

# ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED UPGRADE AND OPERATION OF A CHEMICAL AND MINERALS STORAGE WAREHOUSE IN WALVISBAY, ERONGO REGION NAMIBIA.



## ENVIRONMENTAL SCOPING REPORT FINAL

OCTOBER 2023



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## Acronyms

<b>TERMS</b>	<b>DEFINITION</b>
BID	Background Information Document
EAP	Environmental Assessment Practitioners
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
ESIA	Environmental and Social Impact Assessment
EMP	Environmental Management Plan
GHG	Greenhouse Gasses
ISO	International Organization for Standardization
I&Aps	Interested and Affected Parties
JBIC	Junior Baiano Industrial Consultants
MEFT: DEA	Ministry of Environment Forestry and Tourism's Directorate of Environmental Affairs

## **EXECUTIVE SUMMARY**

**Junior Baiano Industrial Consultants (JBIC) cc** has been engaged by **Atlantic Logistix Services** to conduct an Environmental Impact Assessment (EIA) and develop an Environmental Management Plan (EMP) for the upgrade and Operation Of a chemical storage warehouse in Walvis Bay, Erongo Region-Namibia and to apply for an Environmental Clearance Certificate for the proposed project.

The proposed establishment triggered the application for an environmental clearance certificate as the following listed activity will be triggered by the proposed energy generation activities.

### **9.1 The manufacturing, storage, handling or processing of a hazardous substance defined in the Hazardous Substances Ordinance, 1974.**

#### **Anticipated Environmental Impacts**

Low potential environmental impacts because the proposed site is already disturbed from human encroachment.

Adding on a management plan has been developed to mitigate any anticipated possible impacts of the project to the environment. Relative or moderate social impact (positive)

#### **Social Impact**

The project is generally expected to improve the socio-economic environment of Walvisbay through a major boost in business through integrations, employment and improved transport system on the long term. Interested and Affected Parties were notified of the project through Site notices and newspaper adverts and all relevant information on consultation is covered in Chapter 4 of this document and Appendix A of the document.

## **Recommendation**

It is concluded that most of the impacts identified during this Environmental Assessment can be addressed through the recommended mitigation and management actions for both the construction and operation phases of warehouse.

# **1. CHAPTER ONE: BACKGROUND**

## **1.1. INTRODUCTION**

Atlantic Logistix Services has identified the need for a logistical center for materials composed on minerals and mineral processing of chemicals and materials to service mines in Erongo region and the rest of the country. This will also allow for a logistical hub for the transition from road haulage to ocean freight carriers. In this respect, the proponent has taken on a venture to upgrade an existing a storage facility at the existing premises in Walvisbay to ease logistical and financial costs in supply and demand for logistics in minerals, chemicals, materials transportation and storage.

In terms of the Namibian environmental legislation (Environmental Management Act (No. 7 of 2007)) and the Environmental Assessment Regulations of 2012; an EIA is required to obtain an Environmental Clearance Certificate from the Ministry of Environment and Tourism (MET) before the project can proceed.

Furthermore, as per the requirements of the Environmental Management Act No. 7 of 2007, the proponent has appointed JBIC to conduct an Environmental Assessment (EA) and develop an Environmental Management Plan (EMP) for the warehouse. This has been followed by an application for Environmental Clearance Certificate (ECC) to the Ministry of Environment and Tourism (MET): Directorate of Environmental Affairs (DEA).

In this respect, this document forms part of the application to be made to the DEA's office for an Environmental Clearance certificate for the proposed warehouse, in accordance with the guidelines and statutes of the Environmental Management Act No.7 of 2007 and the environmental impacts regulations (GN 30 in GG 4878 of 6 February 2012)

## **1.2. PROJECT LOCATION**

The proposed project site is located at Erf 2624, Moses Garoeb Street, Walvisbay, Erongo Region-Namibia. The exact project site shown below:







STORAGE WAREHOUSE IN WALVISBAY, ERONGO REGION-NAMIBIA

In the yard





## 1.5. OPERATIONAL PLAN

**The proposed facility will be encompassed of the following activities.**

1. Offload minerals/chemicals via Side tippers
2. Warehouse & Stockpile chemicals
3. Offload, Store and Load containerized chemicals.
4. Operate Service and repair Workshop for Trucks and Trailers
5. Offload and Load train Carriages with chemicals.
6. Fill empty Containers with chemicals going to Mine or Port.
7. Graphite Bulk and Containerized
8. Bagged and containerized Sulphur

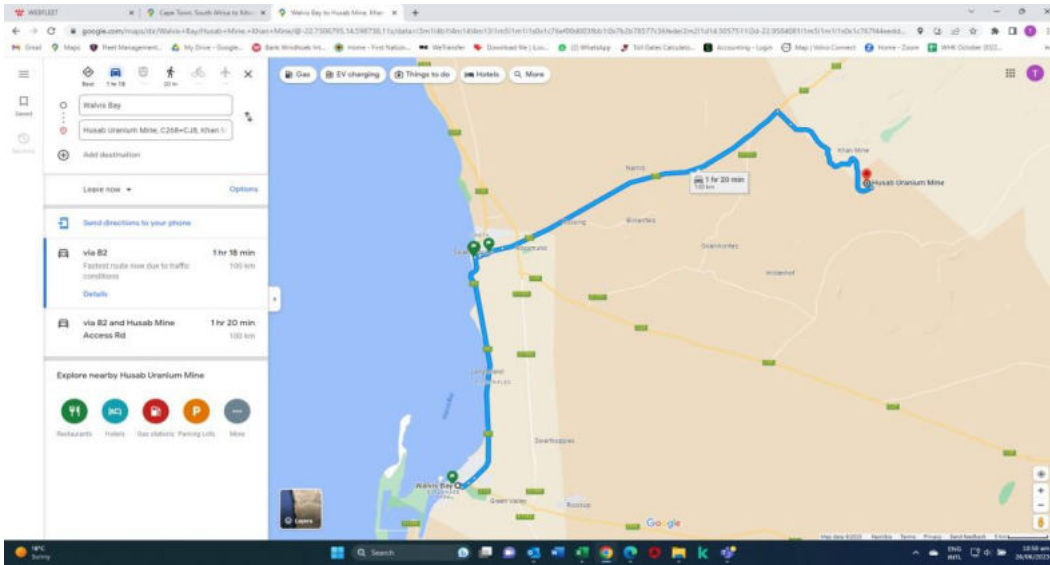
### **Materials to Be handled & Stored on Site. (Packaging may Vary)**

1. Sulphur granules
2. Polymer Flocculant
3. Manganese Dioxide
4. Hydrochloric Acid
5. Innovex
6. Sodium - Cyanide
7. Lead Concentrate & Lead Ore
8. Sodium Carmonate
9. Sodium Metabisulphate
10. Copper Sulphide

