

**CONSTRUCTION AND OPERATIONAL ACTIVITIES OF  
BACHMUS OIL & FUEL SUPPLIES' PROPOSED DEPOT IN THE  
NEW LIGHT INDUSTRIAL AREA OF WALVIS BAY**

**UPDATED ENVIRONMENTAL ASSESSMENT SCOPING REPORT**



**Assessed by:**




**Assessed for:**

**BACHMUS**  
OIL & FUEL SUPPLIES (PTY) LTD


September 2021



<b>Project:</b>	<b>CONSTRUCTION AND OPERATIONAL ACTIVITIES OF BACHMUS OIL &amp; FUEL SUPPLIES' PROPOSED DEPOT IN THE NEW LIGHT INDUSTRIAL AREA OF WALVIS BAY: UPDATED ENVIRONMENTAL ASSESSMENT SCOPING REPORT</b>		
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<b>Report Approval</b>	 <b>André Faul</b> Conservation Ecologist		

I W.C Schalkwyk, the Proponent, hereby confirm that the project description contained in this report is a true reflection of the information which the Proponent has provided to Geo Pollution Technologies. All material information in the possession of the Proponent that reasonably has or may have the potential of influencing any decision or the objectivity of this assessment is fairly represented in this report.

Signed at Walvis Bay on the 21 day of OCTOBER 2021.

  
 Bachmus Oil & Fuel Supplies (Pty) Ltd

CY/1993/0670  
 Company Registration Number



## SUMMARY

Bachmus Oil & Fuel Supplies (Pty) Ltd (the Proponent), under licences issued by the Ministry of Mines and Energy, currently operates two diesel wholesale facilities in Walvis Bay. It is the Proponent's intention to ultimately relocate and consolidate the two existing sites by establishing a new depot and warehouse on erf 5738, in the new light industrial area, Extension 12, Walvis Bay (Figure 1-1). Once developed, erf 5738 will continue to serve as the Proponent's oil and lubricant storage and retail outlet as well as bulk diesel sales facility. As part of the process to legalise the construction and operations of the new facility, an application was made for an environmental clearance certificate (ECC). The application was approved by the Ministry of Environment, Forestry and Tourism (MEFT) and an ECC issued on 11 May 2021. Geo Pollution Technologies (Pty) Ltd (GPT) was now requested to update the environmental scoping assessment to include a 500 m<sup>3</sup> diesel storage tank, instead of the 200 m<sup>3</sup> tank originally included, and to apply for an amended ECC from the MEFT.

The industrial sector of Walvis Bay is constantly growing and the town hosts Namibia's largest port and fishing industry. These industries, together with the transport sector they rely on, have been making use of the oil, lubrication and diesel wholesale services of the Proponent for many years. By consolidating their two existing sites, and relocating it to the new industrial area, Bachmus Oil & Fuel Supplies will not only simplify their management and administrative activities, but also be able to provide a better service at a larger, more suitably equipped site. The relocated facility will also play an important role in alleviating some of the traffic congestion in the old industrial area, closer to the town centre. It will likewise be more accessible to trucks on route to and from Walvis Bay. In addition, the owners and operators on the neighbouring properties of erf 5738, indicated that should the Proponent have sufficient diesel availability, they will rather source fuel from Bachmus, than installing their own consumer fuel installations on their own erven. This has the added benefit of reducing the potential environmental impacts associated with fuel storage in the area.

The updated environmental assessment is prepared to determine all environmental, safety, health and socio-economic impacts associated with the construction and operations of the facility. Relevant environmental data has been compiled by making use of secondary data and from a reconnaissance site visit. Potential environmental impacts and associated social impacts were identified and are addressed in this report. Impacts on the surrounding environment that may be expected from the facility corresponds to those expected from developments earmarked for light industrial areas, see summary impacts table below. It is however recommended that environmental performance be monitored regularly to ensure regulatory compliance and that corrective measures be taken if necessary.

The major concerns related to the construction and operations of the facility are that of potential groundwater, surface water and soil contamination, traffic impacts and the possibility of fire. This will however be limited by adherence to South African National Standards and Material Safety Data Sheet instructions and municipal and national legislation and regulations. Furthermore, noise pollution should meet the minimum requirements of the World Health Organisation standards. By appointing local contractors and employees and implementing educational programs the positive socio-economic impacts can be maximised while mitigating any negative impacts.

The environmental management plan included in Section 9 of this document should be used as an on-site reference document during all phases (planning, construction (care and maintenance), operations and decommissioning) of the facility. All monitoring and records kept should be included in a report to ensure compliance with the environmental management plan. Parties responsible for transgression of the environmental management plan should be held responsible for any rehabilitation that may need to be undertaken. A Health, Safety, Environment and Quality policy as well as Environmental Policy could be used in conjunction with the environmental management plan. Operators and responsible personnel must be taught the contents of these documents. Municipal or national regulations and guidelines must be adhered to and monitored regularly as outlined in the environmental management plan.

### Impact Summary Class Values

Impact Category	Impact Type	Construction	Operations
<i>Positive Rating Scale: Maximum Value</i>		5	5
<i>Negative Rating Scale: Maximum Value</i>		-5	-5
EO	Skills, Technology and Development	2	2
EO	Revenue Generation and Employment	2	3
SC	Demographic Profile and Community Health	-1	-2
EO	Fuel Supply		3
SC	Traffic	-2	-2
SC	Health, Safety and Security	-2	-2
PC	Fire	-2	-2
PC	Air Quality	-1	-1
PC	Noise	-1	-1
PC	Waste Production	-2	-2
BE	Ecosystem and Biodiversity Impact	-1	-2
PC/BE	Groundwater, Surface Water and Soil Contamination	-2	-2
SC	Visual Impact	-1	-1
PC/SC	Impacts on Utilities, Infrastructure and Seabed Scouring	-3	-2
PC	Cumulative Impact		-3

BE = Biological/Ecological    EO = Economical/Operational    PC = Physical/Chemical    SC = Sociological/Cultural

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## **LIST OF ABBREVIATIONS**

<b>AIDS</b>	Acquired Immune Deficiency Syndrome
<b>BE</b>	Biological/Ecological
<b>DWA</b>	Department of Water Affairs
<b>DEA</b>	Directorate of Environmental Affairs
<b>EA</b>	Environmental Assessment
<b>EIA</b>	Environmental Impact Assessment
<b>EMA</b>	Environmental Management Act No 7 of 2007
<b>EMP</b>	Environmental Management Plan
<b>EMS</b>	Environmental Management System
<b>EO</b>	Economic/Operational
<b>ES</b>	Environmental Classification
<b>GPT</b>	Geo Pollution Technologies
<b>HIV</b>	Human Immunodeficiency Virus
<b>IAPs</b>	Interested and Affected Parties
<b>IUCN</b>	International Union for Conservation of Nature
<b>LNAPL</b>	Light Non-Aqueous Phase Liquids
<b>m/s</b>	Meter per second
<b>mbs</b>	Meters below surface
<b>MEFT</b>	Ministry of Environment, Forestry and Tourism
<b>mm/a</b>	Millimetres per annum
<b>MSDS</b>	Material Safety Data Sheet
<b>NaCl</b>	Sodium chloride
<b>PC</b>	Physical/Chemical
<b>PPE</b>	Personal Protective Equipment
<b>ppm</b>	Parts per million
<b>SAH</b>	South Atlantic High
<b>SANS</b>	South African National Standards
<b>SC</b>	Sociological/Cultural
<b>SO<sub>2</sub></b>	Sulphur dioxide
<b>UNCCD</b>	United Nations Convention to Combat Desertification
<b>WHO</b>	World Health Organization



## **GLOSSARY OF TERMS**

**Alternatives** - A possible course of action, in place of another, that would meet the same purpose and need but which would avoid or minimize negative impacts or enhance project benefits. These can include alternative locations/sites, routes, layouts, processes, designs, schedules and/or inputs. The “no-go” alternative constitutes the ‘without project’ option and provides a benchmark against which to evaluate changes; development should result in net benefit to society and should avoid undesirable negative impacts.

**Assessment** - The process of collecting, organising, analysing, interpreting and communicating information relevant to decision making.

**Competent Authority** - means a body or person empowered under the local authorities act or Environmental Management Act to enforce the rule of law.

**Construction** - means the building, erection or modification of a facility, structure or infrastructure that is necessary for the undertaking of an activity, including the modification, alteration, upgrading or decommissioning of such facility, structure or infrastructure.

**Cumulative Impacts** - in relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

**Environment** - As defined in the Environmental Assessment Policy and Environmental Management Act - “land, water and air; all organic and inorganic matter and living organisms as well as biological diversity; the interacting natural systems that include components referred to in sub-paragraphs, the human environment insofar as it represents archaeological, aesthetic, cultural, historic, economic, palaeontological or social values”.

**Environmental Impact Assessment (EIA)** - process of assessment of the effects of a development on the environment.

**Environmental Management Plan (EMP)** - A working document on environmental and socio-economic mitigation measures, which must be implemented by several responsible parties during all the phases of the proposed project.

**Environmental Management System (EMS)** - An Environment Management System, or EMS, is a comprehensive approach to managing environmental issues, integrating environment-oriented thinking into every aspect of business management. An EMS ensures environmental considerations are a priority, along with other concerns such as costs, product quality, investments, PR productivity and strategic planning. An EMS generally makes a positive impact on a company’s bottom line. It increases efficiency and focuses on customer needs and marketplace conditions, improving both the company’s financial and environmental performance. By using an EMS to convert environmental problems into commercial opportunities, companies usually become more competitive.

**Evaluation** – means the process of ascertaining the relative importance or significance of information, the light of people’s values, preference and judgements in order to make a decision.

**Hazard** - Anything that has the potential to cause damage to life, property and/or the environment. The hazard of a particular material or installation is constant; that is, it would present the same hazard wherever it was present.

**Interested and Affected Party (IAP)** - any person, group of persons or organisation interested in, or affected by an activity; and any organ of state that may have jurisdiction over any aspect of the activity.

**Mitigate** - The implementation of practical measures to reduce adverse impacts.

**Proponent (Applicant)** - Any person who has submitted or intends to submit an application for an authorisation, as legislated by the Environmental Management Act no. 7 of 2007, to undertake an

activity or activities identified as a listed activity or listed activities; or in any other notice published by the Minister or Ministry of Environment & Tourism.

**Public** - Citizens who have diverse cultural, educational, political and socio-economic characteristics. The public is not a homogeneous and unified group of people with a set of agreed common interests and aims. There is no single public. There are a number of publics, some of whom may emerge at any time during the process depending on their particular concerns and the issues involved.

**Scoping Process** - process of identifying: issues that will be relevant for consideration of the application; the potential environmental impacts of the proposed activity; and alternatives to the proposed activity that are feasible and reasonable.

**Significant Effect/Impact** - means an impact that by its magnitude, duration, intensity or probability of occurrence may have a notable effect on one or more aspects of the environment.

**Stakeholder Engagement** - The process of engagement between stakeholders (the proponent, authorities and IAPs) during the planning, assessment, implementation and/or management of proposals or activities. The level of stakeholder engagement varies depending on the nature of the proposal or activity as well as the level of commitment by stakeholders to the process. Stakeholder engagement can therefore be described by a spectrum or continuum of increasing levels of engagement in the decision-making process. The term is considered to be more appropriate than the term “public participation”.

**Stakeholders** - A sub-group of the public whose interests may be positively or negatively affected by a proposal or activity and/or who are concerned with a proposal or activity and its consequences. The term therefore includes the proponent, authorities (both the lead authority and other authorities) and all interested and affected parties (IAPs). The principle that environmental consultants and stakeholder engagement practitioners should be independent and unbiased excludes these groups from being considered stakeholders.

**Sustainable Development** - “Development that meets the needs of the current generation without compromising the ability of future generations to meet their own needs and aspirations” – the definition of the World Commission on Environment and Development (1987). “Improving the quality of human life while living within the carrying capacity of supporting ecosystems” – the definition given in a publication called “Caring for the Earth: A Strategy for Sustainable Living” by the International Union for Conservation of Nature (IUCN), the United Nations Environment Programme and the World Wide Fund for Nature (1991).

## 1 BACKGROUND AND INTRODUCTION

Bachmus Oil & Fuel Supplies (Pty) Ltd (the Proponent), under licences issued by the Ministry of Mines and Energy, currently operates two diesel wholesale facilities in Walvis Bay. It is the Proponent's intention to ultimately relocate and consolidate the two existing sites by establishing a new depot and warehouse on erf 5738, in the new light industrial area, Extension 12, Walvis Bay (Figure 1-1). Once developed, erf 5738 will continue to serve as the Proponent's oil and lubricant storage and retail outlet as well as bulk diesel sales facility. As part of the process to legalise the construction and operations of the new facility, an application was made for an environmental clearance certificate (ECC). The application was approved by the Ministry of Environment, Forestry and Tourism (MEFT) and an ECC issued on 11 May 2021.

Geo Pollution Technologies (Pty) Ltd (GPT) was now requested to update the environmental scoping assessment to include a 500 m<sup>3</sup> diesel storage tank, instead of the 200 m<sup>3</sup> tank originally included, and to apply for an amended ECC from the MEFT.

Establishment of the facility will involve:

- ◆ Site clearing, preparation and earthworks;
- ◆ Civil works required for new infrastructure;
- ◆ Construction of infrastructure for the facility including among others driveways, refuelling area, aboveground tank, pumps, reticulation, buildings and parking bays;
- ◆ Installation of associated electrical, water and sewerage utilities;
- ◆ Installation of spill control infrastructure.

Operations of the fuel facility will include:

- ◆ Filling of the storage tank with fuel from road transport tankers;
- ◆ Dispensing of fuel to customers;
- ◆ General operational activities and maintenance procedures associated with the facility inclusive of oil and lubricant sales.

A risk assessment was undertaken to determine the potential impact of the construction, operational and possible decommissioning phases of the project on the environment. The environment being defined in the Environmental Assessment Policy and Environmental Management Act as "land, water and air; all organic and inorganic matter and living organisms as well as biological diversity; the interacting natural systems that include components referred to in sub-paragraphs, the human environment insofar as it represents archaeological, aesthetic, cultural, historic, economic, paleontological or social values".

The environmental assessment was conducted to apply for an environmental clearance certificate in compliance with Namibia's Environmental Management Act (Act No 7 of 2007).

**Project Justification** – Bachmus Oil & Fuel Supplies has been operating in Namibia and Walvis Bay since 1994, with two established sites within the old industrial area of Walvis Bay. The industrial sector of Walvis Bay is constantly growing and the town hosts Namibia's largest port and fishing industry. These industries, together with the transport sector they rely on, have been making use of the oil, lubrication and diesel wholesale services of the Proponent for many years. By consolidating their two existing sites, and relocating it to the new industrial area, Bachmus Oil & Fuel Supplies will not only simplify their management and administrative activities, but also be able to provide a better service at a larger, more suitably equipped site. The relocated facility will also play an important role in alleviating some of the traffic congestion in the old industrial area, closer to the town centre. It will likewise be more accessible to trucks on route to and from Walvis Bay. In addition, the owners and operators on the neighbouring properties of erf 5738, indicated that should the Proponent have sufficient diesel availability, they will rather source fuel from Bachmus, than installing their own consumer fuel installations on their own erven. This has the added benefit of reducing the potential environmental impacts associated with fuel storage in the area.

Benefits of the diesel wholesale facility on the new site include:

- ◆ Support to the local construction industry during the construction phase, with associated sustaining of the industry's labour force.
- ◆ Continued reliable supply of diesel, oil and lubricants to various sectors (e.g. industrial and commercial) and the local business community.
- ◆ Maintenance of the existing labour force and continuous development of their skills (training) during the operational phase.
- ◆ Support for potential additional investments and development in town and Namibia as a whole.

