials during the rehabilitation process.
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- Implement measures to contain and control hazardous materials within the facility, such as secondary containment systems, spill containment kits, and ventilation controls. This may involve implementing containment measures such as barriers, secondary containment systems, and ventilation controls to minimize the spread of contaminants.
- Install appropriate signage, barriers, and warning systems to restrict access to hazardous areas and alert personnel to potential hazards.
- Depending on the condition of the facility, remediation, and decontamination may be necessary to remove or neutralize any hazardous materials present. This could include cleaning up spills, decontaminating equipment and surfaces, and disposing of contaminated materials in accordance with applicable regulations.
- Properly handle and dispose of any hazardous waste generated during the rehabilitation process. This may involve segregating different types of waste, labeling containers appropriately, and arranging for disposal at licensed facilities.

❖ **Step 6: Rehabilitate of disturbed grounds:**

- Compaction of the substrate will result from utilisation of these areas or the pressure of overlying structures.
- Rip the surfaces to a depth of 40 cm to 50 cm using a multi-toothed ripper and tractor.
- Cover with a layer of topsoil to a depth of about 10 cm, and.
- Cap the topsoil containing the seedbank with a layer of gravel by manually spreading the fragments across the surface using a rake.

❖ **Step 7: Rehabilitate the roads:**

- Compaction of the road will result from the continuous passage of heavy vehicles so it will be necessary to break up the road surface.
- Rip the road surface to a depth of at least 50 cm using a multi-toothed ripper and tractor.
- Disk the ripped surface to break up the clods.
- Cover with a layer of topsoil to a depth of about 10 cm, and.
- Cap the topsoil containing the seedbank with a gravel layer by manually spreading the fragments across the surface using a rake.

4.2 Monitoring of the Environmental Performance

4.2.1 Rehabilitation Evaluation and Performance Monitoring

The following is the summary of key rehabilitation evaluation and performance monitoring to be implemented by the proponent:

- ❖ **Monitoring:** A monitoring program is instituted to ensure that the requirements of the mining site rehabilitation program are met. Rehabilitation program may be subjected to various natural or man-made forces that can hinder the progress and lead to problems or failure of the rehabilitation program. Regular monitoring will ensure that these factors are identified early so they may be resolved through appropriate recommendations.
- ❖ **Frequency:** All rehabilitated areas should be monitored over 3 years from the onset of the rehabilitation procedures. The frequency of monitoring suggested above is dependent on satisfactory performance. If, however, the requirements are not being met, the frequency of monitoring can be increased. It is suggested that the monitoring be conducted once a year around September when the grasses and forbs are flowering.
- ❖ **Methods:** The rehabilitated areas might be monitored by the sampling randomly located 1m² quadrates. Approximately 10 quadrates per hectare (or a minimum of 3) should be sampled per plant community. The factors that will be examined in each quadrate include:
 - Percentage basal cover.
 - Percentage aerial cover.
 - Species composition and diversity.
 - Vigor and health of plants.
 - Presence of and evidence of fauna, and.
 - Nature of the substrate.
- ❖ **Controls:** To enable a comparison, control plots located within the surrounding un-mining areas should also be monitored. This will give an indication of the progress of rehabilitated areas versus the natural vegetation and will set the goals, which ultimately should be achieved. By monitoring the natural vegetation annually, it will also be possible to assess the natural changes that are taking place. These findings can then be applied to the rehabilitated areas to account for the changes, which may have resulted from natural events. Approximately 5 to 10 quadrants of 1m² should be sampled per community type to set the controls.
- ❖ **Maintenance:** Maintenance requirements may include seeding (if there is poor germination of the seed bank), fertiliser applications, correcting erosion problems, removing weeds, etc. Maintenance of the rehabilitated areas will be necessary periodically. The need for and extent of maintenance activities will be determined during the regular monitoring of the site, and.
- ❖ **Qualified Personnel:** The rehabilitation procedures from implementation to monitoring should be overseen by qualified personnel. Any persons involved in the rehabilitation of the mining site should be trained in the techniques involved.