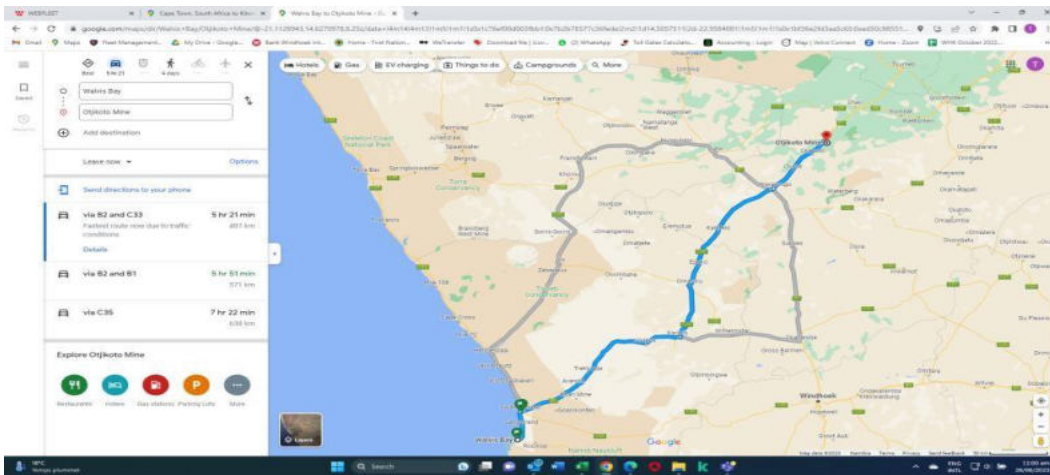
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11. Lead Nitrate
12. Grinding Media (Steel Balls)
13. Pyrolusite
14. Flocculant
15. Caustic Soda Flakes
16. Resin
17. Hydrochloric Acid
18. Reagents

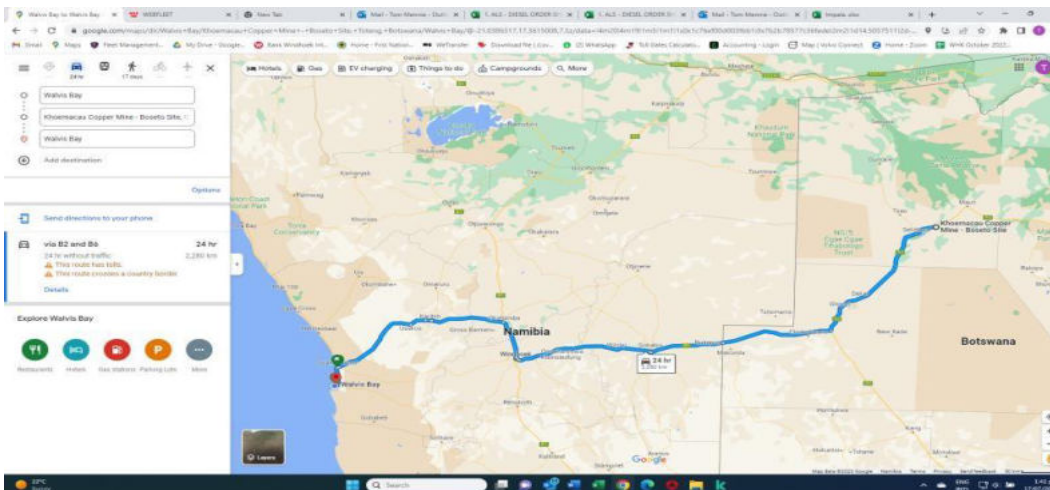
## Routes that would be used: Walvisbay to Husab Mine