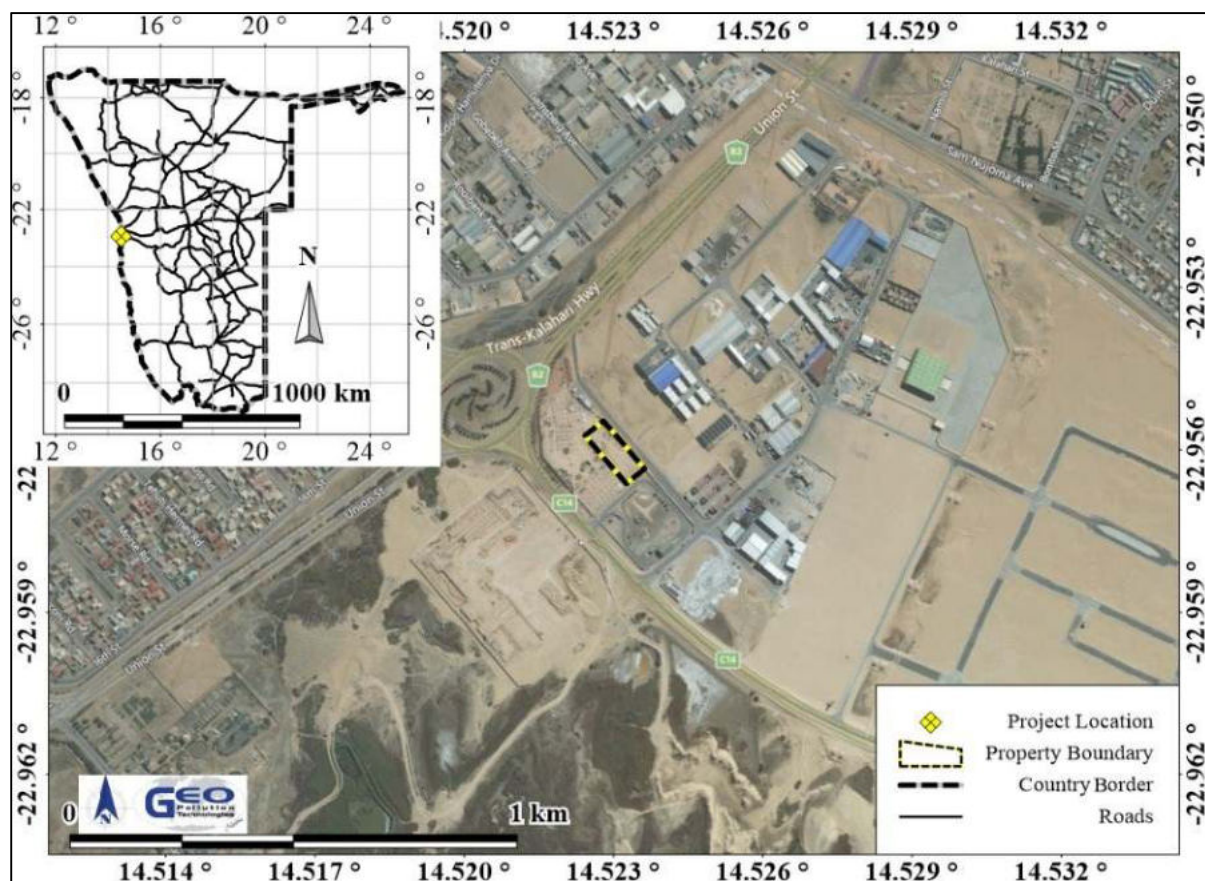


Figure 1-1. Project location

## 2 SCOPE

The scope of the updated environmental assessment is to, in compliance with the requirements of the EMA:

1. Determine the potential environmental impacts emanating from the construction, operational and possible decommissioning activities of the facility.
2. Identify a range of management actions which could mitigate the potential adverse impacts to acceptable levels.
3. Provide sufficient information to the relevant competent authority and MEFT to make an informed decision regarding the construction, operations and possible decommissioning of the facility.

## 3 METHODOLOGY

The following methods were used to investigate the potential impacts on the social and natural environment due to the construction and operations of the facility:

1. Baseline information about the site and its surroundings was obtained from existing secondary information as well as from a reconnaissance site visit.

2. As part of the scoping process to determine potential environmental impacts, interested and affected parties (IAPs) were consulted about their views, comments and opinions all of which are presented in this report.
3. Potential environmental impacts emanating from the construction, operations and decommissioning of the facility were determined and possible enhancement measures were listed for positive impacts while mitigation/preventative measures were provided for negative impacts.
4. As per the findings of this scoping report, an environmental management plan (EMP) was incorporated into this report to be submitted to the Ministry of Environment, Forestry and Tourism (MEFT).

## 4 CONSTRUCTION, OPERATIONS AND RELATED ACTIVITIES

It is anticipated that construction of the diesel wholesale facility will commence once an amended ECC has been issued by the MEFT, and the various additional permits and licences have been issued by the various regulatory bodies. The following section provides an outline of the planned facility. It should be noted that only the diesel wholesale component requires environmental clearance, but for purposes of this document, a brief description of all planned components and activities is provided.

Erf 5738 is a serviced erf situated in Rössing Street and is still undeveloped. The Proponent aims at relocating their existing business establishments to the site which would ultimately consist of two main components with various support infrastructures (Figure 4-1). The two main components are 1) the diesel wholesale facility; and 2) a warehouse for storage and sale of oils and lubricants.

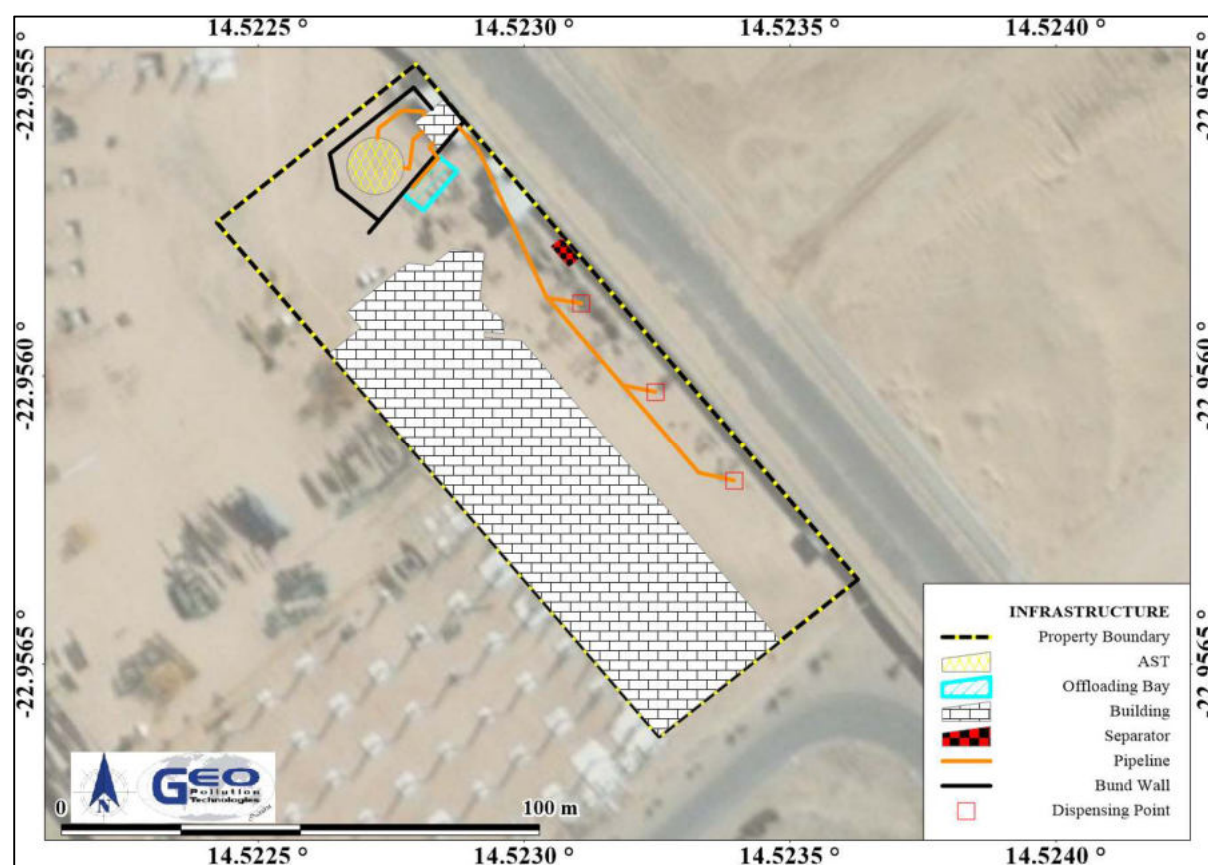


Figure 4-1. Site layout

### 4.1 DIESEL WHOLESALE FACILITY

The diesel wholesale facility will serve to supply diesel to trucks, to fill bowsers, and any other larger volume purchases of diesel. These facilities are generally known as “customer own collection sites” or “COCs”, where diesel can be supplied at slightly reduced prices to customers

buying volumes of diesel in excess of 200 l. The supply of diesel will thus mainly be to local industrial developments and the construction and trucking industries.

In order to store a sufficient volume of diesel with a large enough buffer to accommodate periods of high fuel demand, a 500 m<sup>3</sup> aboveground storage tank (AST) will be installed. The tank will be a vertical steel tank, situated inside a concrete bund area that will protect against environmental pollution in the event of a spill or leak at the tank. A gantry for fuel deliveries will be constructed next to the bund area. It will consist of a concrete spill control slab connected to an oil water separator and fuel will be pumped via a pump room to the storage tank. Fuel will be dispensed at a diesel platform fitted with two dispensing units (four pumps), underneath an overhead canopy. The dispensing area will be covered with concrete connected to an oil water separator via spill catchment pits.

The oil water separator will be a 6,000 l separator with a 2,500 l drain box rated at 17 l/sec. The bund area around the tank will also be connected to the separator. The separator outflow will be into the local sewer network. The final design parameters of the separator may change, but will adhere to SANS requirements for bulk fuel installations.

#### **4.2 WAREHOUSE AND SUPPORT INFRASTRUCTURE**

A warehouse will be constructed for the storage of oils and lubricants. Various offices, board room, sales area, kitchen, ablution facilities, etc. will be incorporated into the warehouse. Ablution facilities and rest rooms and a small tuck shop will also be constructed at the diesel wholesale facility as a service to clients and for use by personnel.

Firefighting equipment will be provisioned for throughout the facility. Water supply and sewer connections will be provided by the Municipality of Walvis Bay while electricity will be supplied by Erongo Red.

#### **4.3 OPERATIONAL ACTIVITIES**

The facility will operate 24 hours a day, seven days a week. Diesel (50 ppm) will be received from tanker trucks and stored in the aboveground storage tank. Fuel will be dispensed to customers by pump attendants as required. Regular reconciliation of fuel volumes will be performed to detect any possible losses. Any contaminated products will be disposed of at a registered waste oil recycler or approved hazardous waste disposal facility.

Additional operations of the facility will include oil and lubricant sales, daily administrative activities as well as general care and maintenance of the property. Any domestic waste produced will be stored in an enclosed, temporary waste storage area. From here it will be removed regularly and transported to, and disposed of at, an approved municipal waste disposal facility.

Bachmus Oil & Fuel Supplies will employ 28 staff members at the site, of which five will be directly involved with the diesel wholesale component.

## **5 ALTERNATIVES TO THE PROPOSED FACILITY**

Since the facility must adhere to SANS standards or better no alternatives in design parameters adhering to SANS is proposed. From an environmental perspective the environmental assessment did not find any reason why the facility may not continue at this site on condition that it complies with SANS standards or better as prescribed by Namibian legislation. The municipality, in principle, approved the relocation of the Proponent's facilities to the new site. This however remains subject to the official approvals of the municipality with regard to building plans and other authorisation.

The Municipality of Walvis Bay indicated two aspects that needs consideration. These are the size of the fuel storage tank and traffic flow in the area. These are assessed as alternatives in Table 5-1.



**Table 5-1. Alternatives comparison**

Alternative	Advantages	Disadvantages	Preferred Option
<b>Smaller diesel tank</b>	<ul style="list-style-type: none"> <li>◆ Less expensive installation costs</li> <li>◆ Tank failure will lead to smaller volumes of product loss into the bund area.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Fuel deliveries will be more erratic due to smaller buffer in fuel volume.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Larger tank provide sufficient buffer to supply fuel during increased fuel volume demand. Fuel deliveries can thus be scheduled on regular intervals which will reduce traffic impacts. The presence of bunding around the tank mitigates the potential impacts of tank failure by containing any volume of fuel spilled.</li> </ul>
<b>500 m<sup>3</sup> diesel storage tank</b>	<ul style="list-style-type: none"> <li>◆ Fuel deliveries can be scheduled for regular intervals due to sufficient buffer provided by larger fuel volumes.</li> </ul>	<ul style="list-style-type: none"> <li>◆ More expensive installation costs.</li> <li>◆ Tank failure will lead to more significant volumes of product loss into the bund area.</li> </ul>	
<b>Traffic flow to Erf 5738 and its neighbours remain the same as the status quo</b>	<ul style="list-style-type: none"> <li>◆ No additional expenses to change traffic conditions</li> </ul>	<ul style="list-style-type: none"> <li>◆ Increased traffic congestion and possible traffic impacts</li> </ul>	<ul style="list-style-type: none"> <li>◆ An additional entrance / exit point at the Natis weighbridge may decrease traffic impacts by allowing, for instance, circular flow i.e. a truck entering the weighbridge yard via the existing entrance may, after being weighed, proceed out onto Rössing Street and to the fuel installation for refuelling, before exiting the industrial area via Langer Heinrich Crescent.</li> </ul>
<b>Changed traffic flow with the Natis weighbridge having an additional entrance/exit point in Rössing Street</b>	<ul style="list-style-type: none"> <li>◆ Reduced traffic impacts</li> </ul>	<ul style="list-style-type: none"> <li>◆ More expensive</li> </ul>	

## 6 ADMINISTRATIVE, LEGAL AND POLICY REQUIREMENTS

To protect the environment and achieve sustainable development, all projects, plans, programmes and policies deemed to have adverse impacts on the environment require an environmental assessment, as per the Namibian legislation. The legislation and standards provided in Table 6-1 to Table 6-4 govern the environmental assessment process in Namibia and/or are relevant to the facility.

**Table 6-1. Namibian Law Applicable to the Fuel Facility**

Law	Key Aspects
<b>The Namibian Constitution</b>	<ul style="list-style-type: none"> <li>◆ Promote the welfare of people</li> <li>◆ Incorporates a high level of environmental protection</li> <li>◆ Incorporates international agreements as part of Namibian law</li> </ul>

<b>Law</b>	<b>Key Aspects</b>
<b>Environmental Management Act</b> Act No. 7 of 2007, Government Notice No. 232 of 2007	<ul style="list-style-type: none"> <li>◆ Defines the environment</li> <li>◆ Promote sustainable management of the environment and the use of natural resources</li> <li>◆ Provide a process of assessment and control of activities with possible significant effects on the environment</li> </ul>
<b>Environmental Management Act Regulations</b> Government Notice No. 28-30 of 2012	<ul style="list-style-type: none"> <li>◆ Commencement of the Environmental Management Act</li> <li>◆ List activities that requires an environmental clearance certificate</li> <li>◆ Provide Environmental Impact Assessment Regulations</li> </ul>
<b>Petroleum Products and Energy Act</b> Act No. 13 of 1990, Government Notice No. 45 of 1990	<ul style="list-style-type: none"> <li>◆ Regulates petroleum industry</li> <li>◆ Makes provision for impact assessment</li> <li>◆ Petroleum Products Regulations (Government Notice No. 155 of 2000)               <ul style="list-style-type: none"> <li>○ Prescribes South African National Standards (SANS) or equivalents for construction, operation and decommissioning of petroleum facilities (refer to Government Notice No. 21 of 2002)</li> </ul> </li> </ul>
<b>The Water Act</b> Act No. 54 of 1956	<ul style="list-style-type: none"> <li>◆ Remains in force until the new Water Resources Management Act comes into force</li> <li>◆ Defines the interests of the state in protecting water resources</li> <li>◆ Controls the disposal of effluent</li> <li>◆ Numerous amendments</li> </ul>
<b>Water Resources Management Act</b> Act No. 11 of 2013	<ul style="list-style-type: none"> <li>◆ Provide for management, protection, development, use and conservation of water resources</li> <li>◆ Prevention of water pollution and assignment of liability</li> <li>◆ Not in force yet</li> </ul>
<b>Local Authorities Act</b> Act No. 23 of 1992, Government Notice No. 116 of 1992	<ul style="list-style-type: none"> <li>◆ Define the powers, duties and functions of local authority councils</li> <li>◆ Regulates discharges into sewers</li> </ul>
<b>Public Health Act</b> Act No. 36 of 1919	<ul style="list-style-type: none"> <li>◆ Provides for the protection of health of all people</li> </ul>
<b>Public and Environmental Health Act</b> Act No. 1 of 2015, Government Notice No. 86 of 2015	<ul style="list-style-type: none"> <li>◆ Provides a framework for a structured more uniform public and environmental health system, and for incidental matters</li> <li>◆ Deals with Integrated Waste Management including waste collection disposal and recycling; waste generation and storage; and sanitation.</li> </ul>
<b>Labour Act</b> Act No 11 of 2007, Government Notice No. 236 of 2007	<ul style="list-style-type: none"> <li>◆ Provides for Labour Law and the protection and safety of employees</li> <li>◆ Labour Act, 1992: Regulations relating to the health and safety of employees at work (Government Notice No. 156 of 1997)</li> </ul>

<b>Law</b>	<b>Key Aspects</b>
<b>Atmospheric Pollution Prevention Ordinance</b> Ordinance No. 11 of 1976	<ul style="list-style-type: none"> <li>◆ Governs the control of noxious or offensive gases</li> <li>◆ Prohibits scheduled process without a registration certificate in a controlled area</li> <li>◆ Requires best practical means for preventing or reducing the escape into the atmosphere of noxious or offensive gases produced by the scheduled process</li> </ul>
<b>Hazardous Substances Ordinance</b> Ordinance No. 14 of 1974	<ul style="list-style-type: none"> <li>◆ Applies to the manufacture, sale, use, disposal and dumping of hazardous substances as well as their import and export</li> <li>◆ Aims to prevent hazardous substances from causing injury, ill-health or the death of human beings</li> </ul>
<b>Pollution Control and Waste Management Bill (draft document)</b>	<ul style="list-style-type: none"> <li>◆ Not in force yet</li> <li>◆ Provides for prevention and control of pollution and waste</li> <li>◆ Provides for procedures to be followed for licence applications</li> </ul>