4.2.2 Overall Environmental Performance Monitoring and Reporting

The monitoring of the environmental performances for the permitting, construction, operation, and closure of the proposed warehousing and storage infrastructure on the leased land portion of Farm 38, Walvis Bay municipal area can be divided into two (2) parts and these are:

- (i) Routine / ongoing daily monitoring activities to be undertaken by the Project HSE Officer with the support of the external specialist consultants as maybe required, and.
- (ii) Preparation of annual Environmental Monitoring Report and Environmental Closure covering all activities related to the EMP implementation during the permitting, construction, operation and closure of the proposed warehousing and storage infrastructure on the leased land portion of Farm 38, Walvis Bay municipal area to be undertaken by the Project HSE Officer with the support of the external specialist consultants as may be required.

The proponent will be required to report regularly (twice a year or as the case may be) to the Environmental Commissioner in the Ministry of Environment and Tourism (MET), the environmental performances as part of the ongoing environmental monitoring program. The environmental monitoring programme is part of the EMP performance assessments and will need to be compiled and submitted as determined by the Environmental Commissioner. The process of undertaking appropriate monitoring as per specific topics (such as fauna and flora) tracking performances against the objectives and documenting all environmental activities is part of internal and external auditing to be coordinated by the Project HSE Officer.

The second part of the monitoring of the EMP performance will require a report outlining all the activities related to the effectiveness of the EMP at the end of the project (Closure stage) to be undertaken by the Project HSE Officer with the support of the external specialist consultants as may be required. The objective will be to ensure that corrective actions are reviewed and steps are taken to ensure compliance for future EIA and EMP implementation.

The report shall outline the status of the environment and any likely environmental liability after the completion of the proposed / ongoing project activities. The report shall be submitted to the Environmental Commissioner in the Ministry of Environment and Tourism and will represent the final closure and fulfillment of the conditions of the Environmental Clearance Certificate (ECC) issued by the Environmental Commissioner and the conditions of the Pro-Forma Environmental Contract signed by the Proponent, Environmental Commissioner, and the Mining Commissioner.

5. CONCLUSION AND RECOMMENDATION

5.1 Conclusions

Current proposed the permitting, construction, operation, and closure of the proposed warehousing and storage infrastructure on the leased land portion of Farm 38, Walvis Bay municipal area will have negligible localised impacts on the local receiving environment with insignificant negative impacts. Mitigation measures shall be implemented as detailed in Section 3 (EMP) of this report. The proponent (Shanya Energy (Pty) Ltd) shall obtain all the applicable permits for the proposed warehousing and storage infrastructure development.

5.2 Recommendations

It's hereby recommended that the permitting, construction, operation, and closure of the proposed warehousing and storage infrastructure development on the leased land portion of Farm 38, Walvis Bay municipal area be issued with an Environmental Clearance Certificate with key conditions of adhering to the provisions of the EMP, Lease Agreement as well as all other related regulations governing, radiation sources, explosives, water resources management, health and safety, and labour. The proponent (Shanya Energy (Pty) Ltd) shall take all the necessary steps to implement all the recommendations of the EMP for the successful implementation of the permitting, construction, operation, and closure of the proposed warehousing and storage infrastructure on the leased land portion of Farm 38, Walvis Bay municipal area.

The following is the summary of the recommended actions to be implemented by Shanya Energy (Pty) Ltd (the Proponent) as part of the management of the likely impacts through implementation of the EMP are:

- (i) The proponent must implement precautionary measures / approach to environmental management.
- (ii) Contract an Environmental Control Officer/ HSE/ Consultant / suitable in-house resources person to lead and further develop, implement and promote environmental culture through awareness raising of the workforce, contractors and sub-contractors.
- (iii) Provide with other support, human and financial resources, for the implementation of the proposed mitigations and effective environmental management.
- (iv) Develop a simplified environmental induction and awareness programme for all the workforce, contractors and sub-contractors.
- (v) Where contracted service providers are likely to cause environmental impacts, these will need to be identified and contract agreements need to be developed with costing provisions for environmental liabilities.
- (vi) Implement internal and external monitoring of the actions and management strategies. Final Environmental Monitoring report shall be prepared by the Environmental Coordinator / Consultant / Suitable in-house resource person and to be submitted to the regulators as may be required, and.
- (vii) Develop and implement a monitoring programme that will fit into the overall company's Environmental Management Systems (EMS) as well as for any future EIA for new or expanded similar project in the area.

6. REFERENCES

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