## Walvisbay to B2Gold

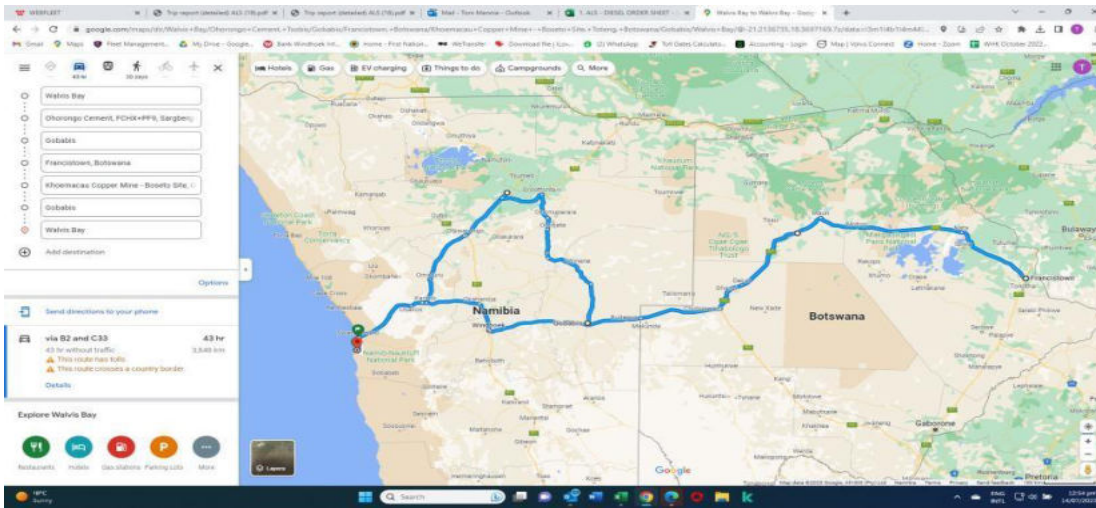


## Botswana to Walvisbay

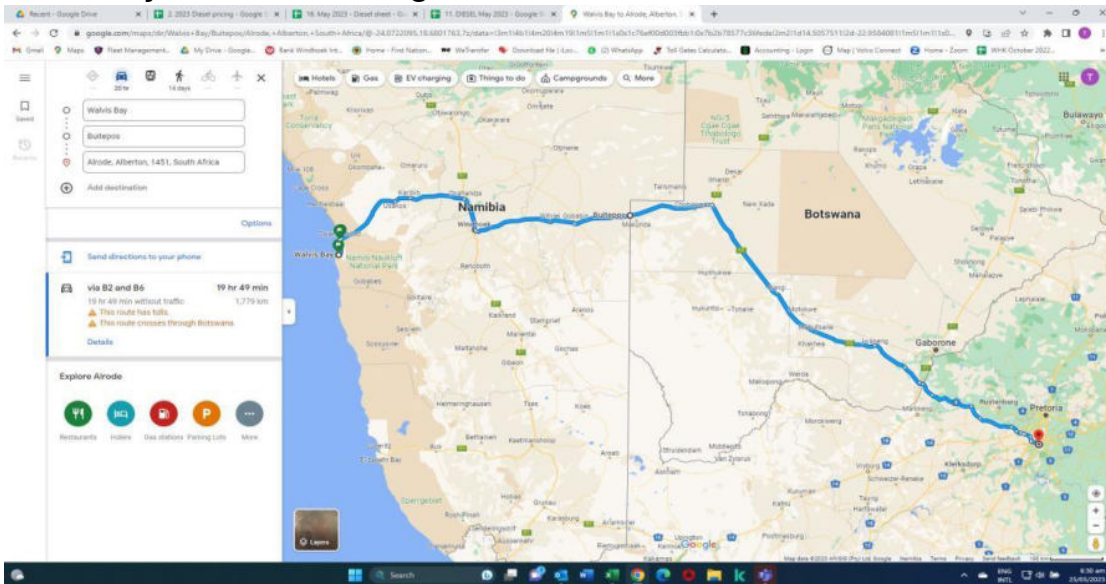


STORAGE WAREHOUSE IN WALVISBAY, ERONGO REGION-NAMIBIA

### Walvisbay to Botswana



### Walvisbay to Johannesburg



### Accessibility

The site is easily accessible from the main street. It is important to note that a heavy vehicle traffic route might need to be mapped out to minimize traffic impacts.

### Infrastructure and Services

Water: There is already existing water supply from Walvisbay Municipality

Ablution: Sewer reticulation is already existing managed by Walvisbay Municipality



**Figure 2: Warehouse Plan**





## 1.6. THE PROJECT ENVIRONS

The proposed warehouse is located in the industrial area of Walvisbay Town, which is situated in one of the oldest towns in Namibia, dating back to the late 19th century. Originally established as mainly a fishing, mining, heavy industry and labour oriented town these two natural resources remain the main economic drivers of the town and port. Due to the town's development around the port, the most important historic buildings of the town are also the closest to the port and its access route. A number of tourist establishments are also found along the access route to the port and, west of the port.

The port is surrounded by a variety of land uses including residential, business and industrial zones. In this respect, the operation of the warehouse will potentially have impacts on these pre-existing land uses.

## STORAGE WAREHOUSE IN WALVISBAY, ERONGO REGION-NAMIBIA



**Figure 3: Warehouse locality**

The warehouse locality is surrounded by other storage warehouses to the east and northwest.

### 1.7. NEED AND DESIRABILITY

The economic and social development goals of Namibia are embodied in (i) Vision 2030 and ii the National Development Plan 5 (NDP 5) 2017/2018 – 2021/2022 as well as NDPs 1, 2, 3, and 4. In addition, the Government has developed the Harambee Prosperity Plan (HPP) 2016/2017 – 2019/2020, which complements the Vision 2030 and NDP 5. All of the three plans set the goals, targets, and strategy for Namibia to move on a path to economic prosperity through a concerted strategy for the development of Namibia's economic growth.

## STORAGE WAREHOUSE IN WALVISBAY IN ERONGO REGION-NAMIBIA

These Plans also include specific growth targets milestones and strategies for the sustainable deployment of Namibia's resources to achieve the stated economic and social development goals. Through this project, the ease of logistics in the mining industry will be realized for mining ore exports, mineral processing materials exports and imports as well as logistical hub for further distribution into Namibia.

## 1.8. PROJECT ALTERNATIVES

### 1.8.1. SITE LOCATION ALTERNATIVES

An integrated site selection study was done in order to identify a suitable site for the proposed logistical warehouse. The proposed site is considered highly desirable due to the following considerations:

- Pre-existing: The project location is strategic because the warehouse is already existing and was in operation before.
- Land suitability:
  - Site is in proximity to the port.
  - The site is easily accessible by road, railway and sea

It is thus, the consideration of the above criteria resulted in the selection of the preferred site. No further site location alternatives are considered in the EIA process.

## 2. CHAPTER TWO: POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

### 2.1. INTRODUCTION

An important part of the EIA is identifying and reviewing the administrative, policy and legislative situation concerning the proposed activity, to inform the proponent about the requirements to be fulfilled in undertaking the operation and land servicing activities. This section looks at the legislative framework within which the proposed project will operate under. The focus is on the compliance with the legislation during the planning, construction and operational phases. All relevant legislations, policies and international statutes applying to the project are highlighted in Table 1: Legal Compliance below as specified in the Environmental Management Act, 2007 (Act No.7 of 2007) and the regulations for

STORAGE WAREHOUSE IN WALVISBAY, ERONGO REGION-NAMIBIA

Environmental Impact Assessment as set out in the Schedule of Government Notice No. 30 (2012).

The pursuit of sustainability is guided by a sound legislative framework. In this section, relevant legal instruments as well as their relevant provisions have been surveyed. An explanation is provided regarding how these provisions apply to this project.

**Table 1: Legal Compliance**

<b>LEGISLATION/POLICY/GUIDING DOCUMENT</b>	<b>PROVISION</b>	<b>PROJECT IMPLICATION</b>
<p><b>The Constitution of the Republic of Namibia (1990)</b></p>	<p>The articles 91(c) and 95(i) commits the state to actively promote and sustain environmental welfare of the nation by formulating and institutionalizing policies to accomplish the sustainable objectives which include:</p> <ul style="list-style-type: none"> <li>- Guarding against overutilization of biological natural resources,</li> <li>- Limiting over-exploitation of non-renewable resources,</li> <li>- Ensuring ecosystem functionality, - Maintain biological diversity.</li> </ul>	<p>-Through implementation of the environmental management plan, the proposed development will be in conformant to the constitution in terms of environmental management and sustainability, through bringing development in an environmentally sensitive way.</p>
<p><b>Vision 2030 and National Development Plans</b></p>	<p>Namibia’s overall Development ambitions are articulated in the Nations Vision 2030. At the operational level, five yearly national development plans (NDP’s) are prepared in extensive consultations led by the National Planning Commission in the Office of the President. Currently the Government has so far launched a 4th NDP which pursues three overarching goals for the Namibian nation:</p>	<p>-The proposed project is an important element in the extractive industry, through providing for solutions for logistical management for imports, exports, storage and distribution.</p>

	<p>high and sustained economic growth; increased income equality; and employment creation.</p>	
<p><b>Environmental Assessment Policy of Namibia 1994</b></p>	<p>The Environmental Assessment Policy of Namibia requires that all projects, policies, Programmes, and plans that have detrimental effect on the environment must be accompanied by an EIA. The policy provides a definition to the term “Environment” broadly interpreted to include biophysical, social, economic, cultural, historical and political components and provides reference to the inclusion of alternatives in all projects, policies, programmes and plans.</p>	<p>-The upgrade and operation of the storage facility will only commence after being awarded an environmental clearance certificate, thus by abiding to the requirements of the Environmental Assessment Policy of Namibia. The EIA and EMP will cater for the sustainable management of biophysical environment.</p>