**Table 6-2. Municipal By-laws, Guidelines and Regulations**

<b>Municipal By-laws, Guidelines or Regulations</b>	<b>Key Aspects</b>
<b>Integrated Urban Spatial Development Framework for Walvis Bay</b>	<ul style="list-style-type: none"> <li>◆ Overall vision to transform Walvis Bay to being the primary industrial city in Namibia</li> <li>◆ Aims to ensure that appropriate levels of environmental management is enforced for all developments in Walvis Bay</li> </ul>
<b>Town Planning Scheme No. 35</b>	<ul style="list-style-type: none"> <li>◆ Provides for specific land use activities on Light Industrial Areas</li> <li>◆ Allows service stations (fuel retail facilities) without the need for Municipal consent on light industrial erven.</li> <li>◆ Refer to Appendix A for provisions for light industrial areas.</li> </ul>
<b>Integrated Environmental Policy of Walvis Bay (Agenda 21 Project)</b>	<ul style="list-style-type: none"> <li>◆ Indicates the directions that the Municipality of Walvis Bay will move towards in the forthcoming years to fulfil its responsibilities to manage the environment of Walvis Bay together with the town's residents and institutions</li> <li>◆ Strong focus on conservation and protection of environment</li> </ul>
<b>Municipal By-law 19 and 20 on Effluents Entering Sewers</b>	<ul style="list-style-type: none"> <li>◆ Regulates the discharge of effluent into sewers and prohibits the introduction of certain wastes or products including steam into the sewers system.</li> </ul>

**Table 6-3. Relevant Multilateral Environmental Agreements for Namibia and the Development**

<b>Agreement</b>	<b>Key Aspects</b>
<b>Stockholm Declaration on the Human Environment, Stockholm 1972.</b>	<ul style="list-style-type: none"> <li>◆ Recognizes the need for a common outlook and common principles to inspire and guide the people of the world in the preservation and enhancement of the human environment.</li> </ul>
<b>1985 Vienna Convention for the Protection of the Ozone Layer</b>	<ul style="list-style-type: none"> <li>◆ Aims to protect human health and the environment against adverse effects from modification of the Ozone Layer are considered.</li> <li>◆ Adopted to regulate levels of greenhouse gas concentration in the atmosphere.</li> </ul>
<b>United Nations Framework Convention on Climate Change (UNFCCC)</b>	<ul style="list-style-type: none"> <li>◆ The Convention recognises that developing countries should be accorded appropriate assistance to enable them to fulfil the terms of the Convention.</li> </ul>
<b>Convention on Biological Diversity, Rio de Janeiro, 1992</b>	<ul style="list-style-type: none"> <li>◆ Under article 14 of The Convention, EIAs must be conducted for projects that may negatively affect biological diversity.</li> </ul>

**Table 6-4. Standards or Codes of Practise**

<b>Standard or Code</b>	<b>Key Aspects</b>
<b>South African National Standards (SANS)</b>	<ul style="list-style-type: none"> <li>◆ The Petroleum Products and Energy Act prescribes SANS standards for the construction, operations and demolition of petroleum facilities.</li> <li>◆ SANS 10089-1 (2008): The petroleum industry Part 1: Storage and distribution of petroleum products in above-ground bulk installations</li> <li>◆ Provide requirements for spill control infrastructure</li> </ul>

The project is listed as an activity requiring an environmental clearance certificate as per the following points from Section 9 of Government Notice No. 29 of 2012:

- ◆ 9.1 “The manufacturing, storage, handling or processing of a hazardous substance defined in the Hazardous Substances Ordinance, 1974.”
- ◆ 9.2 “Any process or activity which requires a permit, licence or other form of authorisation, or the modification of or changes to existing facilities for any process or activity which requires an amendment of an existing permit, licence or authorisation or which requires a new permit, licence or authorisation in terms of a law governing the generation or release of emissions, pollution, effluent or waste.”
- ◆ 9.4 “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.”
- ◆ 9.5 “Construction of filling stations or any other facility for the underground and aboveground storage of dangerous goods, including petrol, diesel, liquid petroleum gas or paraffin.”

## **7 ENVIRONMENTAL CHARACTERISTICS**

This section lists pertinent environmental characteristics of the study area and provides a statement on the potential environmental impacts on each.

### **7.1 LOCALITY AND SURROUNDING LAND USE**

The facility is planned on erf 5738, Rössing Street, Walvis Bay (22.95608 °S, 14.52302 °E) (Figure 1-1). The property is situated within the Extension 12 light industrial area of the municipal area of Walvis Bay. It is surrounded by industrial type businesses such as Van der Walt Transport (south and west), Jan Japan Motors (north) and Roads Authority’s weighbridge (east). Fuel retail facilities (“Service Stations”) are considered as one of the primary uses of land

in light industrial areas according to the town planning scheme of Walvis Bay (Appendix A). Although the facility is operated under a wholesale licence it essentially remains a fuel retail facility. There are no heritage or cultural sites located on or in close proximity to the site. Adjacent land owners as contacted during the public consultation process are listed in Appendix B.



**Photo 7-1. Erf 5738 with western neighbour Van der Walt Transport**



**Photo 7-2. Southern neighbour (Van der Walt Transport future copper storage warehouse)**



**Photo 7-3. Northern neighbour Jan Japan Motors**



**Photo 7-4. Erf 5738 with eastern neighbour Roads Authority**

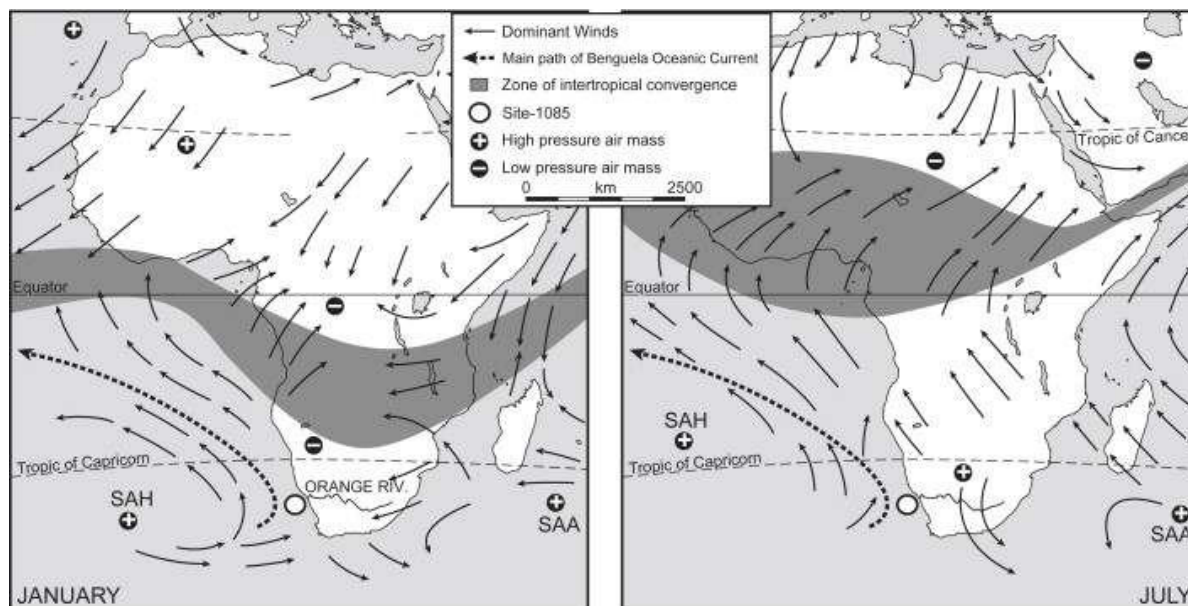
### ***Implications and Impacts***

The site is situated in an area zoned for light industrial purposes. Fuel retail facilities are common within light industrial areas and are allowed by the Walvis Bay Municipality's Town Planning Scheme.

## **7.2 CLIMATE**

Namibia's climate is dominated by dry conditions for most of the year and particularly so in the west. The location of Namibia with respect to the Intertropical Convergence Zone, Subtropical High Pressure Zone and Temperate Zone is what determines the climate, with the Subtropical High Pressure Zone being the major contributor to the dry conditions (Atlas of Namibia Project, 2002; Bryant, 2010). Precipitation over Namibia is mainly controlled by the South Atlantic High (SAH), a high pressure cell (anticyclone) situated west of Namibia in the Subtropical High Pressure Zone. The SAH shifts during the year and is at higher latitudes in winter and lower latitudes in summer. In winter, as a result of being situated more north, the high pressure cell pushes any moisture originating from the Intertropical Convergence Zone northwards, preventing rain over Namibia. In summer, because the high pressure cell moves further south, and has less

of an effect on the Intertropical Convergence Zone, moist air reaches Namibia, resulting in summer rains.



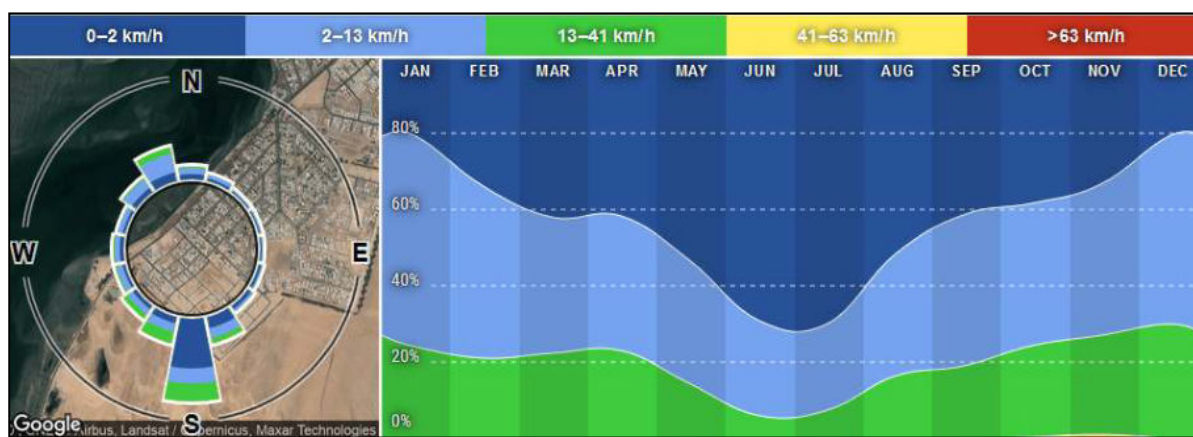
**Figure 7-1. Map indicating the Intertropical Convergence Zone, Subtropical High Pressure Zone (SAH+), Benguela Current and Temperate Zone south of Tropic of Capricorn (not indicated) (from: <http://www.meteoweb.eu>)**

On a more localised scale, the climatic conditions on the central Namibian coast, and inland thereof (coastal plains), are strongly influenced by the cold Benguela current, the SAH and the relatively flat coastal plains separated from the central highlands by a steep escarpment. The anticlockwise circulation of the high pressure SAH and the action of the earth's Coriolis force result in strong southerly (longshore) winds blowing northwards up the coastline of Namibia (Bryant, 2010; Corbett, 2018). This longshore wind is responsible for upwelling of the cold, deep waters of the Benguela Current. As a result of the temperature difference between the cold surface water of the Benguela Current and the warm coastal plains, the southerly wind is diverted to a south south-westerly to south-westerly wind along the coast. At Walvis Bay the temperature gradient that forms over the warmer darker sands south of the Kuiseb River, compared with the cooler lighter coloured gravel plains to the north of the river, leads to the formation of cyclonic circulation (localised low-pressure systems) centred over the dune area, due to warm air that rises. This, together with topographical changes and land-use, causes a local deflection of wind flow over the Walvis Bay area, from south to southwest in Walvis Bay (Figure 7-2), to more southwest to westerly further inland, as well as reduced wind speeds. More low speed, westerly winds are for example experienced at the Walvis Bay Airport (Rooikop) (Figure 7-3).

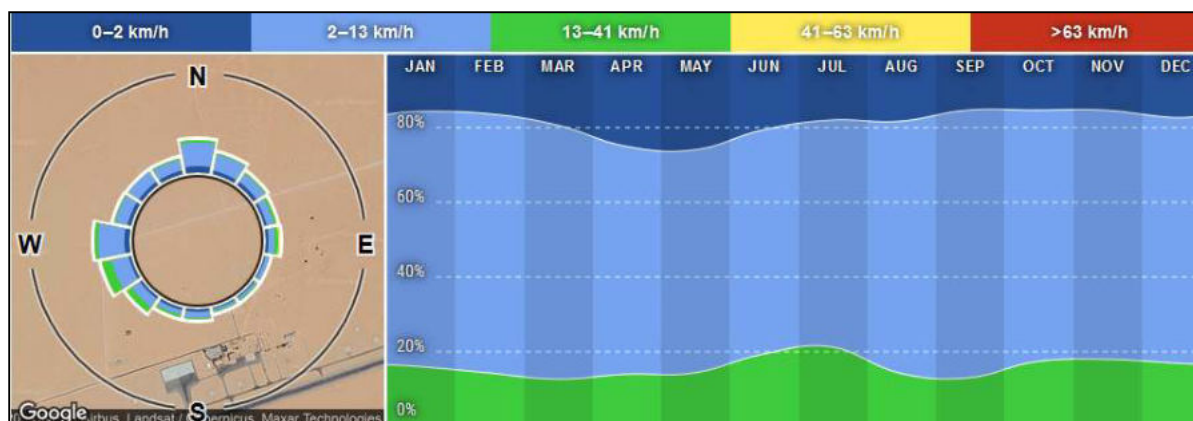
The winds are strongest in early to mid-summer (September to January) when the SAH is at its strongest and most persistent, and the temperature difference between the sea and the desert plains are at its greatest. Wind speeds then occasionally exceed 32 km/h and usually peaks late morning to early afternoon. In winter, the SAH loses strength and the southerly to south-westerly winds are at their weakest. Winter winds do not have enough strength to reach far inland. Autumn to winter conditions do however promote the formation of east wind conditions (berg winds) that can reach speeds of more than 50 km/h and transport a lot of sand. East winds occur when the inland plateau is cold with a localised high pressure cell, while a low pressure system is present at the coast. The high pressure cell forces air off the escarpment and as the air descends, it warms adiabatically as well as create a low pressure system due to the vertical expansion of the air column. The warm air flows toward the coastal low and as it passes over the Namib plains, it heats up even further. The wind manifests itself as very strong, warm and dry winds during the mornings to early afternoon, but dies down late afternoon.

Throughout the year the prevailing night time wind is a weak easterly wind. This results from the mainland cooling to below the temperature of the coastal water. This results in a coastal low versus an onshore high pressure system with first no wind in the early evening, when temperatures between water and land is similar, and then weak easterly winds as the temperature difference increase.

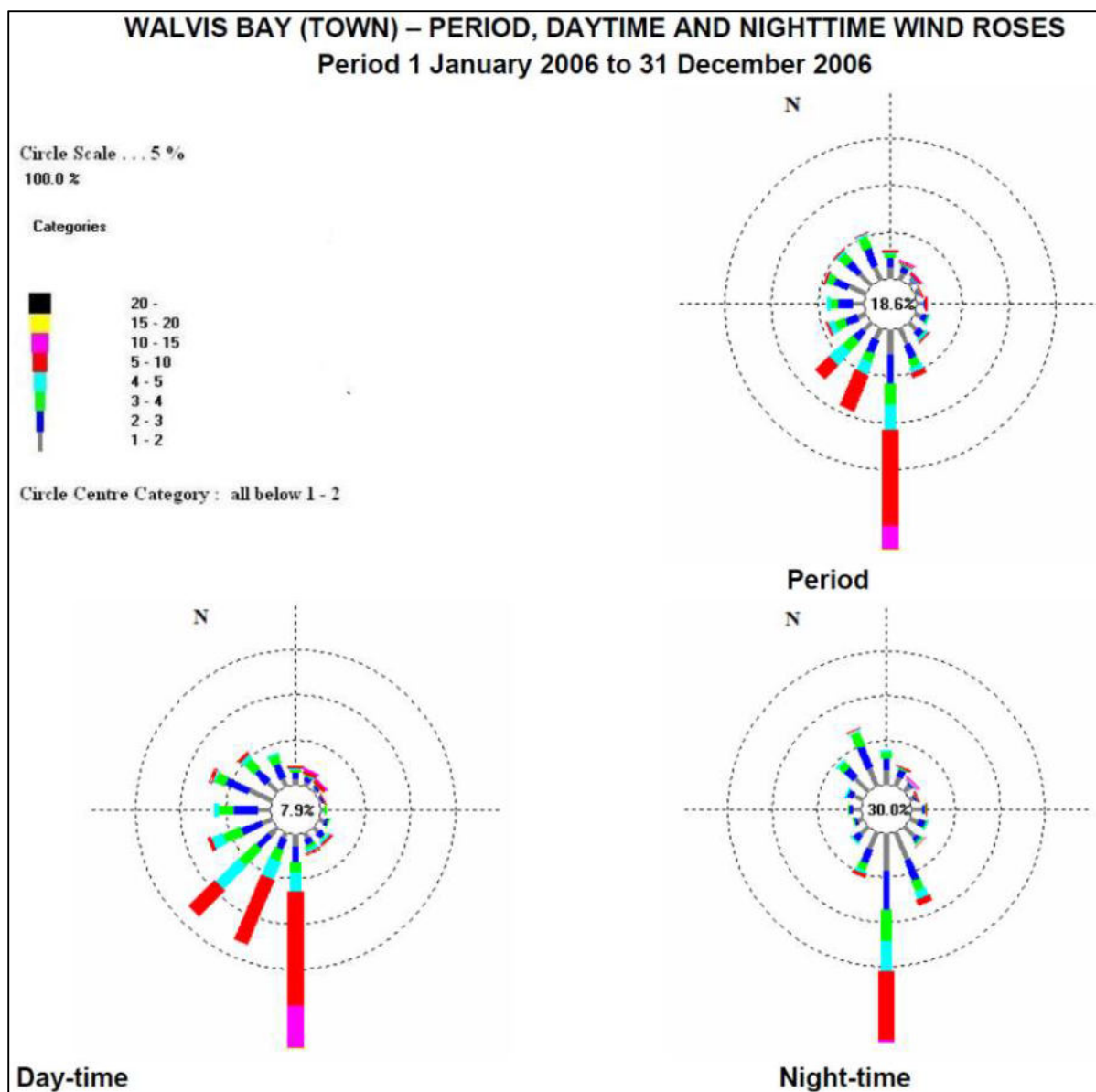
Temperature at Walvis Bay is strongly regulated by the cold Benguela current. As a result, there is typically limited variation between diurnal and seasonal temperatures. Average annual temperatures are approximately 18 °C to 19 °C with the maximum temperature seldom above 30 °C and minimums rarely below 5 °C (Figure 7-5). The only real temperature extremes are experienced during east wind conditions in the autumn to early winter months when temperatures can reach the upper thirties or even low forties. This results in these months having an average maximum temperature ranging from 30 °C to 35 °C. As one moves inland from Walvis Bay, daytime temperatures increases rather quickly while night time temperatures can get significantly colder in the desert environment.