<p><b>Environmental Management Act No. 07 of 2007</b></p>	<p>The Act aims at</p> <ul style="list-style-type: none"> <li>- Promoting the sustainable management of the environment and the use of natural resources by establishing principles for decision-making on matters affecting the environment;</li> <li>- To provide for a process of assessment and control of projects which may have significant effects on the environment;</li> <li>- The Act gives legislative effect to the Environmental Impact Assessment Policy. Moreover, the act also provides procedure for adequate public participation during the environmental assessment process.</li> </ul>	<p>-This document is compiled in a nature that project implementation is in line with the objectives of the EMA. EIA guiding procedures developed by MET were also used in the course of this project.</p>
<p><b>Namibia Ports Authority Act Act No. 2 of 1994</b></p>	<ul style="list-style-type: none"> <li>- Provides for the establishment of the Namibian Ports Authority to undertake the management and control of ports</li> <li>- Outline the functions of the Namibian Ports Authority among which is the protection of the environment</li> </ul>	<p>It is the responsibility of Atlantic Logistix Services to comply with Namport' s legal requirements in terms of environmental protection, health and safety as well as storage of approved materials in the warehouse.</p>
<p><b>The Atomic Energy and Radiation Protection Act, Act 5 of 2005:</b></p>	<p>Provides for the adequate protection of the environment and of people against the harmful effects of radiation by controlling and regulating the production, processing, handling, use, holding, storage, transport and disposal of radiation sources and radioactive materials, and</p>	<p>-Justifies the need for assessing the impact of radiation from any of the stored materials and provide for adequate storage and management SOPs</p>



	controlling and regulating prescribed non-ionizing radiation sources according to the standards set out by the ICNIRP.	
<b>Marine Resources Act No. 27 of 2000</b>	<p>Provide for the conservation of the marine ecosystem and the responsible administration, conservation, protection and promotion of marine resources on a sustainable basis</p> <p>Under this act the following were determined:</p> <p>Regulations relating to the exploitation of marine resources</p> <p>(2001) o Declaration of the Namibian Islands' Marine Protected Area: Marine Resources Act (2009)</p> <p>Regulations relating to Namibian Islands' Marine Protected Area: Marine Resources Act, 2000 (2012)</p>	The proposed activities will be in compliance to the marine resources conservation requirements.
<b>Dumping At Sea Control Act Act No. 73 of 1980</b>	Provide for the control of dumping of substances in the sea Provides for permits to be issued to allow dumping at sea of scheduled substances	Sea dumping should not be practised by the proponent in all respects, if there are waste products for disposal, appropriate and licensed disposal facilities should be used.

<p><b>Aquaculture Act (2002)</b></p>	<p>Provides for water quality monitoring to protect aquaculture activities</p>	<p>All effluent from the storage facility including cleaning wastewater should be sampled for analysis, before disposal into municipal reticulation systems or into the environment.</p>
<p><b>Marine Traffic Act No. 2 of 1981</b></p>	<p>Regulate marine traffic in Namibia</p>	<p>Any logistical work that involves marine traffic should be done in compliance to the act and Namport requirements.</p>
<p><b>Road Traffic and Transport Act No. 52 of 1999 Government Notice No 282 of 1999</b></p>	<p>Provides for the control of traffic on public roads and the regulations pertaining to road transport Prohibits the transport of goods which are not safely contained within the body of the vehicle; or securely fastened to that vehicle, and which are not properly protected from being dislodged or spilled from that vehicle.</p>	<p>The transportation of materials by road will be managed through and EIA for all the routes and this will also cater for the traffic impact assessment in Walvisbay.</p>

<p><b>Hazardous Substances Ordinance 14 of 1974 Regulations Made In Terms Of Hazardous Substances Ordinance 14 of 1974 sections 3 and 27</b></p>	<p>- To provide for the control of substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature or the generation of pressure thereby in certain circumstances; to provide for the division of such substances into groups in relation to the degree of danger; to provide for the prohibition and control of the importation, manufacture, sale, use, operation, application, modification, disposal or dumping of such substances; and to provide for matters connected therewith.</p>	<p>Atlantic will have to conform to this Act and its regulations through application for relevant licenses with the relevant bodies highlighted thereto.</p>
<p><b>“Guidelines for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300GHz)” (April 1998 developed by the International Commission on Non-Ionizing Radiation Protection (ICNIRP))</b></p>	<p>Provides international standards and guidelines for limiting the adverse effects of non-ionising radiation on human health and well-being, and, where appropriate, provides scientifically based advice on non-ionising radiation protection including the provision of guidelines on limiting exposure.</p>	<p>-Justifies the need for assessing the impact of ionising and non-ionising radiation from the operations.</p>

<p><b>Soil Conservation Act 76 of 1969</b></p>	<p>The objectives of this Act are to:</p> <ul style="list-style-type: none"> <li>- Make provisions for the combating and prevention of soil erosion,</li> <li>- Promote the conservation, protection and improvement of the soil, vegetation, sources and resources of the Republic.</li> </ul>	<p>-The project will have a rather localized impact on soils and on the soil through clearance for tower platform. Soil protection measures will be employed and preservation of trees as much as possible.</p>
<p><b>Nature Conservation Ordinance 1996</b></p>	<p>To consolidate and amend the laws relating to the conservation of nature; the establishment of game parks and nature reserves; the control of problem animals; and to provide for matters incidental thereto.</p>	<p>The proposed project implementation is not located in any known or demarcated conservation area, national park or unique environments. The project site was selected with this ordinance in mind to ensure that Namibian nature is conserved.</p>
<p><b>Protected Areas and Wildlife Management Bill</b></p>	<p>This bill, when it comes into force, will replace the Nature Conservation Ordinance 4 of 1975. The bill recognizes that biological diversity must be maintained, and where necessary, rehabilitated and that essential ecological</p>	<p>Environmental recommendations and considerations on this project have ensured that the proposed activities will not fall within the boundaries of any</p>
	<p>processes and life support systems be maintained. It protects all indigenous species and control the exploitation of all plants and wildlife.</p>	<p>protected area and that the project will not affect heavily endangered vegetation and animals on its site.</p>