**Figure 7-2.** Wind direction and strength at the Walvis Bay Lagoon as measured between 2013 and 2020 (From: [https://www.windfinder.com/windstatistics/walvis\\_bay\\_airport](https://www.windfinder.com/windstatistics/walvis_bay_airport))



**Figure 7-3.** Wind direction and strength at the Walvis Bay Airport as measured between 2003 and 2020 (From: [https://www.windfinder.com/windstatistics/walvis\\_bay\\_airport](https://www.windfinder.com/windstatistics/walvis_bay_airport))



**Figure 7-4. Period, daytime and night-time wind roses for Town for the period 2006 (From: Petzer & von Gruenewaldt 2008)**

As explained above, the SAH severely limits the amount of rainfall over Namibia and especially at the coast and over the Namib Desert. As such, the average annual rainfall in Walvis Bay is below 50 mm (Figure 7-5), with variation in annual rainfall exceeding 100%. Infrequent, heavy rainfall do occur and typically results in rather chaotic conditions as Walvis Bay, and other coastal towns, has not been developed to cater for large volumes of stormwater. Fog plays a very significant role as source of water for many plants and animals along Namibia's coast and the Namib Desert. Walvis Bay has up to 900 hours of fog per year and it results from the cold Benguela water cooling the humid air above it to such a temperature that the water vapour condenses to form fog and low level clouds (Mendelsohn et al., 2002).



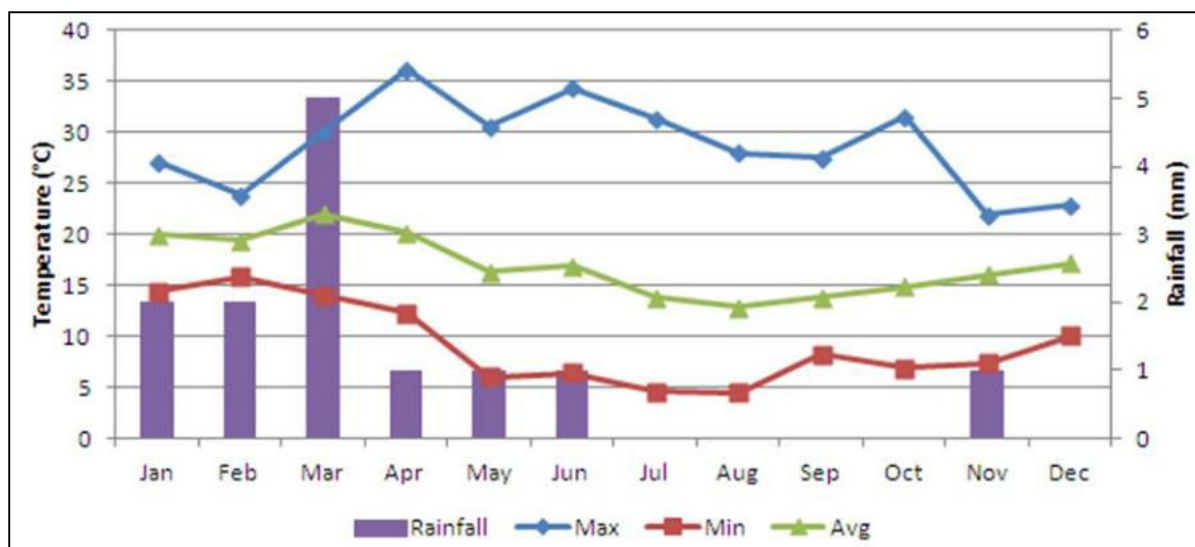


Figure 7-5. Temperature and rainfall at Walvis Bay (From: uMoya-NILU, 2020)

**Implications and Impacts**

Water is a scarce and valuable resource in Namibia and Walvis Bay is characterized by low and extremely variable seasonal rainfall. This makes water an extremely vulnerable resource. Occasional flooding does occur and if the facility is not adequately designed may experience damage.

**7.3 CORROSIVE ENVIRONMENT**

Walvis Bay is located in a corrosive environment, which may be attributed to the frequent salt-laden fog, periodic winds and abundance of aggressive salts (dominantly NaCl and sulphates) in the soil. The periodic release of hydrogen sulphide (H<sub>2</sub>S) from the ocean is expected to contribute to corrosion. See Figure 7-6 for corrosion comparison data with other centres. The combination of high moisture and salt content of the surface soil can lead to rapid deterioration of subsurface metal (e.g. pipelines) and concrete structures. Chemical weathering of concrete structures due to the abundant salts in the soil is a concern.

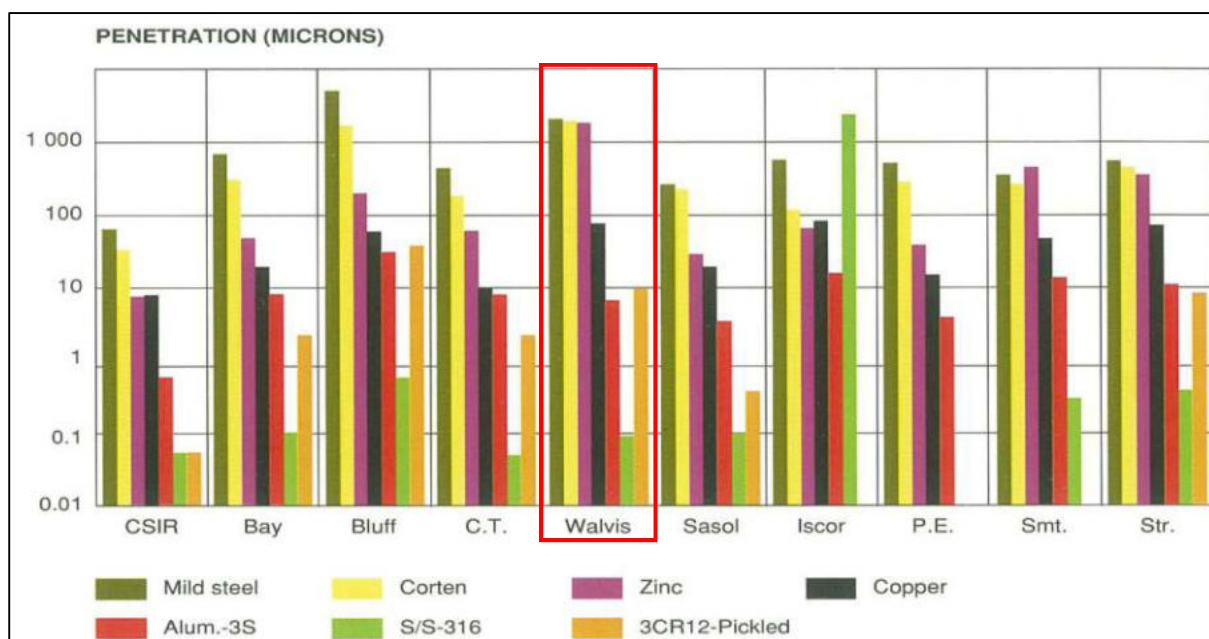


Figure 7-6. Twenty year corrosion exposure results in southern African towns (Callaghan 1991)

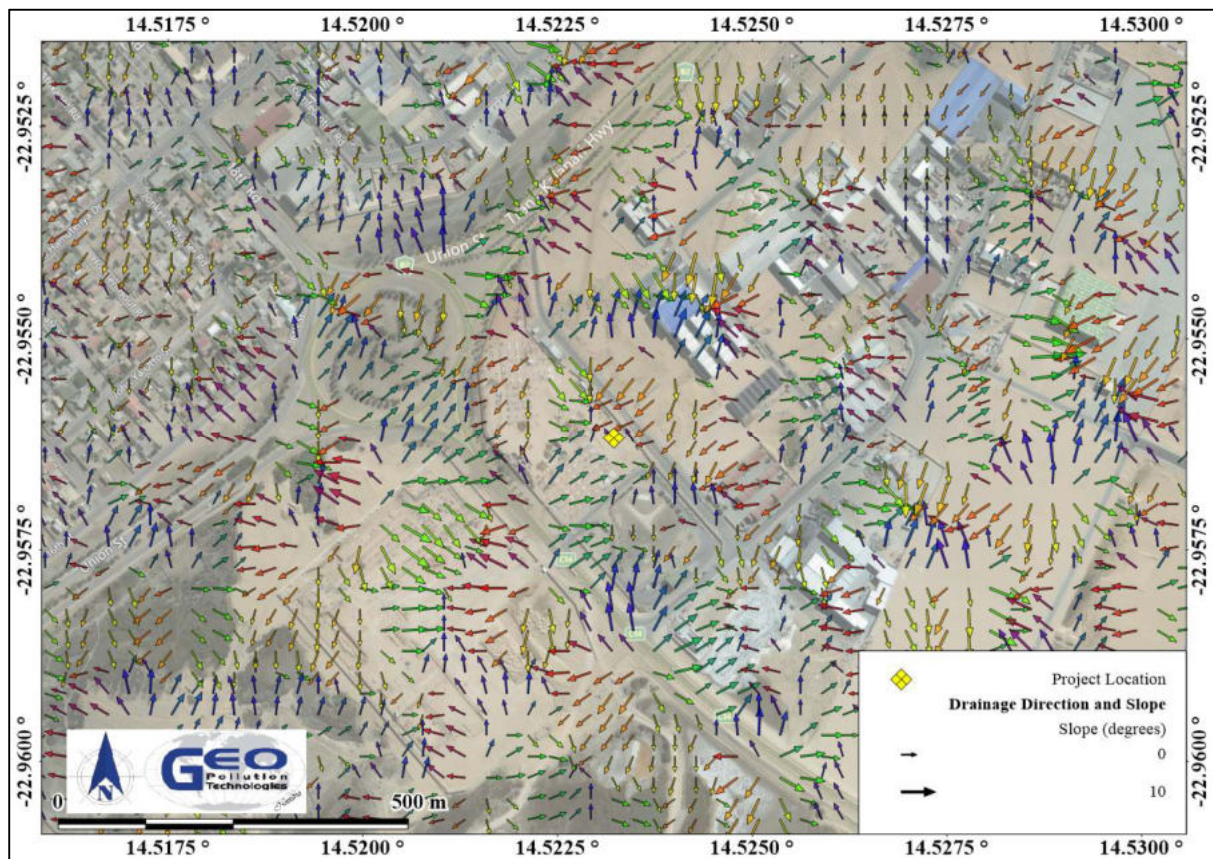
***Implications and Impacts***

Corrosion levels may be high and must be kept in mind when planning the construction of the facility and related infrastructure as well as for general maintenance.

**7.4 TOPOGRAPHY AND DRAINAGE**

Walvis Bay is located in the Central Western Plain of Namibia. The Kuiseb River forms the southern boundary of this landscape group, with the Namib Dune Field being present south of the Kuiseb River. A bay is formed by a peninsula commonly known as Pelican Point. On the southern part of the bay is a lagoon which used to be the mouth of the Kuiseb River. Dune migration however forced the flow of the Kuiseb River to the north. This flow was stopped through the construction of a flood control wall to prevent flooding of the town of Walvis Bay, thus forcing the flood waters to move through the dune area to the lagoon. The Kuiseb River now rarely reaches the lagoon.

The topography is generally flat with a local gentle downward slope in a northerly direction. Drainage is poorly developed due to the lack of rainfall (<50 mm/annum) received in the area. A dune field is present southeast of Walvis Bay and also further to the northeast. These dunes generally migrate in a northerly direction. Further inland is the gravel plains of the central areas of the Namib Naukluft Park. Surface water around Walvis Bay is limited to the marine salt pans, lagoon and ocean as well as a man-made wetland formed as a result of the sewage treatment works. The site and surrounding areas are generally flat.



**Figure 7-7. Drainage direction and slope**

***Implications and Impacts***

The site is flat with poor drainage. Any pollution that is not contained will quickly infiltrate the sandy soils.

## **7.5 GEOLOGY AND HYDROGEOLOGY**

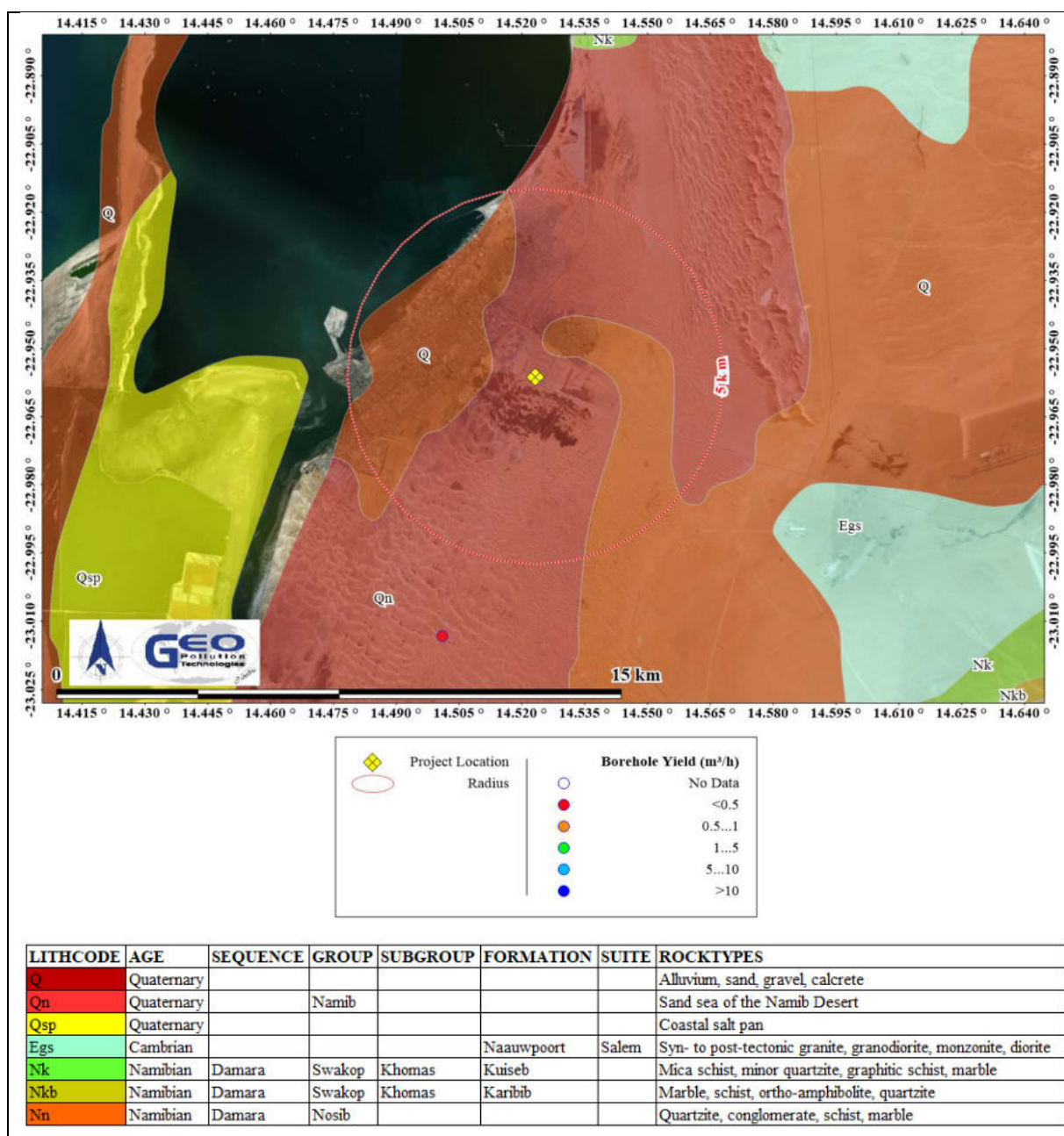
Walvis Bay is located in the Central Western Plain of Namibia. The Kuiseb River forms the southern boundary of this landscape group, with the Namib Dune Field being present south of the Kuiseb River. Northerly dune migration is forcing the Kuiseb River in a northerly direction, with Kuiseb River paleochannels being present as far south as Sandwich Harbour.

Following the breakup of West-Gondwana during the early Cretaceous (130 – 135 Ma ago), continental uplift took place, enhancing erosional cutback and the formation of the Namibian Escarpment. A narrow pediplain formed, mainly over Damara Age Rocks. The South Atlantic started filling in over the pediplain, with marine conditions established around 80 Ma ago. Towards the end of the Cretaceous (70 – 65 Ma ago) a relative level surface was created, on which later deposition of sediments took place. Marine deposition took place in the parts covered by the newly formed South Atlantic Ocean, while terrestrial deposits took place on land. Further continental uplift moved the shoreline to its present position, from approximately just east of Dune 7.

Northwards migration of sand covered parts of the exposed marine deposits, with Kuiseb floods also depositing material over the marine sediments. Depth to bedrock in Walvis Bay is expected to be deeper than 40 m. Based on previous work conducted in the area it is expected that the sediments under the project area would consist of medium to coarse grain sand with thin lenses of more clayey material and layers of shell material. The hydraulic conductivity is expected to be moderate to high.

The hydraulic head in the area is very low due to the relative horizontal water table. Pollutants are therefore not expected to rapidly spread, despite the relatively high hydraulic conductivity.

Depth to water table is expected to be less than 2 mbs. The subsurface water is mostly saline and not suitable for human consumption. Groundwater is not abstracted for human consumption in Walvis Bay. The Municipality of Walvis Bay currently purchase fresh/potable water from NamWater, which source water from the Kuiseb Water Supply Scheme.



**Figure 7-8. Hydrogeology of the study area**

#### ***Implications and Impacts***

Groundwater is not utilised in the area. Pollution of the groundwater is however still prohibited. Shallow groundwater will lead to rapid lateral spreading of hydrocarbon products spilled or leaked. This will further have potential impact on underground utilities and may cause impacts on neighbouring properties.

#### **7.6 PUBLIC WATER SUPPLY**

Public water supply to Walvis Bay and the surrounding developments is provided by NamWater from the NamWater Kuiseb Water Supply Scheme.

#### ***Implications and Impacts***

The fuel facility is not expected to have an impact on public water supply.

## 7.7 FAUNA AND FLORA

The site is located within a developed industrial area and has been cleared of all vegetation. No animals of particular significance are expected except for birds flying overhead as a result of a number of breeding, roosting and foraging areas for water birds in the area. Of note nearby (4 km west) are the Walvis Bay Lagoon, the salt works and the southern part of the bay west of the lagoon, which are the key components of the 12,600 ha RAMSAR site (Wetland of International Importance). It is important both as an over-wintering area for Palaearctic migrant wader species as well as for African species such as Greater and Lesser Flamingos, Great White Pelican and Chestnut-Banded Plovers. Pools of semi-purified sewage effluent, situated 200 m south of the study area, are regarded as a sensitive manmade wetland. Although a manmade fresh water source, it is an attraction for pelicans and flamingos, 53% of the duck and geese population in the area, and many other birds. The wetland is formed by the constant inflow of semi-purified water and supports extensive stands of reeds. There is also a flight path for birds between the sewerage ponds and the offshore bird breeding platform (Ghwano Island) 9 km north of the site.

### *Implications and Impacts*

The proposed facility is located within an already disturbed industrial area. Thus, no immediate threat to biodiversity in the area is expected, however, uncontrolled pollution may and can cause damage to any biodiversity surrounding the site. Lighting used at night may blind or disorientate birds like flamingos that fly at night. This may lead to collisions with man-made structures.

## 7.8 DEMOGRAPHIC AND ECONOMIC CHARACTERISTICS

At local level Walvis Bay has an urban population size of 62,096 (Namibia Statistics Agency, 2014) although the current estimate is around 90,000 to 100,000. Walvis Bay is the principal port of Namibia, and is an import/export facility for processed fish, mining products and beef. The area is linked to Namibia's air, rail and road network, making its port well situated to service Zambia, Zimbabwe, Botswana, Southern Angola and South Africa. The fishing industry is the major employer of low skilled workers on a permanent and seasonal basis. The total employment of this sector is estimated at 2% of the total Namibian workforce. Economic activities relate mostly to businesses within the area and around the site.

**Table 7-1. Demographic Characteristics of Walvis Bay, the Erongo Region and Nationally (Namibia Statistics Agency, 2011)**

	Walvis Bay	Erongo Region	Namibia
<b>Population (Males)</b>	30,500	79,823	1,021,912
<b>Population (Females)</b>	29,000	70,986	1,091,165
<b>Population (Total)</b>	62,096	150,809	2,113,077
<b>Unemployment (15+ years)</b>	N/A	22.6%	33.8%
<b>Literacy (15+ years)</b>	N/A	96.7%	87.7%
<b>Education at secondary level (15+ years)</b>	N/A	71.8%	51.2%
<b>Households considered poor</b>	N/A	5.1%	19.5%

### *Implications and Impacts*

The facility will provide employment to people from the area. Some skills development and training will also benefit employees during the operational phase.

## 7.9 HERITAGE, CULTURAL AND ARCHAEOLOGICAL ASPECTS

There are no churches, mosques or related buildings in close proximity to the site. No known archaeological resources have been noted in the vicinity since the urbanisation of the area. No other structures, sites or spheres of heritage of cultural significance was determined to be in close proximity to the site.

***Implications and Impacts***

No heritage or archaeological impact expected

## 8 PUBLIC CONSULTATION

Consultation with the public forms an integral component of an environmental assessment investigation and enables interested and affected parties (IAPs) e.g. neighbouring landowners, local authorities, environmental groups, civic associations and communities, to comment on the potential environmental impacts associated with the facility and to identify additional issues which they feel should be addressed in the environmental assessment.

Public participation notices were advertised twice in two weeks in the national papers The Namibian Sun and Die Republikein on the 1st and 8<sup>th</sup> of February 2021 respectively. A site notice was placed on site and notification letters were delivered to the identified neighbours. The Walvis Bay Municipality was also notified by hand delivered letter. See Appendix A for proof of the public participation processes and registered IAPs.

The Municipality of Walvis Bay requested a meeting where Geo Pollution Technologies presented the proposed project. After the meeting concerns were raised regarding possible heat radiation impacting on vehicles and pedestrians on the nearby roads in the event of a fire. It was however noted that this will be manageable should the facility be designed in consultation with the local fire brigade and in line with SANS 10089 standards. Further concerns were raised regarding traffic impacts as a result of trucks travelling from the facility to the nearby weighbridge. It was recommended that consultation should take place with van der Walt Transport, the Municipality and Roads Authority to look at the possibility of establishing an entrance to the weighbridge in Rössing Street.

**Table 8-1. Municipality meeting attendance register**

<b>Name</b>	<b>Organisation</b>
Wikus Coetzer	Geo Pollution Technologies
Lovisa Hailaula	Municipality of Walvis Bay – Environmental
Nangula Amatsi	Municipality of Walvis Bay – Environmental
Deville Dreyer	Municipality of Walvis Bay - Health
Peter Etsebeth	Municipality of Walvis Bay – SWEM
Kapalese Katjomuise	Municipality of Walvis Bay
Likoro Gottfried	Municipality of Walvis Bay – Town Planning
Dennis Basson	Municipality of Walvis Bay – Fire Brigade

## 9 MAJOR IDENTIFIED IMPACTS

During the scoping exercise a number of potential environmental impacts have been identified. The following section provides a brief description of the most important of these impacts.

### 9.1 HYDROCARBON POLLUTION

This section describes the most pertinent pollution impacts that are expected from the facility and its operations. Groundwater and soil pollution from hydrocarbon products are major issues associated with the storage and handling of such products. Both forms of pollution are prohibited in Namibia.

When a release of hydrocarbon products takes place to the soil, the Light Non-Aqueous Phase Liquids (LNAPL) will infiltrate into the soil and start to migrate vertically. LNAPL transport in the subsurface environment occurs in several phases, including bulk liquid, dissolved, and vapour phases. Mechanisms that influence transport include the physicochemical properties of the specific compounds present such as density, vapour pressure, viscosity, and hydrophobicity, as well as the physical and chemical properties of the subsurface environment, including geology

and hydrogeology. Hydrocarbon liquids are typically complex mixtures composed of numerous compounds, each with its own individual physicochemical and, therefore, transport properties.

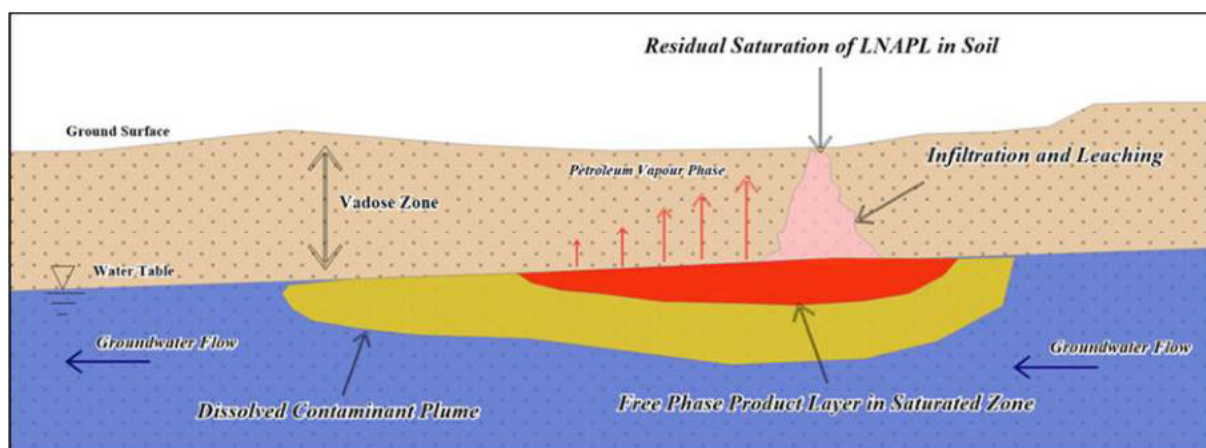
If small volumes of spilled LNAPL enter the unsaturated zone (i.e. vadose zone), the LNAPL will flow through the central portion of the unsaturated pores until residual saturation is reached. A three-phase system consisting of water, LNAPL, and air is formed within the vadose zone. Infiltrating water dissolves the components within the LNAPL (e.g., benzene, xylene, and toluene) and transports them to the water table. These dissolved contaminants form a contaminated plume radiating from the area of the residual product. Many components found in LNAPL are volatile and can partition into soil air and be transported by molecular diffusion to other parts of the aquifer. As these vapours diffuse into adjoining soil areas, they may partition back into the water phase and transfer contamination over wider areas. If the soil surface is relatively impermeable, vapours will not diffuse across the surface boundary and concentrations of contaminants in the soil atmosphere may build up to equilibrium conditions. However, if the surface is not covered with an impermeable material, vapours may diffuse into the atmosphere.

If large volumes of LNAPL are spilled, the LNAPL flows through the pore space to the top of the capillary fringe of the water table. Dissolved components of the LNAPL precede the less soluble components and may change the wetting properties of the water, causing a reduction in the residual water content and a decrease in the height of the capillary fringe.

Since LNAPL are lighter than water, it will float on top of the capillary fringe. As the head formed by the infiltrating LNAPL increases, the water table is depressed and the LNAPL accumulate in the depression. If the source of the spilled LNAPL is removed or contained, LNAPL within the vadose zone continue to flow under the force of gravity until reaching residual saturation. As the LNAPL continue to enter the water table depression, it spread laterally on top of the capillary fringe. The draining of the upper portions of the vadose zone reduces the total head at the interface between the LNAPL and the groundwater, causing the water table to rebound slightly. The rebounding water displaces only a portion of the LNAPL because the LNAPL remain at residual saturation. Groundwater passing through the area of residual saturation dissolves constituents of the residual LNAPL, forming a contaminant plume. Water infiltrating from the surface also can dissolve the residual LNAPL and add to the contaminant load of the aquifer.

Decrease in the water table level from seasonal variations may lead to dropping of the pool of LNAPL. If the water table rises again, part of the LNAPL may be pushed up, but a portion remains at residual saturation below the new water table. Variations in the water table height, therefore, can spread LNAPL over a greater thickness of the aquifer, causing larger volumes of aquifer materials to be contaminated.

Hydrocarbon products do biodegrade in the subsurface, although the effectiveness of this process depends on subsurface conditions. The type of hydrocarbon product plays a further role in the duration of biodegradation, with the longer chain components taking much longer to biodegrade.



**Figure 9-1. Conceptual LNAPL release to the vadose zone**

## 9.2 NOISE IMPACTS

Construction noise will be related to concrete mixing, excavations and vehicles accessing the site. Some noise will exist due to vehicles accessing the site for delivering and collecting fuel during operations.

## 9.3 TRAFFIC IMPACTS

During operations some traffic impacts can be expected in the street and vicinity of the facility. Traffic flow may be impacted by trucks delivering fuel to the site and trucks waiting to be refuelled. The facility will in return have a positive impact on traffic flow in other areas of the town.

## 9.4 FIRE

Diesel will be stored at the site in a large volume. Although diesel is less flammable than more volatile fuels such as unleaded petrol, it still poses a fire risk if not handled according to Material Safety Data Sheet instructions and SANS requirements.

## 9.5 HEALTH

Hydrocarbons are carcinogenic and dermal contact and inhalation of fumes should be prevented.

## 9.6 SOCIO-ECONOMIC IMPACTS

Operations of the fuel facility will provide some employment opportunities to residents of Walvis Bay. The operational phase creates permanent employment opportunities and some training and skills development takes place.

# 10 ASSESSMENT AND MANAGEMENT OF IMPACTS

The purpose of this section is to assess and identify the most pertinent environmental impacts that are expected from the construction, operational and potential decommissioning activities of the proposed facility. An EMP based on these identified impacts is also incorporated into this section.

For each impact an environmental classification was determined based on an adapted version of the Rapid Impact Assessment Method (Pastakia, 1998). Impacts are assessed according to the following categories: Importance of condition (A1); Magnitude of Change (A2); Permanence (B1); Reversibility (B2); and Cumulative Nature (B3) (see Table 10-1).

Ranking formulas are then calculated as follow:

$$\text{Environmental Classification} = A1 \times A2 \times (B1 + B2 + B3)$$

The environmental classification of impacts is provided in Table 10-2.

The probability ranking refers to the probability that a specific impact will happen following a risk event. These can be improbable (low likelihood); probable (distinct possibility); highly probable (most likely); and definite (impact will occur regardless of prevention measures).

**Table 10-1. Assessment Criteria**

Criteria	Score
<b>Importance of condition (A1) – assessed against the spatial boundaries of human interest it will affect</b>	
Importance to national/international interest	4
Important to regional/national interest	3
Important to areas immediately outside the local condition	2
Important only to the local condition	1
No importance	0
<b>Magnitude of change/effect (A2) – measure of scale in terms of benefit/disbenefit of an impact or condition</b>	
Major positive benefit	3



Significant improvement in status quo	2
Improvement in status quo	1
No change in status quo	0
Negative change in status quo	-1
Significant negative disbenefit or change	-2
Major disbenefit or change	-3
<b>Permanence (B1) – defines whether the condition is permanent or temporary</b>	
No change/Not applicable	1
Temporary	2
Permanent	3
<b>Reversibility (B2) – defines whether the condition can be changed and is a measure of the control over the condition</b>	
No change/Not applicable	1
Reversible	2
Irreversible	3
<b>Cumulative (B3) – reflects whether the effect will be a single direct impact or will include cumulative impacts over time, or synergistic effect with other conditions. It is a means of judging the sustainability of the condition – not to be confused with the permanence criterion.</b>	
Light or No Cumulative Character/Not applicable	1
Moderate Cumulative Character	2
Strong Cumulative Character	3

**Table 10-2. Environmental Classification (Pastakia 1998)**

<b>Environmental Classification</b>	<b>Class Value</b>	<b>Description of Class</b>
72 to 108	5	Extremely positive impact
36 to 71	4	Significantly positive impact
19 to 35	3	Moderately positive impact
10 to 18	2	Less positive impact
1 to 9	1	Reduced positive impact
0	-0	No alteration
-1 to -9	-1	Reduced negative impact
-10 to -18	-2	Less negative impact
-19 to -35	-3	Moderately negative impact
-36 to -71	-4	Significantly negative impact
-72 to -108	-5	Extremely Negative Impact

### **10.1 RISK ASSESSMENT AND ENVIRONMENTAL MANAGEMENT PLAN**

The EMP provides management options to ensure impacts of the facility are minimised. An EMP is a tool used to take pro-active action by addressing potential problems before they occur. This should limit the corrective measures needed, although additional mitigation measures might be included if necessary. The environmental management measures are provided in the tables and descriptions below. These management measures should be adhered to during the various phases of the operation of the facility. This section of the report can act as a stand-alone document. All personnel taking part in the operations of the facility should be made aware of the contents in this section, so as to plan the operations accordingly and in an environmentally sound manner.