<p><b>National Biodiversity Strategy and Action Plan (NBSAP2)</b></p>	<p>The action plan was operationalised in a bid to make aware the critical importance of biodiversity conservation in Namibia putting together management of matters to do with ecosystems protection, biosafety, biosystematics protection on both terrestrial and aquatic systems.</p>	<p>-The project proponent has been advised by JBIC and recognises the need for ecosystems protection to manage the changing climatic environment.</p> <p>-This project is one of the drivers to reduce the rate of global environmental change given its contribution, to decreased use of burning fossil fuels for energy generation.</p>
<p><b>National Policy on Climate Change for Namibia, 2010</b></p>	<p>In harmony with the findings of the IPCC over time and the Earth Summits held annually, the policy seeks to outline a coherent, transparent and inclusive framework on climate risk management in accordance with Namibia's national development agenda, legal framework, and in recognition of environmental constraints and vulnerability. Furthermore, the policy pursues the strengthening of national capacities to reduce climate change risk and build resilience for any climate change shocks.</p>	<p>-Chemical storage, transportation and usage have considerable negative impacts on release of GHGs. There is need to ensure appropriate handling and storage is done on GHGs contributing chemicals.</p>

<p><b>Wetland Policy, 2004</b></p>	<p>The policy provides a platform for the conservation and wise use of wetlands, thus promoting inter-generational equity regarding wetland resource utilization.</p> <p>Furthermore, it facilitates the Nation’s efforts to meet its commitments as a signatory to the International Convention on Wetlands (Ramsar) and other Multinational Environmental Agreements (MEA’s).</p>	<p>-In compliance to this Policy, the development will ensure a standard environmental planning and monitoring, i.e., Fallout dust monitoring and effluent measurements since the sea is a highrisk sensitive receptor.</p>
<p><b>Water Resources Management Act, 2013 (Act No. 11 of 2013)</b></p>	<p>This Act provides for the management, protection, development, use and conservation of water resources. This also forms the regulation and monitoring of water resources.</p>	<p>-The proposed development will have impacts on water resources and pollution prevention should be prioritised.</p>
<p><b>Pollution Control and Waste Management Bill</b></p>	<p>-This bill has not come into force. Amongst others, the bill aims to “prevent and regulate the discharge of pollutants to the air, water and land” Of particular reference to the Project is: Section 21 “(1) Subject to sub-section (4) and section 22, no person shall cause or permit the discharge of pollutants or waste into any water or watercourse.” Section 55 “(1) No person may produce, collect, transport, sort, recover, treat, store, dispose of or otherwise manage waste in a manner that results in or creates a significant risk of harm to human health or the environment.”</p>	<p>-To control air, water and land pollution as agitated by the Act the project proponent will ensure that the development will prevent pollution in all forms during construction and operation phases.</p>
<p><b>Public and Environmental Health Act</b></p>	<p>Provides a framework for a structured more uniform public and environmental health system, incidental matters</p>	<p>Environmental compliance and control will be conducted as soon as the EMP is</p>

	<p>The objects of this Act are to promote public health and wellbeing; prevent injuries, diseases and disabilities; protect individuals and communities from public health risks; encourage community participation in order to create a healthy environment; and provides for early detection of diseases and public health risks.</p>	<p>Approved and reporting will be submitted to MEFT every biannual cycle.</p>
<p><b>Labour Act Act No 11 of 2007</b></p>	<p>Provides for Labour Law and the protection and safety of employees</p> <p>Labour Act, 1992: Regulations relating to the health and safety of employees at work (Government Notice No. 156 of 1997)</p> <p>Provides for the availability of chemical safety data sheets (material safety data sheets or MSDS) to be available for all hazardous or dangerous goods</p> <p>Makes provision for regulations on the transport of hazardous substances (regulations not in force yet)</p>	<p>OHS at the workplace will be prioritised. SOPs emergency cleaning or remediation of hazardous materials will be developed.</p> <p>MSDS will be trained to employees and kept on site.</p> <p>A health and Safety Officer will be on site at all times.</p>

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<p><b>Benguela Current Convention of 2013</b></p>	<p>The Convention is a formal treaty between the governments of Angola, Namibia and South Africa that sets out the countries' intention "to promote a coordinated regional approach to the long-term conservation, protection, rehabilitation, enhancement and sustainable use of the Benguela Current Large Marine Ecosystem, to provide economic, environmental and social benefits."</p>	<p>Atlantic Logistix Services will give precedence to the legal requirements prior to any activities that may result in pollution of the marine resources.</p>
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<p><b>UN Convention for the Prevention of Marine Pollution from Land-based Sources</b></p>	<p>Concerns itself with the protection of marine fauna and flora by preventing marine pollution from land based sources.</p> <p>- Contracted parties, are committed to take all possible steps to prevent pollution of the sea as well as the direct or indirect introduction of substances or energy by humans into the marine environment resulting in such adverse effects as harm to living resources and to marine ecosystems, hazards to human health, damage to services/ facilities or interference with other legitimate uses of the area.</p>	<p>Atlantic Logistix Services will be in compliant to these legislative requirements.</p>
<p><b>International Convention on Oil Pollution Preparedness, Response and Cooperation of 1990</b></p>	<p>International maritime convention establishing measures for dealing with marine oil pollution incidents nationally and in cooperation with other countries</p>	<p>Atlantic will be in compliant to these legislative requirements.</p>
<p><b>International Convention for the Prevention of Pollution from Ships (MARPOL 73/78)</b></p>	<p>Dealing with the prevention of pollution of the sea by oil, sewage and garbage from ships.</p>	<p>Atlantic Logistix Services will be in compliant to these legislative requirements.</p>

<p><b>IMO Guidelines on Marine Security: International Ship and Port Facility ISPS Code</b></p>	<p>Legislative framework for maritime security issues. Aimed at Government, Port Authorities and shipping companies.</p>	<p>Atlantic Logistix Services will be in compliant to these legislative requirements.</p>
<p><b>Convention on Biological Diversity (CBD)</b></p>	<p>- Namibia is a signatory of the Convention on Biological Diversity and thus is obliged to conserve its biodiversity.</p>	<p>The project will preserve tree species on as part of their plans for greed and sustainable development.</p>
<p><b>United Nations Convection to combat Desertification</b></p>	<p>Namibia is bound to prevent excessive land degradation that may threaten livelihoods.</p>	<p>It will be the responsibility of the proponent to conserve vegetation on and around the area, to avoid encroachment of the desert environs in the area.</p>

### 3. CHAPTER THREE: RECEIVING ENVIRONMENT

#### 3.1. CLIMATE

**Table 2: Climatic environment**

<b>Aspect</b>	<b>Description</b>
<b>Classification of climate</b>	Walvisbay is located on the Namibian coastline in the arid Namib Desert. The arid conditions are as a result of dry descending air and upwelling of the cold Benguela Current.
<b>Average rainfall:</b>	0-50 mm per year
<b>Temperature</b>	Average maximum: Between 24 °C in March/April and 19.3 °C in September Average minimum: Between 16.5 °C in February and 9.1 °C in August Average annual >16 °C
<b>Fog</b>	Approximately 126.7 days of fog per year
<b>Water Deficit</b>	1,701-1,900
<b>Wind direction</b>	Prevailing wind as measured at the Walvisbay Airport are strong south-westerly. However, it is expected that nearshore the wind direction will be strong south to south-easterly.