The objectives of the EMP are:

- ◆ to include all components of construction activities (upgrades, maintenance, etc.) and operations of the facility;
- ◆ to prescribe the best practicable control methods to lessen the environmental impacts associated with the project;
- ◆ to monitor and audit the performance of operational personnel in applying such controls; and
- ◆ to ensure that appropriate environmental training is provided to responsible operational personnel.

Various potential and definite impacts will emanate from the operations and decommissioning phases. The majority of these impacts can be mitigated or prevented. The impacts, risk rating of impacts as well as prevention and mitigation measures are listed below.

As depicted in the tables below, impacts related to the operational phase are expected to mostly be of medium to low significance and can mostly be mitigated to have a low significance. The extent of impacts are mostly site specific to local and are not of a permanent nature. Due to the nature of the surrounding areas, cumulative impacts are possible and include groundwater contamination and traffic impacts.

### 10.1.1 Planning

During the phases of planning for construction, operations and decommissioning of the proposed facility, it is the responsibility of the proponent to ensure they are and remain compliant with all legal requirements. The proponent must also ensure that all required management measures are in place prior to and during all phases, to ensure potential impacts and risks are minimised. The following actions are recommended for the planning phase and should continue during various other phases of the project:

- ◆ Ensure that all necessary permits from the various ministries, local authorities and any other bodies that governs the construction activities and operations of the project are in place and remains valid. This includes the petroleum products licence and municipal approvals.
- ◆ Ensure that design parameters, where required, are approved by relevant authorities prior to construction of the facility.
- ◆ Ensure all appointed contractors and employees enter into an agreement which includes the EMP. Ensure that the contents of the EMP are understood by the contractors, sub-contractors, employees and all personnel present or who will be present on site.
- ◆ Make provisions to have a Health, Safety and Environmental (HSE) Coordinator to implement the EMP and oversee occupational health and safety as well as general environmental related compliance at the site.
- ◆ Have the following emergency plans, equipment and personnel on site where reasonable to deal with all potential emergencies:
  - Risk management plan/mitigation/EMP/emergency response plan and HSE manuals;
  - Adequate protection and indemnity insurance cover for incidents;
  - Comply with the provisions of all relevant safety standards;
  - Procedures, equipment and materials required for emergencies.
- ◆ Establish and maintain a fund for future ecological restoration of the project site should project activities cease and the site is decommissioned and environmental restoration or pollution remediation is required.
- ◆ Establish and/or maintain a reporting system to report on aspects of construction activities, operations and decommissioning as outlined in the EMP.
- ◆ Submit bi-annual reports to the MEFT to allow for environmental clearance certificate renewal after three years. This is a requirement by MEFT.
- ◆ Appoint a specialist environmental consultant to update the EA and EMP and apply for renewal of the environmental clearance certificate prior to expiry.

### 10.1.2 Skills, Technology and Development

During construction and operations of the facility, training is provided to a portion of the workforce to be able to perform their duties according to the required standards. Skills are transferred to an unskilled workforce for general tasks. Development of people and technology are key to economic development of the town, region and nationally.

Project Activity/Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Construction	Employment, technological development and transfer of skills	2	1	2	3	1	12	2	Probable
Daily Operations	Employment, technological development and transfer of skills	2	1	2	3	2	14	2	Definite
Indirect Impacts	Transfer of skills and technological development	2	1	2	3	3	16	2	Definite

**Desired Outcome:** To see an increase in skills of local Namibians, as well as development and technological advancements in the petroleum industry.

#### Actions

##### **Mitigation:**

- ◆ If the skills exist locally, employees and contractors must first be sourced from the town, then the region and then nationally. Deviations from this practice must be justified.
- ◆ Skills development and improvement programs to be made available as identified during performance assessments.
- ◆ Employees to be informed about parameters and requirements for references upon employment.

##### **Responsible Body:**

- ◆ Proponent
- ◆ Contractors

##### **Data Sources and Monitoring:**

- ◆ Record should be kept of training provided.
- ◆ Ensure that all training is certified or managerial reference provided (proof provided to the employees) inclusive of training attendance, completion and implementation.
- ◆ Bi-annual summary reports on all training conducted.

### 10.1.3 Revenue Generation and Employment

Construction, operations and maintenance of the facility relies on employment. Skilled and unskilled labourers are employed or contracted for various tasks of construction, operations and maintenance. Unskilled labour may be sourced locally while it is expected that skilled contractors within Namibia will be used for specialised work. The presence of the facility therefore contributes to employment creation in the skilled and unskilled labour sector. Retailing of fuel contributes to revenue generation which is paid to the national treasury while also contributing to the local economy in terms of increased spending power of employees as well as the sourcing of goods and services.

Project Activity/Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Construction	Employment and contribution to local economy	2	1	2	2	2	12	2	Definite
Daily Operations	Employment contribution to local economy	3	1	3	3	2	24	3	Definite
Indirect Impacts	Decrease in unemployment, contribution to local economy	3	1	3	3	3	27	3	Definite

**Desired Outcome:** Contribution to national treasury and provision of employment to local Namibians.

#### **Actions**

##### **Mitigation:**

- ◆ The proponent must employ local Namibians where possible.
- ◆ If the skills exist locally, employees must first be sourced from the town, then the region and then nationally.
- ◆ Deviations from this practice must be justified.

##### **Responsible Body:**

- ◆ Proponent

##### **Data Sources and Monitoring:**

- ◆ Bi-annual summary report based on employee records.

### 10.1.4 Demographic Profile and Community Health

The project relies on labour for construction and operations. Since the Proponent has existing facilities that will be relocated to the new site, it is not foreseen that it will create a change in the demographic profile of the local community. Exposure to factors such as communicable disease like HIV/AIDS as well as alcoholism/drug abuse may impact the local community.

Project Activity/Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Construction	In-migration and social ills related to unemployment	2	-1	1	1	2	-8	-1	Probable
Daily Operations	In-migration and social ills related to unemployment	2	-1	1	2	2	-10	-2	Probable
Indirect Impacts	The spread of disease	2	-1	2	2	2	-12	-2	Probable

**Desired Outcome:** To prevent the in-migration and growth in informal settlements, prevent the spread of communicable disease and prevent/discourage socially deviant behaviour.

#### **Actions:**

##### **Prevention:**

- ◆ Employ only local people from the area, deviations from this practice should be justified appropriately.
- ◆ Adhere to all municipal by-laws relating to environmental health which includes but is not limited to sand and grease traps for the various facilities and sanitation requirements.
- ◆ Prohibit illegal parking and loitering on and around the site.

##### **Mitigation:**

- ◆ Educational programmes for employees on HIV/AIDs and general upliftment of employees' social status.
- ◆ Appointment of reputable contractors.
- ◆ Employ response plan when needed.

##### **Responsible Body:**

- ◆ Proponent

##### **Data Sources and Monitoring:**

- ◆ Facility inspection sheet for all areas which may present environmental health risks, kept on file.
- ◆ Bi-annual summary report based on educational programmes and training conducted.
- ◆ Bi-annual report and review of employee demographics.

### 10.1.5 Fuel Supply

The operations of the facility will continue to aid in securing fuel supply to the transport industry and businesses in Walvis Bay.

Project Activity/Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Daily Operations	Contribution to economy, contribution to the fuel supply in Walvis Bay	3	1	3	2	2	21	3	Definite
Indirect Impacts	Secure supply in fuel allowing travel and trade	2	1	2	2	2	12	2	Definite

**Desired Outcome:** Ensure a secure fuel supply remains available.

#### **Actions**

##### **Mitigation:**

- ◆ Ensure compliance to the petroleum regulations of Namibia.
- ◆ Proper management to ensure constant supply.
- ◆ Record supply problems and take corrective actions.

##### **Responsible Body:**

- ◆ Proponent

##### **Data Sources and Monitoring:**

- ◆ Record supply problems and corrective actions taken and compile a bi-annual summary report.

### 10.1.6 Traffic

The facility will increase the traffic flow to the light industrial area through the provision of fuel. An increase in traffic to the and from the site may increase congestion and increase the risk of incidents and accidents. In turn, by relocating the facility traffic impacts within the old industrial area of the town will be reduced.

Project Activity/Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Construction	Delivery of equipment and building supplies	2	-1	2	2	2	-12	-2	Probable
Daily Operations	Increase traffic, road wear and tear and accidents	2	-1	2	2	2	-12	-2	Definite

**Desired Outcome:** Minimum impact on traffic and no transport or traffic related incidents.

#### **Actions**

##### **Prevention:**

- ◆ Erect clear signage regarding access and exit points at the facility.
- ◆ Tanker trucks delivering fuel and trucks collecting fuel should not be allowed to obstruct any traffic or entrances/exits of facilities in Rössing Street or surrounding streets.
- ◆ Trucks entering and exiting the facility should not be allowed to make sharp turns on Rössing Street, as this may result in traffic issues and damage to the road infrastructure.

##### **Mitigation:**

- ◆ If any traffic impacts are expected, traffic management should be performed to prevent these.

##### **Responsible Body:**

- ◆ Contractor
- ◆ Proponent

##### **Data Sources and Monitoring:**

- ◆ Any complaints received regarding traffic issues should be recorded together with action taken to prevent impacts from repeating itself.
- ◆ A bi-annual report should be compiled of all incidents reported, complaints received, and action taken.



### 10.1.7 Health, Safety and Security

Activities associated with the construction and operational phases are reliant on human labour and therefore exposes them to health and safety risks. Activities such as the operation of machinery and handling of hazardous chemicals (inhalation and carcinogenic effect of some petroleum products), poses the main risks to employees. Security risks are related to unauthorized entry, theft and sabotage.

Project Activity/Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Construction	Physical injuries, exposure to chemicals and criminal activities	1	-2	3	3	1	-14	-2	Probable
Daily Operations	Physical injuries, exposure to chemicals and criminal activities	1	-2	3	3	2	-16	-2	Probable

**Desired Outcome:** To prevent injury, health impacts and theft.

#### **Actions**

##### **Prevention:**

- ◆ Clearly label dangerous and restricted areas as well as dangerous equipment and products.
- ◆ Equipment that will be locked away on site must be placed in a way that does not encourage criminal activities (e.g. theft).
- ◆ Provide all employees with required and adequate personal protective equipment (PPE).
- ◆ Ensure that all personnel receive adequate training on operation of equipment/handling of hazardous substances.
- ◆ All health and safety standards specified in the Labour Act should be complied with.
- ◆ Implementation of maintenance register for all equipment and fuel/hazardous substance storage areas.
- ◆ Pedestrian management and safe walkways should be present to prevent safety risk to pedestrians travelling along Rössing Street.

##### **Mitigation:**

- ◆ Selected personnel should be trained in first aid and a first aid kit must be available on site. The contact details of all emergency services must be readily available.
- ◆ Implement and maintain an integrated health and safety management system, to act as a monitoring and mitigating tool, which includes: colour coding of pipes, operational, safe work and medical procedures, permits to work, emergency response plans, housekeeping rules, MSDS's and signage requirements (PPE, flammable etc.).
- ◆ Security procedures and proper security measures must be in place to protect workers and clients, especially during cash in transit activities.
- ◆ Reduce the amount of cash kept on site to reduce the risk of robberies.
- ◆ Strict security that prevents unauthorised entry during construction phases.

##### **Responsible Body:**

- ◆ Proponent
- ◆ Contractors

##### **Data Sources and Monitoring:**

- ◆ Any incidents must be recorded with action taken to prevent future occurrences.
- ◆ A bi-annual report should be compiled of all incidents reported. The report should contain dates when training were conducted and when safety equipment and structures were inspected and maintained.

### 10.1.8 Fire

Operational and maintenance activities may increase the risk of the occurrence of fires. The site is located developed area which may increases the difficulty of fighting fires. The facility will only store diesel which is not as flammable as more volatile fuels.

Project Activity/Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Construction	Fire and explosion risk	1	-2	2	2	1	-10	-2	Improbable
Daily Operations	Fire and explosion risk	1	-2	2	2	1	-10	-2	Improbable

**Desired Outcome:** To prevent property damage, possible injury and impacts caused by uncontrolled fires.

#### Actions:

##### **Prevention:**

- ◆ Ensure all chemicals are stored according to MSDS and SANS instructions.
- ◆ Maintain regular site, mechanical and electrical inspections and maintenance.
- ◆ Clean all spills/leaks.
- ◆ Special note must be taken of the regulations stipulated in sections 47 and 48 of the Petroleum Products and Energy Act, 1990 (Act No. 13 of 1990).
- ◆ Follow SANS standards for design, operation and maintenance of the facility, this includes refuelling locations and distances from boundaries.
- ◆ All dispensers must be equipped with devices that cut fuel supply during fires.
- ◆ The proponent should liaise with the local Fire Brigade to ensure that all fire requirements are met. This includes, but is not limited to SANS 10400 T: 2011.

##### **Mitigation:**

- ◆ A holistic fire protection and prevention plan is needed. This plan must include an emergency response plan, firefighting plan and spill recovery plan.
- ◆ Maintain firefighting equipment, good housekeeping and personnel training (firefighting, fire prevention and responsible housekeeping practices).

##### **Responsible Body:**

- ◆ Proponent
- ◆ Contractors

##### **Data Sources and Monitoring:**

- ◆ A register of all incidents must be maintained on a daily basis. This should include measures taken to ensure that such incidents do not repeat themselves.
- ◆ A bi-annual report should be compiled of all incidents reported. The report should contain dates when fire drills were conducted and when fire equipment was tested and training given.

### 10.1.9 Air Quality

Fuel vapours are released into the air during refuelling of bulk storage tanks as well as at filling points. Prolonged exposure may have carcinogenic effects. Dust may be generated during construction.

Project Activity/Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Construction	Excessive dust generated from maintenance and upgrade activities	1	-1	2	2	2	-6	-1	Probable
Daily Operations	Fuel vapours	1	-1	2	2	1	-5	-1	Probable

**Desired Outcome:** To prevent health impacts and minimise the dust generated.

#### Actions

##### **Mitigation:**

- ◆ Personnel issued with appropriate masks where excessive dust or vapours are present.
- ◆ A complaints register should be kept for any dust related issues and mitigation steps taken to address complaints where necessary e.g. dust suppression.
- ◆ Employees should be coached on the dangers of fuel vapours.
- ◆ Venting must be as per SANS requirements.

##### **Responsible Body:**

- ◆ Proponent
- ◆ Contractors

##### **Data Sources and Monitoring:**

- ◆ Any complaints received regarding dust or fuel vapours should be recorded with notes on action taken.
- ◆ All information and reporting to be included in a bi-annual report.

### 10.1.10 Noise

Construction (including maintenance and upgrades) may generate noise. During operations, noise pollution will exist due to vehicles accessing the site to offload fuel or refuel. The facility is however situated in an industrial area, thus noise impacts is not expected to negatively affect neighbouring receptors and is mostly related to hearing loss of workers on site.

Project Activity/Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Construction	Excessive noise generated from construction activities – nuisance and hearing loss	1	-1	2	2	1	-5	-1	Probable
Daily Operations	Noise generated from the operational activities – nuisance	1	-1	2	2	2	-6	-1	Probable

**Desired Outcome:** To prevent any nuisance and hearing loss due to noise generated.

#### Actions

##### **Prevention:**

- ◆ Follow World Health Organization (WHO) guidelines on maximum noise levels (Guidelines for Community Noise, 1999) to prevent hearing impairment.
- ◆ All machinery must be regularly serviced to ensure minimal noise production.
- ◆ Keep volume of public address systems, if any, on a level where neighbours are not impacted on.
- ◆ Manage noise caused by clients – loud music etc.

##### **Mitigation:**

- ◆ Hearing protectors as standard PPE for workers in situations with elevated noise levels.

##### **Responsible Body:**

- ◆ Proponent
- ◆ Contractors

##### **Data Sources and Monitoring:**

- ◆ WHO Guidelines.
- ◆ Maintain a complaints register.
- ◆ Report on complaints and actions taken to address complaints and prevent future occurrences.

### 10.1.11 Waste Production

Waste is produced during the construction and operational phase. Waste may include hazardous waste associated with the handling of hydrocarbon products etc. Domestic waste is generated by the facility and related operations. Waste presents a contamination risk and when not removed regularly may become a fire hazard. Construction waste may include building rubble and discarded equipment contaminated by hydrocarbon products. Contaminated soil and water is considered as a hazardous waste.

Project Activity/Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Construction	Excessive waste production, littering, illegal dumping, contaminated materials	1	-2	2	2	2	-12	-2	Definite
Daily Operations	Excessive waste production, littering, contaminated materials	1	-2	2	2	2	-12	-2	Definite

**Desired Outcome:** To reduce the amount of waste produced, and prevent pollution and littering.

#### Actions

##### **Prevention:**

- ◆ Waste reduction measures should be implemented and all waste that can be re-used/recycled must be kept separate.
- ◆ Ensure adequate temporary waste storage facilities are available.
- ◆ Ensure waste cannot be blown away by wind.
- ◆ Prevent scavenging (human and non-human) of waste.
- ◆ All regulation and by-laws relating to environmental health should be adhered to.

##### **Mitigation:**

- ◆ Waste should be disposed of regularly and at appropriately classified disposal facilities, this includes hazardous material (empty chemical containers, contaminated rugs, paper water and soil).
- ◆ The spill catchment traps should be cleaned regularly and waste disposed of appropriately. Surfactants (soap) may not be allowed to enter the oil water separator (where present).
- ◆ See the material safety data sheets available from suppliers for disposal of contaminated products and empty containers.
- ◆ Liaise with the municipality regarding waste and handling of hazardous waste.