#### 3.2. HYDRAULIC CONDITIONS

The hydraulic conditions of Walvis Bay, located on the southwestern coast of Namibia, are influenced by its coastal location and unique geography. Here are some key hydraulic conditions and factors relevant to Walvis Bay:

**Tides and Coastal Dynamics:** Walvis Bay experiences semi-diurnal tides, meaning it has two high tides and two low tides each day. These tidal conditions affect the flow of water in the bay and the nearshore environment.

**Ocean Currents:** The Benguela Current, a cold and nutrient-rich ocean current, flows along the coast of Namibia. It plays a crucial role in the marine ecosystem and can influence water temperatures and marine life in the bay.

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**Wind Patterns:** The bay is known for its strong winds, particularly the prevailing southwesterly winds. These winds can affect water circulation and sediment transport in the bay.

**Salinity and Water Quality:** The semi-arid climate of the region and limited freshwater inputs influence the salinity of the bay. The water is generally more saline than in estuarine systems due to limited river inflow.

**Erosion and Sediment Transport:** Coastal erosion and sediment transport are important hydraulic conditions. The movement of sediments in the bay and along the coast can impact navigation channels, harbor maintenance, and coastal landforms.

**Estuarine Dynamics:** The bay is partially enclosed and has estuarine characteristics. Freshwater inputs from various sources, including the Kuiseb River, influence the bay's hydrodynamics and water quality.

**Harbor Infrastructure:** The Walvis Bay Port is a key feature of the bay. The design, maintenance, and dredging of the harbor play a significant role in managing hydraulic conditions to facilitate shipping and navigation.

**Benthic and Marine Life:** The bay supports a diverse range of marine life, including fisheries. Hydraulic conditions can impact the distribution of nutrients and the movement of species within the bay.

**Environmental Conservation:** The unique ecology and biodiversity of the bay are subject to environmental conservation efforts, including considerations of hydraulic conditions and their impact on the ecosystem.

**Climate Change and Sea-Level Rise:** Like many coastal areas, Walvis Bay faces challenges related to climate change, including sea-level rise and increased storm intensity, which can affect hydraulic conditions and coastal management strategies.

Understanding and managing these hydraulic conditions is critical for a variety of stakeholders, including local authorities, environmental organizations, and industries reliant on the bay, such as shipping and fisheries. Coastal management, infrastructure maintenance, and conservation efforts are designed to address and adapt to the unique hydraulic conditions of Walvis Bay.

### 3.3. FAUNA OF THE BAY

Walvis Bay, located on the southwestern coast of Namibia, is home to a diverse range of fauna, both in its bay and the surrounding coastal and desert environments. Here are some notable examples of the fauna that can be found in and around Walvis Bay:

**Marine Life:** Bottlenose Dolphins: These dolphins are commonly seen in the bay and are known for their acrobatic displays.

**Heaviside's Dolphins:** These small, endemic dolphins are frequently spotted in the bay and are known for their distinctive white bellies.

**Seals:** Cape fur seals are abundant along the coast, including Pelican Point, and can be seen in large colonies.

**Marine Birds:** Various seabirds, such as seagulls, pelicans, cormorants, and flamingos, can be found along the coast and in the bay.

**Birdlife:** Walvis Bay is a significant stopover point for migratory birds on the East Atlantic Flyway. It is known for its exceptional birdwatching opportunities. Notable bird species include:

**Greater and Lesser Flamingos:** These iconic birds can be seen in large numbers, especially at Walvis Bay Lagoon.

**Chestnut-banded Plovers:** These small waders are commonly found along the shores of the bay.

**Raptors:** Various birds of prey, such as African fish eagles and peregrine falcons, are spotted in the area.

**Desert Wildlife:** The surrounding Namib Desert is home to a range of adapted desert wildlife, including Oryx, springbok, and various reptiles like the Namaqua chameleon.

**Insects:** Desert-adapted insects like beetles are found in the dunes and desert areas.

**Marine Invertebrates:** The tidal zones of the bay host a variety of marine invertebrates, including crabs, mollusks, and sea anemones.

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**Fish and Fisheries:** The bay supports various fish species that are important for local fisheries, including species like kob, Steenbras, and mullet.

**Larger Mammals:** While less common, larger mammals like brown hyenas and jackals are occasionally seen in the desert areas surrounding Walvis Bay.

It's important to note that the ecological health of Walvis Bay and its surrounding areas is crucial for the conservation of these species. The bay and its ecosystems have international importance for both resident and migratory wildlife. Conservation efforts and responsible tourism practices are essential to protect and preserve the fauna of the area.

### 3.4. TERRESTRIAL ECOLOGY

#### 3.4.1 FAUNA AND FLORA

The terrestrial ecology of Walvis Bay, located in the Namib Desert region of Namibia, is characterized by arid and desert ecosystems. The terrestrial environment in and around Walvis Bay is adapted to low rainfall, high temperatures, and unique desert conditions. Here are some key features of the terrestrial ecology in this region:

**Desert Dunes:** The most prominent terrestrial feature is the vast sand dune systems that characterize the Namib Desert. These dunes are home to various desert-adapted species of flora and fauna. Some dunes, such as Dune 7, are popular attractions for tourists.

**Desert Flora:** The flora in the desert region includes drought-resistant plants adapted to the harsh desert environment. Some of the notable plant species include the *welwitschia mirabilis*, a unique and ancient plant, and various species of succulents.

**Wildlife:** Desert-adapted wildlife species can be found in the desert environment surrounding Walvis Bay. These species have adapted to the arid conditions and include the gemsbok (*Oryx*), springbok, jackals, brown hyenas, and reptiles such as the Namaqua chameleon.

**Birdlife:** While Walvis Bay is renowned for its coastal birdlife, including flamingos and other seabirds, the desert areas are also home to unique desert bird species, such as larks, sandgrouse, and the gray's lark.

**Endemic Species:** The Namib Desert is known for its endemic species, which are found nowhere else in the world. The desert environment has created a unique niche for these species to thrive.

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**Adaptations:** Desert plants and animals have developed remarkable adaptations to survive in the extreme conditions of the desert, such as storing water, reducing surface area to minimize water loss, and being active at night to avoid daytime heat.

**Conservation Efforts:** Conservation efforts are in place to protect and preserve the unique terrestrial ecology of the region, particularly in the face of potential threats like habitat degradation and climate change.