##### **Responsible Body:**

- ◆ Proponent
- ◆ Contractors

##### **Data Sources and Monitoring:**

- ◆ A register of hazardous waste disposal should be kept. This should include type of waste, volume as well as disposal method/facility.
- ◆ Any complaints received regarding waste should be recorded with notes on action taken.
- ◆ The oil water separator (where present) must be regularly inspected and all hydrocarbons removed once detected. Outflow water must comply with effluent quality standards.
- ◆ All information and reporting to be included in a bi-annual report.

### 10.1.12 Ecosystem and Biodiversity Impact

The nature of the operational activities is such that the probability of creating a habitat for flora and fauna to establish is low. No significant impact on the biodiversity of the area is predicted as the site is currently void of natural fauna and flora. Impacts are therefore mostly related to pollution of the environment as well as potential impacts of bright lights on birds flying at night.

Project Activity/Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Construction	Impact on fauna and flora. Loss of biodiversity	1	-1	3	2	2	-7	-1	Improbable
Daily Operations	Impact on fauna and flora. Loss of biodiversity	1	-1	3	2	2	-7	-1	Improbable

**Desired Outcome:** To avoid pollution of and impacts on the ecological environment.

#### Actions.

##### **Mitigation:**

- ◆ Report any extraordinary animal sightings to the MEFT.
- ◆ Mitigation measures related to waste handling and the prevention of groundwater, surface water and soil contamination should limit ecosystem and biodiversity impacts.
- ◆ Avoid scavenging of waste by fauna.
- ◆ Direct all lights down to working surfaces and use minimal lighting at night.
- ◆ The establishment of habitats and nesting sites at the facility should be avoided where possible.

##### **Responsible Body:**

- ◆ Proponent

##### **Data Sources and Monitoring:**

- ◆ All information and reporting to be included in a bi-annual report.

### 10.1.13 Groundwater, Surface Water and Soil Contamination

Operations entail the storage and handling of diesel which presents a contamination risk. Contamination may either result from failing storage facilities, or spills and leaks associated with fuel handling.

Project Activity/Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Construction	Contamination from hazardous material spillages and hydrocarbon leakages	2	-1	2	2	1	-10	-2	Probable
Daily Operations	Contamination from hazardous material spillages and hydrocarbon leakages	2	-1	2	2	1	-10	-2	Probable

**Desired Outcome:** To prevent the contamination of water and soil.

#### Actions

##### **Prevention:**

- ◆ Spill control structures and procedures must be in place according to SANS standards or better.
- ◆ All fuelling should be conducted on surfaces provided for this purpose. E.g. Concrete slabs with regularly maintained seals between slabs.
- ◆ The procedures followed to prevent environmental damage during service and maintenance, and compliance with these procedures, must be audited and corrections made where necessary.
- ◆ Proper training of operators must be conducted on a regular basis (fuel handling, spill detection, spill control).

##### **Mitigation:**

- ◆ Any spillage of more than 200 l must be reported to the Ministry of Mines and Energy.
- ◆ Spill clean-up means must be readily available on site as per the relevant MSDS.
- ◆ Any spill must be cleaned up immediately.
- ◆ The spill catchment traps should be cleaned regularly and waste disposed of at a suitably classified hazardous waste disposal facility.
- ◆ Surfactants (soap) may not be allowed to enter an oil water separator (where present) e.g. soap usage on spill control surfaces.

##### **Responsible Body:**

- ◆ Proponent
- ◆ Contractors

##### **Data Sources and Monitoring:**

- ◆ A report should be compiled bi-annually of all spills or leakages reported. The report should contain the following information: date and duration of spill, product spilled, volume of spill, remedial action taken, comparison of pre-exposure baseline data (previous pollution conditions survey results) with post remediation data (e.g. soil/groundwater hydrocarbon concentrations) and a copy of documentation in which spill was reported to Ministry of Mines and Energy.

#### 10.1.14 Visual Impact

This impact is not only associated with the aesthetics of the site, but also the structural integrity. The facility will form part of the industrial landscape associated with the area. The site should be kept clean, tidy and maintained to ensure it remains aesthetically pleasing and does not add the urban decay.

Project Activity/Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Construction	Aesthetic appearance and integrity of the site	1	-1	2	2	2	-6	-1	Probable
Daily Operations	Aesthetic appearance and integrity of the site	1	-1	2	2	2	-6	-1	Probable

**Desired Outcome:** To minimise aesthetic impacts associated with the facility.

#### Actions

##### **Mitigation:**

- ◆ Regular waste disposal, good housekeeping and routine maintenance on infrastructure will ensure that the longevity of structures are maximised and a low visual impact is maintained.

##### **Responsible Body:**

- ◆ Proponent
- ◆ Contractors

##### **Data Sources and Monitoring:**

- ◆ A maintenance record should be kept.
- ◆ A report should be compiled of all complaints received and actions taken.



### 10.1.15 Impacts on Utilities and Infrastructure

Any damage caused to existing infrastructure and services supply like roads, pipelines, water and electricity where present.

Project Activity/Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Construction Phase	Disruption of services and damage to infrastructure	2	-2	2	2	1	-20	-3	Probable
Daily Operations	Disruption of services and damage to infrastructure	2	-1	2	2	1	-10	-2	Improbable

**Desired Outcome:** No impact on utilities and infrastructure.

#### **Actions**

##### **Prevention:**

- ◆ Appointing qualified and reputable contractors is essential.
- ◆ The contractor must determine exactly where amenities and pipelines are situated before construction commences (utility clearance e.g. ground penetrating radar surveys).
- ◆ Where trucks will cross underground pipelines, the necessary infrastructure should be in place to ensure pipelines are not damaged.
- ◆ Liaison with the suppliers of services is essential.

##### **Mitigation:**

- ◆ Emergency procedures for corrective action available on file.

##### **Responsible Body:**

- ◆ Proponent
- ◆ Contractors

##### **Data Sources and Monitoring:**

- ◆ A report should be compiled every 6 months of all incidents that occurred and corrective action taken.

### 10.1.16 Cumulative Impact

Possible cumulative impacts associated with the operational phase include increased traffic in the area. This will have a cumulative impact on traffic flow on surrounding streets. The overall ambient noise levels will also be elevated during operational times, but this is expected within industrial areas.

Project Activity/Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Daily Operations	The build-up of minor impacts to become more significant	2	-2	2	2	2	-24	-3	Probable

**Desired Outcome:** To minimise cumulative all impacts associated with the facility.

#### **Actions**

##### **Mitigation:**

- ◆ Addressing each of the individual impacts as discussed and recommended in the EMP would reduce the cumulative impact.
- ◆ Reviewing biannual and annual reports for any new or re-occurring impacts or problems would aid in identifying cumulative impacts and help in planning if the existing mitigations are insufficient.

##### **Responsible Body:**

- ◆ Proponent

##### **Data Sources and Monitoring:**

- ◆ Bi-annual summary report based on all other impacts must be created to give an overall assessment of the impact of the operational phase.

## 10.2 DECOMMISSIONING AND REHABILITATION

Decommissioning is not foreseen during the validity of the environmental clearance certificate. Decommissioning was however assessed as construction activities include modification and decommissioning. Should decommissioning occur at any stage, rehabilitation of the area may be required. Decommissioning will entail the complete removal of all infrastructure including buildings and underground infrastructure. Any pollution present on the site must be remediated. The impacts associated with this phase include noise and waste production as structures are dismantled. Noise must be kept within WHO standards and waste should be contained and disposed of at an appropriately classified and approved waste facility and not dumped in the surrounding areas. Future land use after decommissioning should be assessed prior to decommissioning and rehabilitation initiated if the land would not be used for future purposes. The EMP for the facility will have to be reviewed at the time of decommissioning to cater for changes made to the site and implement guidelines and mitigation measures.

## 10.3 ENVIRONMENTAL MANAGEMENT SYSTEM

The proponent could implement an Environmental Management System (EMS) for their operations. An EMS is an internationally recognized and certified management system that will ensure ongoing incorporation of environmental constraints. At the heart of an EMS is the concept of continual improvement of environmental performance with resulting increases in operational efficiency, financial savings and reduction in environmental, health and safety risks. An effective EMS would need to include the following elements:

- ◆ A stated environmental policy which sets the desired level of environmental performance;
- ◆ An environmental legal register;
- ◆ An institutional structure which sets out the responsibility, authority, lines of communication and resources needed to implement the EMS;
- ◆ Identification of environmental, safety and health training needs;
- ◆ An environmental program(s) stipulating environmental objectives and targets to be met, and work instructions and controls to be applied in order to achieve compliance with the environmental policy; and
- ◆ Periodic (internal and external) audits and reviews of environmental performance and the effectiveness of the EMS.
- ◆ The EMP

## 11 CONCLUSION

The Proponent's operations already play a positive role in the local and national economy. In addition to reliable and convenient fuel supply, the facility contributes locally to skills transfer and training which in turn develops the local workforce during construction and operations of the facility.

Negative impacts can successfully be mitigated. SANS standards relating to the petroleum industry and prescribed by Namibian law must be followed during all operations of the fuel facility. Noise pollution should at all times meet the prescribed WHO requirements to prevent hearing loss and not to cause a nuisance. Fire prevention should be adequate, and health and safety regulations should be adhered to in accordance with the regulations pertaining to relevant laws and internationally accepted standards of operation. Any waste produced must be removed from site and disposed of at an appropriate facility or re-used or recycled where possible. Hazardous waste must be disposed of at an approved hazardous waste disposal site.

The EMP (Section 10) should be used as an on-site reference document for the operations of the facility. Parties responsible for transgressing of the environmental management plan should be held responsible for any rehabilitation that may need to be undertaken. The proponent could use an in-house Health, Safety, Security and Environment Management System in conjunction with the environmental management plan. All operational personnel must be taught the contents of these documents.

Should the Directorate of Environmental Affairs (DEA) of the MEFT find that the impacts and related mitigation measures, which have been proposed in this report, are acceptable, an environmental

clearance certificate may be granted to the proponent. The environmental clearance certificate issued, based on this document, will render it a legally binding document which should be adhered to. Focus could be placed on Section 10, which includes an EMP for this project. It should be noted that the assessment process's aim is not to stop the proposed activity, or any of its components, but to rather determine its impact and guide sustainable and responsible development as per the spirit of the EMA.

**Table 11-1. Impact Summary Class Values**

Impact Category	Impact Type	Construction	Operations
<i>Positive Rating Scale: Maximum Value</i>		5	5
<i>Negative Rating Scale: Maximum Value</i>		-5	-5
EO	Skills, Technology and Development	2	2
EO	Revenue Generation and Employment	2	3
SC	Demographic Profile and Community Health	-1	-2
EO	Fuel Supply		3
SC	Traffic	-2	-2
SC	Health, Safety and Security	-2	-2
PC	Fire	-2	-2
PC	Air Quality	-1	-1
PC	Noise	-1	-1
PC	Waste Production	-2	-2
BE	Ecosystem and Biodiversity Impact	-1	-2
PC/BE	Groundwater, Surface Water and Soil Contamination	-2	-2
SC	Visual Impact	-1	-1
PC/SC	Impacts on Utilities, Infrastructure and Seabed Scouring	-3	-2
PC	Cumulative Impact		-3

BE = Biological/Ecological    EO = Economical/Operational    PC = Physical/Chemical    SC = Sociological/Cultural

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**Appendix A: Town Planning Scheme Provisions: Light Industrial Areas**





**CLAUSE 20 LIGHT INDUSTRIAL ZONE**

**20.1. Colour Notation:** Dark Pink Fill

**Primary Uses:** Light Industry, Service Industry, Service Station, Warehouse, Storage Premises, Building Yard, Office Premises.

**Consent Uses:** Panel Beating, Scrap Yard, Business Premises, Retail, Caretaker Unit, Place of Instruction, Place of Amusement, Funeral Parlour, Restaurant.

**20.2. Land Use Restrictions**

**20.2.1 Consent:**

20.2.1.1 Notwithstanding the generality of the provisions of Clauses 6 to 11, concerning the granting of Consent by Council for the consent uses listed in Table B and in Clause 20.1, Council shall not grant its consent for a period of more than 5 years in respect of Retail or a Place of Instruction or Place of Amusement.

Provided, further, that any Consent granted by Council, unless specified as part of the approval, shall not imply an approval to increase in the coverage, bulk, density or height restrictions which are applicable for the light industrial zone in terms of Clauses 20.2 of the Scheme.

**20.2.1.2 In a situation:**

- (a) where application has been made to Council for a rezoning in terms of the Town Planning Ordinance of 1954 (Ordinance 18 of 1954) as amended; and
- (b) where the land use required in terms of the rezoning is listed as a consent use in Table B and in Clause 20.1 for the light industrial zone

Then, upon application, the Council may grant permission for the applicant to proceed with the development while the rezoning is in progress.

**20.2.2 Coverage:**

20.2.2.1. Save with the permission of Council, no building shall be erected so as to cover a greater percentage of the site than:  
in the case of all buildings: 75%

Provided that the following shall not be included in the calculation of the coverage:

- (i) any basements situated under street level;
- (ii) external stairs and motor vehicle ramps;
- (iii) balconies and projections of not more than 1.5 metres;
- (iv) eaves of not more than 1.5 metres;
- (v) parking areas used for the parking of motor- and other similar vehicles by the owner and/or tenants of the building on the site;

20.2.2.2. Where a proposed building is designed for more than one use, the maximum percentage of the site to be occupied by the buildings at the floor level of each storey shall comply with the limits prescribed in Clause 20.2.2.1 in respect of the use or uses of each storey.

**20.2.3 Bulk**

20.2.3.1 No building in the Light Industrial zone shall be erected if the bulk exceeds that depicted on the Scheme Bulk Map or a factor of 1.5, whichever is the lower. In those areas where no bulk has been specified, appropriate bulk factors may be imposed by Council in accordance with the following Table:

LAND OR BUILDING USE	MAXIMUM BULK FACTOR
Retail, Business Premises, Office Premises, Place of Instruction, Place of Amusement, Light Industry, Service Industry, Warehouse, Service Station, Building Yard, Panel Beating.	1.5
Storage Premises Restaurant, Funeral Parlour, Scrap Yard.	1.0
Caretaker Unit.	0.5

20.2.3.2 Council may consent to an increase in bulk up to a maximum of 1.5 if it is satisfied that the applicant has furnished sufficient evidence that the greater bulk is necessary and desirable. Council shall, in considering the application, have regard to the impact, real or potential, which the additional bulk will have on the neighbouring properties.



**20.2.4 Density**

Density control does not apply in the light industrial zone.

**20.2.5 Minimum Erf Size**

20.2.5.1 The maximum prescribed erf sizes for the Light Industrial zone are in accordance with the following Table:

LAND OR BUILDING USE	MINIMUM SIZE OF ERF (m <sup>2</sup> )
Scrap Yard Building Yard Panel Beating Place of Instruction	1000
All other Uses	No prescribed minimum

20.2.5.2 Notwithstanding the limits laid down in the above Table, Council may, in certain cases beyond the control of the applicant, give its consent for any of the listed building uses to be constructed on erven which are smaller than the prescribed minimum.

**20.2.6 Height:**

No height restriction is applicable in the Light Industrial zone, provided that the building will be subject to bulk and coverage restrictions and provided further that any building designed to exceed three storeys shall require the consent of Council. Council shall, in considering any application for a height above three storeys, have regard to the impact, real or potential, which the additional height will have on the neighbouring properties.

**20.2.7 Building Lines:**

20.2.7.1 Within the Light Industrial Zone, no building, permanent structure or portion thereof, inclusive of swimming pools but excluding boundary walls and fences, may be erected on the erf within:

- (i) six (6) metres from any street boundary. The minimum requirement shall be measured from the external walls of the building under consideration;
- (ii) three (3) metres from any rear boundary. The building line requirement shall be measured from the external walls of the building under consideration
- (iii) three (3) metres from any lateral boundary. The building line requirement shall be measured from the external walls of the building under consideration

20.2.7.2 Council may, subject to any considerations it deems necessary, relax the provisions of clause 20.2.7.1, provided that such relaxation of the building line shall only be granted on, at most, two boundaries, and provided further that, before Council considers any application for the relaxation of building lines, the applicant shall obtain the written agreement or comment of the owners of all contiguous properties.

20.2.7.3 No wall or any portion of the floor area of a basement may be erected beyond the outside wall of the main building or outbuilding in this zone.

20.2.7.4 Where any land is reserved for a new street or a street widening in terms of Clause 5 of this Scheme, the building line shall be determined as if such new street or street widening was in fact an existing street.

20.2.7.5 Notwithstanding the foregoing, where a building line is shown on the Map, such building line shall apply.

20.2.7.6 Where a building line is fixed under clause 20.2.7 of this Scheme, no building other than temporary buildings erected in connection with building operations or buildings permitted in pursuance of sub clause 5.1 of this Scheme shall hereafter be erected on the land between the building line and the street boundary and no goods, merchandise, wares or other obstructions shall be placed, deposited, kept or displayed on the area between the street boundary and any such building line.

20.2.7.7 With the consent of the Council or the Competent Authority, a building (with opening windows overlooking the neighbouring property) can be erected on a common border with a Public Open Space.

20.2.7.8 In addition to the setback of a building from a street boundary stipulated in Clause 20.2.7.1(i), fuel pumps shall be set back an additional four (4) metres from any street boundary.

**20.2.8 Parking**

20.2.8.1 Except where specified elsewhere in the scheme, when a building is to be erected on an erf within the Light Industrial zone, the owner thereof shall construct and maintain, at his own expense and to the satisfaction of the Council, parking spaces on the erf, as set out in the Table below.



## **Appendix B: Proof of Public Consultation**





**Notification: Municipality of Walvis Bay**

TEL.: (+264-61) 257411 ♦ FAX.: (+264) 88626368  
 CELL.: (+264-81) 1220082  
 PO BOX 11073 ♦ WINDHOEK ♦ NAMIBIA  
 E-MAIL: gpt@thenamib.com

To: Interested and Affected Parties 27 January 2021

Re: Environmental Scoping Assessment and Environmental Management Plan for the Construction and Operational Activities of Bachmus Oil & Fuel Supplies' Proposed Depot in the New Light Industrial Area of Walvis Bay

Dear Sir/Madam

In terms of the Environmental Management Act (No 7 of 2007) and the Environmental Impact Assessment Regulations (Government Notice No 30 of 2012), notice is hereby given to all potential interested and/or affected parties (IAPs) that an application will be made to the Environmental Commissioner for an environmental clearance certificate for the following project:

**Project:** Environmental Scoping Assessment and Environmental Management Plan for the Construction and Operational Activities of Bachmus Oil & Fuel Supplies' Proposed Depot in the New Light Industrial Area of Walvis Bay

**Proponent:** Bachmus Oil & fuel Supplies (Pty) Ltd

**Environmental Assessment Practitioner:** Geo Pollution Technologies (Pty) Ltd

Bachmus Oil & Fuel Supplies (Pty) Ltd (the Proponent), under licences issued by the Ministry of Mines and Energy, currently operates two diesel wholesale facilities in Walvis Bay. It is the Proponent's intention to ultimately relocate and consolidate the two existing sites by establishing a new depot and warehouse on erf 5738, in the new light industrial area, Extension 12, Walvis Bay. Once developed, erf 5738 will continue to serve as the Proponent's oil and lubricant storage and retail outlet as well as bulk diesel sales facility.

Preliminary site plans propose that the site contains one 200 m<sup>3</sup> aboveground diesel storage tank. The installation will be constructed according to South African National Standards (SANS) which include requirements for spill control infrastructure such as bund walls, concrete slabs and oil/water separators. Operations entails the receipt of diesel from road tankers, storage of fuel in the aboveground storage tank, dispensing of fuel to clients at the pump islands and day to day administrative tasks. Operations not related to the diesel wholesale facility will continue on site and include the sale of oil and lubricants to customers.

Geo Pollution Technologies (Pty) Ltd was requested to conduct an environmental assessment for the proposed facility. As part of the assessment we consult with IAPs who are invited to register with the environmental consultant to receive further documentation and communication regarding the project. By registering, IAPs will be provided with an opportunity to provide input that will be considered in the drafting of the environmental assessment report and its associated management plan.

Please register as an IAP and provide comments by **15 February 2021**.

To register, please contact: Email: [bachmus@thenamib.com](mailto:bachmus@thenamib.com) Fax: 088-62-6368

Should you require any additional information please contact Geo Pollution Technologies at telephone 081-1452164 / 061-257411.

Thank you in advance.

Sincerely,

**Geo Pollution Technologies**

André Faul  
 Environmental Scientist



Page 1 of 2

Directors:

P. Botha (B.Sc. Hons. Hydrogeology) (Managing)

Press Notice: The Namibian Sun 01 and 08 February 2021



lives by himself. His home doesn't from neighbours telling him the eas. He frequently has to visit the old who welcomed us, who dreams [ester@myzone.com.na](mailto:ester@myzone.com.na)

### MAN SUES POLICE FOR N\$900K FOR ALLEGED ASSAULT

JANA-MARI SMITH  
WINDHOEK

An unemployed man is suing the Namibian police and three police officers for close to N\$1 million for allegedly assaulting him while in police custody.

The man was reportedly injured to such an extent that he defecated during the attack, in addition to sustaining various physical injuries.

The police deny the assault, arguing that the man had insulted a police officer while drunk and was taken to the police station to sober up.

Court documents filed at the High Court by Ebsen Katire, an Otjomuise resident, details the alleged assault by multiple police officers which took place in September 2019 in Okondjatu in the Otjozondjupa Region.

Katire is suing the police, and the three police officers, for N\$900 000 in damages, claiming that the not only sustained physical injuries including a dislocated left shoulder, but experienced mental distress, shock and discomfort

in the wake of the alleged assault.

#### Bundled into bakkie

Katire identifies the three police officers who allegedly beat and kicked him only as officers Kaura, Katira and Upi. Papers submitted to court allege that he was planning to travel to Windhoek from Okondjatu on 11 September 2019, but had to wait at a nearby cuca shop for a few hours before the bus departed.

He claims that after a while he crossed the road to relieve himself, and saw a police officer he knew, Officer Kaura. He claims he asked the police officer why he was not at the police station as he was dressed in full uniform.

Two hours later, he again asked officer Kaura why he was in uniform but not at the police station.

Katire claims that when he approached the taxi bus, which was ready to depart, he shouted at the police officer "that if he does not go to the police station, I will beat him up before I depart".

A few moments later, Katire said a Toyota bakkie arrived with two more

police officers. He was bundled into the vehicle and taken to the police station.

#### Attack

His court papers claim that he was handcuffed and then severely assaulted by the three police officers.

"The defendants were kicking me with boots all over my body, punching me, hitting me with their hands, and twisting my handcuffed arms."

He further alleged that "the brutal assault lasted for more than an hour, until [he] defecated."

"He said he was kept at the police station for more than 24 hours and eventually released without being charged with a crime.

#### Insulted

In their defence, the police allege that Katire had insulted the police officers in question, and he was "brought to the police station to sober up and was released the next day with a warning."

"Katire appeared very drunk and continued to hurl insulting words at the police officer."

"The police officer was confronted by the plaintiff who insulted him by swearing at him and using words of an abusive and insulting nature towards him in his official capacity as a police officer."

#### PUBLIC PARTICIPATION NOTICE ENVIRONMENTAL ASSESSMENT FOR BACHMUS OIL & FUEL SUPPLIES' PROPOSED DEPOT IN THE NEW LIGHT INDUSTRIAL AREA OF WALVIS BAY

Geo Pollution Technologies (Pty) Ltd was appointed to undertake an environmental assessment for the construction of a new diesel depot and warehouse on erf 5738, in the new light industrial area, Extension 12, Walvis Bay. Preliminary site plans propose that the site contains one 200 m<sup>3</sup> aboveground diesel storage tank. The installation will be constructed according to South African National Standards (SANS). Once developed, erf 5738 will serve as the Proponent's new oil and lubricant storage and retail outlet as well as bulk diesel sales facility. More information regarding the project is available at:

<http://www.thenamib.com/projects/projects.html>.

The environmental assessment will be according to the Environmental Management Act of 2007 and its regulations as published in 2012.

All interested and affected parties are invited to register with the environmental consultant. By registering you are provided with the opportunity to share any comments, issues or concerns related to the facility, for consideration in the environmental assessment. Additional information can be requested from Geo Pollution Technologies.

All comments and concerns should be submitted to Geo Pollution Technologies by 15 February 2021.

André Faal  
Geo Pollution Technologies  
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6 | MONDAY 8 FEBRUARY 2021  
INTERNATIONAL NEWS

Sun

#### INTERNET BLACKOUT FAILS TO STIFLE OUTRAGE

# Tens of thousands rally in growing protests against Myanmar coup

Three days after the coup, criminal charges against the military have prompted bold displays of defiance, including the nightly deaf-

aff around 400 demonstrations taking in the city of Mawlamyine. In Yangon, many also flashed the three-finger salute inspired by the

in Myanmar television networks to freeze access to Facebook, an extremely popular service in the country and arguably its main mode of com-

organisation (internet on Friday when it remained new blocks on other social media services including Twitter.

Monitoring group Netblocks yesterday said Myanmar "remains in the midst of a nation-scale internet blackout", with connectivity at 14% of usual levels.

"The generals are now attempting to paralyse the citizen movement of resistance - and keep the outside world in the dark - by cutting virtually all internet access," said Tom Andrews, UN special rapporteur on human rights in Myanmar.

In addition to Suu Kyi and some of her top aides, dozens have been detained so far.

The precise number of arrests is not yet known, but monitoring group Assistance Association for Political Prisoners said on Saturday that more than 150 people were still in custody.

#### 'In good health'

Rumours that Suu Kyi had been released triggered brief but raucous street celebrations among her supporters on Saturday, before they were denied by her lawyer who said she remained in detention.

An immensely popular figure despite a tarnished reputation in the West, Suu Kyi has not been seen in public since the coup, but a party spokesman said she was "in good health" on Friday.

Two days after the coup, criminal charges were filed against her related to the illegal import of a set of walkie-talkies.

The military had hinted at its coup intentions days in advance, insisting that the NLD's landslide victory in the November elections was the result of voter fraud.

Following the takeover, the junta proclaimed a one-year state of emergency, after which it promised to hold fresh elections, without offering any precise timeframe.

The coup has been widely condemned by the international community, with US president Joe Biden leading calls for the generals to relinquish power and release those arrested in the post-coup crackdown.

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e.g. Grade 12 20PE250025

NMH NAMIBIA MEDIA HOLDINGS | Republikeln | Sun | Allgemeine Zeitung

#### PUBLIC PARTICIPATION NOTICE ENVIRONMENTAL ASSESSMENT FOR BACHMUS OIL & FUEL SUPPLIES' PROPOSED DEPOT IN THE NEW LIGHT INDUSTRIAL AREA OF WALVIS BAY

Geo Pollution Technologies (Pty) Ltd was appointed to undertake an environmental assessment for the construction of a new diesel depot and warehouse on erf 5738, in the new light industrial area, Extension 12, Walvis Bay. Preliminary site plans propose that the site contains one 200 m<sup>3</sup> aboveground diesel storage tank. The installation will be constructed according to South African National Standards (SANS). Once developed, erf 5738 will serve as the Proponent's new oil and lubricant storage and retail outlet as well as bulk diesel sales facility. More information regarding the project is available at:

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Press Notice: Die Republiek 01 and 08 February 2021

Maandag 1 Februarie 2021

Republiek

NUUS 3

Keer dat leerlinge nog verder agter raak

Skole: Plan fokus op sleutelvaardighede

Hersiene voordeur... Die kabinet bekrag...

Die hofbevel bepaal dat betaling gedoen moet word binne 60 dae...

Die skikkingsooreenkomste stel dat 'n Namibiese hofbevel uitgereik is...

Sommere vooruitsig Die likwidateurs en regspan het ook hul sommiere vooruitsig...

Die likwidateurs bly berei nie, omdat hulle net... en Gevorderde Vlak (AS)...

koop. Dit, terwyl die bank geen voordeel uit die transaksie getrek het nie.

Die likwidateurs bly berei nie, omdat hulle net... en Gevorderde Vlak (AS)...

koop. Dit, terwyl die bank geen voordeel uit die transaksie getrek het nie.

Vertical banner for 'Jou land, Jou taal, Jou koerant' with website URL.

Advertisement for 'A Romantic Weekend For 2' at Kalahari Anib Lodge, including details on booking and pricing.

PUBLIC PARTICIPATION NOTICE for environmental assessment of Bachmus Oil & Fuel Supplies depot.

2 NUUS

Republiek

Maandag 8 Februarie 2021

KONTAKPERSONE

REDAKTEUR Dani Boyesen... 081 129 3781

BERAMKINGSKOORDINEERDER Carmen Stanger... 081 239 7584

GENL. MURTALA MUHAMMEDRYLAAN, POSBUS 3436, WINDHOEK

NUUSREGAKTEUR Ronelle Rademeyer... 081 127 8159

STREKE Randa, Kenya Kambarwe... 081 724 1044

SPORTNUUS Andrew Poolman... 081 247 2837

VERKOPEN EN AFWEREND Eritania Kera... 081 244 0928

WEER

BINNELAND: Sonlig en baie warm in die Weste...

KUS: Gedeeltelik bewolk en koel met mist.

GETYE BY WALVISBAAI: L: 05:30 H: 12:10

VOORUITSIGTE

Table with weather forecasts for Gobabis, Katima Mulilo, Keetmanshoop, etc.

E-POS: REPUBLIEK@REPUBLIEK.COM.NA

Swapo "Ons doen 'n beroep op Swapo se kaders, lede, ondersteuners en dié wat simpatiek is teenoor..."

Ninjal van Wuk buigvoorges beskuldigde in eak



Die Fishrot-6 tydens een van hul eerste verskynings in die landdroshof in Windhoek.

voort uit bewerings dat... Al sewe beskuldiges word in die Windhoek Sentrale Gevangenis aangehou.

PUBLIC PARTICIPATION NOTICE ENVIRONMENTAL ASSESSMENT FOR BACHMUS OIL & FUEL SUPPLIES'

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Versteekte geld

VAN BL. 1

"Ongelukkig is daar van verlede jaar af 'n poging deur die media om mense wat hulle goed geiken het, ook met Fishrot te verbind..."

geraak het, het ons dit eers stlgehou. Die storie is besig om 'n henge veiligheidsrisiko vir ons te word..."

"Hy was toe al 'n welgestelde man. Ek kan nie vandag teen die ou draai en sê ons het 'n slegte verhouding gehad nie..."

gekoop wat hy ontwikkel het. Volgens Moller was bedrae van onderskeidelik N\$4,5 miljoen en N\$3,5 miljoen wat op 23 Oktober 2017 deur mnr. Marén de Klerk aan MH Properties uit Celax Investments Number One se rekening oorbetal is, hiervoor bestem.

die eiendomsagentskap, Pam Golding Properties, wat die eenhede bemark het. "Hy het uit sy eie eiendomsagent genader. Ek het niks met die koop van die eenhede toe doen gehad nie. Net so kon die ACC ook geen verbintenis tussen D&M Rail Construction en Fishrot-transaksies vind nie..."

Onderwyser vandag in hof vir verkragting

VAN BL. 1

"Dit is in skrikke kontras met die wette, ons regulasies en gedragskode," het sy gesê.

Die 19-jarige leerling is glo Woensdag tydens 'n pose deur die onderwyser verkrag nadat hy na die gimnasium gelok is om...

hom te help stoele regmaak. Die skoolhoof het die slagoffer dadelik na die Namibiese polisie se ondersoekheid vir ge-

slagsgeweld geneem. Polisiebeamptes was Woensdag by die skool om ondersoek in te stel. 'n Geestesleier het het Saterdagoggend ná die verdagte se inhegtenisneming gesê: "Ek is bly,

want reg en geregtigheid kan nou geskied, alhoewel die skade by die kinders ewig is. "Daar is baie meer slagoffers. Mag God hulle genadig wees."



Site Notice





## **Appendix C: Consultants' Curriculum Vitae**



**ENVIRONMENTAL SCIENTIST****André Faul**

André entered the environmental assessment profession at the beginning of 2013 and since then has worked on more than 140 Environmental Impact Assessments including assessments of the petroleum industry, harbour expansions, irrigation schemes, township establishment and power generation and transmission. André's post graduate studies focussed on zoological and ecological sciences and he holds a M.Sc. in Conservation Ecology and a Ph.D. in Medical Bioscience. His expertise is in ecotoxicological related studies focussing specifically on endocrine disrupting chemicals. His Ph.D. thesis title was The Assessment of Namibian Water Resources for Endocrine Disruptors. Before joining the environmental assessment profession he worked for 12 years in the Environmental Section of the Department of Biological Sciences at the University of Namibia, first as laboratory technician and then as lecturer in biological and ecological sciences.

**CURRICULUM VITAE ANDRÉ FAUL**

Name of Firm	:	Geo Pollution Technologies (Pty) Ltd.
Name of Staff	:	ANDRÉ FAUL
Profession	:	Environmental Scientist
Years' Experience	:	18
Nationality	:	Namibian
Position	:	Environmental Scientist
Specialisation	:	Environmental Toxicology
Languages	:	Afrikaans – speaking, reading, writing – excellent English – speaking, reading, writing – excellent

**EDUCATION AND PROFESSIONAL STATUS:**

B.Sc. Zoology	:	University of Stellenbosch, 1999
B.Sc. (Hons.) Zoology	:	University of Stellenbosch, 2000
M.Sc. (Conservation Ecology)	:	University of Stellenbosch, 2005
Ph.D. (Medical Bioscience)	:	University of the Western Cape, 2018

First Aid Class A	EMTSS, 2017
Basic Fire Fighting	EMTSS, 2017

**PROFESSIONAL SOCIETY AFFILIATION:**

Environmental Assessment Professionals of Namibia (Practitioner)

**AREAS OF EXPERTISE:**

Knowledge and expertise in:

- ◆ Water Sampling, Extractions and Analysis
- ◆ Biomonitoring and Bioassays
- ◆ Biodiversity Assessment
- ◆ Toxicology
- ◆ Restoration Ecology

**EMPLOYMENT:**

2013 - Date	:	Geo Pollution Technologies – Environmental Scientist
2005 - 2012	:	Lecturer, University of Namibia
2001 - 2004	:	Laboratory Technician, University of Namibia

**PUBLICATIONS:**

Publications:	5
Contract Reports	+140
Research Reports & Manuals:	5
Conference Presentations:	1