It's important to note that the terrestrial ecology of Walvis Bay is intricately connected to the marine and coastal ecosystems, creating a dynamic and diverse landscape in this part of Namibia. The arid desert environment, with its unique flora and fauna, is a significant ecological feature and a draw for both researchers and tourists interested in desert ecology.

## 4. CHAPER FOUR: PUBLIC CONSULTATION

### 4.1. OVERVIEW

The public consultation process forms an important component of the Environmental Assessment process. It is defined in the EIA Regulations (2012), as a “*process in which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to, specific matters*” (S1). Section 21 of the Regulations details steps to be taken during a given public consultation process and these have been used in guiding our process.

Formal public involvement has taken place via public consultations and focal meetings, newspaper announcements to inform the public that the development is under consideration. The public consultation process has been guided by the requirements of Environmental Management Act (EMA) No. 7 of 2007 and the process has been conducted in terms of regulation 7(1) as well as in terms of the EMA Regulations of GN 30 of 6 February 2012 and the World Bank EIA standards and project ToR.

Its overriding goals have been to ensure transparency in decision making and to.

- Ensure stakeholder concerns are incorporated in project design and planning; | Increase public awareness and understanding of the project and
- Enhance positive development initiatives through the direct involvement of affected people.

The objectives of the public participation are to build credibility through instilling integrity and of conducting the EIA, Educate the stakeholders on the process to be undertaken and opportunities for their involvement and build stakeholders by establishing an agreed framework accordingly. This requires accessible, fair, transparent and constructive participation at every stage of process. Inform stakeholders on the proposed project and associate issues, impacts and mitigation and using the most effective manner to disseminate information.



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In this section of the report, the results of consultations with various classes of stakeholders are summarized. The results of consultations with other stakeholders and community members who took part in this EIA are attached as Appendices.

The consultation was facilitated through the following means:

- A Background Information Document (BID) containing the project description, the EIA process and an invitation to participate was shared with stakeholders and community members.
- Invitation to participate notices were published in the local newspapers (Confidante and The Villagerp8) as shown in Table 7 below and Appendix A of this document.
- Announcement of EIA process verbally in the common public meeting points.
- Placement of a public notice at the project site and town center.

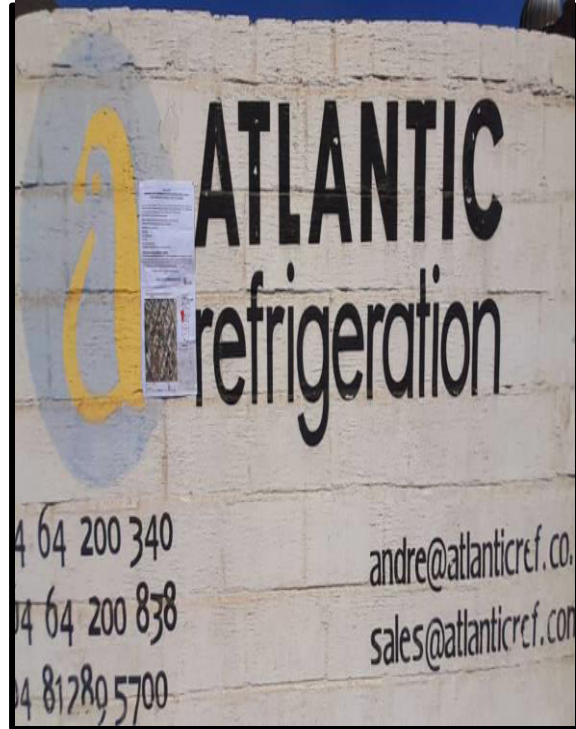
**Table 3: Details of public notification of the EIA study**

Method	Area of Distribution	Language	Date Placed
The Confidante	Country Wide	English	01 September 2023 08 September 2023
The Villager	Country Wide	English	01 September 2023 08 September 2023
Site notices	Walvisbay Industrial Area	English	31 August 2023
	Town and Municipal area	English	21 September 2023
Public Meeting	Atlantic Logistix Services Premises	English,	26 September 2023 14h00



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Figure 4: EIA Public meeting consultation.



**Figure 5: Public Notification Site Notices (Walvisbay Industrial area)***| Key Stakeholder Engagement Meeting*

A public meeting was initially organized for the 15<sup>th</sup> and 22<sup>nd</sup> of September 2023, due to poor attendance, it has to be rescheduled to the 26<sup>th</sup> of September 2023. The meeting took place in the board room of Atlantic Logistix Services. Surrounding properties were consulted and informed of the development. Proof of public consultation is given in Appendix A of this document as well the attendance register explaining the project and the EIA study. Given below are the details of the meeting which was held:

*✓ Identification of Interested and Affected Parties (I&APs)*

The EIA team identified and consulted the following I&APs & key stakeholders for the proposed project:

- Namport,
- Walvis Bay Municipality
- Community Members.

Other I&APs were allowed to register to the EIA team and compiled a database containing their names and correspondence details. The registration was accomplished over a period of 14 days.

*✓ Consultation with Stakeholders*

Experts in relevant fields, leaders of thought in environmental matters, Organs of the State, local communities have been consulted for their opinions on issues relating to the potential ecological and socio-economic impacts of the proposed project.

This provided an opportunity for stakeholders and the public at large to engage in the process and to make comments or express their concerns regarding the proposed development.

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**Table 4: Key findings of the public consultation process:**

<b>SUMMARY OF ISSUES</b>	
<b>THEME</b>	<b>ISSUE</b>
<b>Health and Safety</b>	Nearby property owners were concerned by dust and noise generation. They emphasized dust monitoring to ensure that controls are put in place.
	Materials safety was emphasized given the integrated set up of the port operations. Hence risk of fire or blowing is high and extreme caution is required in materials handling, storage and movement.
<b>Traffic safety</b>	A traffic assessment was requested as part of the study, however the route ESIA to be conducted will cover the transportation component.
<b>Marine pollution</b>	Effluent wastewater from the facility was inquired by Namport, and there will be adequate wastewater reticulation, storage, treatment and recycling.
<b>HCS Monitoring</b>	Municipal officials from the Environment department were concerned about compliance to health and hazardous waste regulations and recommended to consult with the Chief Health and Hazardous waste Inspector

## 5. CHAPTER FIVE: ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACTS

### 5.1. OVERVIEW

Atlantic Logistix Services has committed to sustainable and environmental compliance through coming up with a corrective action plan for all anticipated environmental impacts associated with the project. This is also in line with the Namibian Environmental Management legislation and International best practices on energy generation, transmission and linear infrastructure. The proponent will implement an Environmental Management Plan (EMP) in order to prevent, minimize and mitigate negative impacts. The Environmental Management Plan is being developed to address all the identified expected impacts, the plan will be monitored and updated on a continuous basis with aim for continuous improvement to addressing impacts.

### 5.2. ASSESSMENT OF IMPACTS

This section sets out the overall approach that was adopted to assess the potential environmental and social impacts associated with the project. To fully understand the significance of each of the potential impacts each impact must be evaluated and assessed. The definitions and explanations for each criterion are set out below in Table 5: Assessment Criteria.

**Table 5: Assessment Criteria**

<b>Duration – What is the length of the negative impact?</b>	
None	No Effect
Short	Less than one year
Moderate	One to ten years
Permanent	Irreversible
<b>Magnitude – What is the effect on the resource within the study area?</b>	
None	No Effect
Small	Affecting less than 1% of the resource
Moderate	Affecting 1-10% of the resource
Great	Affecting greater than 10% of the resource
<b>Spatial Extent – what is the scale of the impact in terms of area, considering cumulative impacts and international importance?</b>	
Local	In the immediate area of the impact
Regional / National	Having large scale impacts
International	Having international importance
<b>Type – What is the impact</b>	
Direct	Caused by the project and occur simultaneously with project activities

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Indirect	Associated with the project and may occur at a later time or wider area
Cumulative	Combined effects of the project with other existing / planned activities
<b>Probability</b>	
Low	<25%
Medium	25-75%
High	>75%

(Adopted from ECC-Namiba, 2017)

**Table 6: Impact Significance**

Class	Significance	Descriptions
1	Major Impact	Impacts are expected to be permanent and non- reversible on a national scale and/or have international significance or result in a legislative non- compliance.
2	Moderate Impact	Impacts are long term, but reversible and/or have regional significance.
3	Minor	Impacts are considered short term, reversible and/or localized in extent.
4	Insignificant	No impact is expected.
5	Unknown	There are insufficient data on which to assess significance.
6	Positive	Impacts are beneficial

(Adopted from ECC-Namiba, 2017)

**Table 7: Environmental Impacts and Aspects Assessment**

Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance	Infrastructure / Activity
<b>TOPOGRAPHY</b>	Landscape Scenery	Visual aesthetic impact	Operation	Moderate	Moderate	Local	Direct	Medium 25 - 75%	Minor	Trucks, warehouse
<b>SOIL</b>	Soil	Contamination to soil from construction impacts, materials, chemicals, fallout dust	Operation	Moderate	Small	Local	Direct	Low <25%	Minor	Trucks, warehouse, Impacts
	Soil	Oil contamination from Heavy vehicles and equipment.	Operation	Short	Small	Local	Direct	Low <25%	Minor	Trucks
<b>LAND CAPABILITY</b>	Terrestrial ecology	Trucks movement, road kills, accidents	Operations	Permanent	Great	Local	Direct	Low <25%	Moderate	Trucks
<b>WATER</b>	Surface water quality	Groundwater and seawater pollution from oils, lubricants materials, minerals and chemicals spillages.	Operations	Moderate	Small	Local	Direct	Medium 25 - 75%	Moderate	warehouse
	Surface water quality	Turbidity and high sediment load	Operation	Moderate	Small	Local	Direct	Low <25%	Moderate	warehouse
<b>AIR QUALITY</b>	Air Quality	Operation phase dust	Operation	Short	Small	Local	Direct	Low <25%	Minor	Tower and Access Road operation
	<b>Air Quality</b>	<b>Fallout dust from minerals and chemicals in</b>	<b>Operation</b>	<b>Moderate</b>	<b>Moderate</b>	<b>Local</b>	<b>Direct</b>	<b>Medium 25 - 75%</b>	<b>Moderate</b>	<b>Warehouse</b>

Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance	Infrastructure / Activity
		<b>powder and granular form such as Sulphur</b>								
<b>WASTE</b>	Groundwater quality	Hazardous waste such as waste lubricants and stored chemicals, minerals and ore may be released into the environment.	Operations	Moderate	Moderate	Local	Direct	Medium 25 – 75%	Moderate	Warehouse
	Marine environment	Potential contamination into the marine environment.	Operations	Moderate	Moderate	Regional	Direct	Medium 25 - 75%	Moderate	Warehouse
<b>FAUNA</b>	Terrestrial ecology and biodiversity	Loss of habitat and driving away of local animals	Operations	Short	Small	Local	Direct	Low <25%	Minor	Trucks, Warehouse
	Marine ecology and biodiversity	Pollution potential and shipping activities may affect the marine environment.	Operations	Moderate	Moderate	Regional	Direct	Medium 25 - 75%	Moderate	Transportation activities
<b>SOCIAL</b>	Noise Pollution	Increased noise levels	Operations	Moderate	Small	Local	Direct	Low <25%	Minor	Transportation, Warehouse operations
	Socio Economic Activities	Temporary and permanent employment prospects.	Construction and operations	Long	Moderate	Regional	Direct	Medium 25 – 75%	Positive	Warehouse, Trucks



Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance	Infrastructure / Activity
	Socio Economic Activities	Climate change impacts, i.e., release of GHGs from stored ore, materials and chemicals.	Operations	Long	Moderate	Regional / National	Direct	High >75%	Positive	Warehouse
	Contribution to National Economy	Employment, local procurement, duties and taxes.	Operations	Short	None	Regional / National	Direct	Low <25%	Positive	Warehouse, Transportation
<b>HERITAGE</b>	Artefacts, archaeological high value components	Destruction or affecting paleontological and archaeological artefacts	Upgrade and Operation	Moderate	Small	Local	Direct	Low <25%	Minor	Warehouse, Transportation
<b>HEALTH AND SAFETY</b>	Health Sanitation	Poor ablution and waste management facilities may be detrimental to human health.	Construction	Moderate	Moderate	Local	Direct	Medium 25 – 75%	Moderate	Warehouse, Transportation
	Property and human life	Electrocution, fires resulting in fatalities, damage to properties, and power surges.	Construction and Operation	Moderate	Great	Local	Direct	Medium 25 – 75%	Major	Warehouse
	Natural Environment	Spillage/ release of chemicals into the environment	Operation	Moderate	Great	Local	Direct	Medium 25 – 75%	Major	Warehouse

	Humans, Vegetation, Animals	Potential impacts from fine dust from offloading/ loading of	Operation	Moderate	Great	Local	Direct	Medium 25 – 75%	Major	Warehouse
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Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance	Infrastructure / Activity
		ore, chemicals, and other materials								
	Marine birds	Bird fatalities from contaminated marine environment	Operation	Moderate	Moderate	Local	Direct	Medium 25 – 75%	Moderate	Warehouse
<b>TRAFFIC</b>	Traffic Network in Walvisbay	Vehicular accidents, congestion, and pressure	Operation	Moderate	Great	Local	Direct	Medium 25 – 75%	Major	Trucks

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