

Draft Environmental Management Plan (EMP) for:

The Existing Operations and Maintenance of a Fuel Depot and Associated Infrastructures in Gobabis Town, Omaheke Region



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LIST OF ABBREVIATIONS

Abbreviation	Meaning
COC	Customer Own Collection
CV	Curriculum Vitae
DEAF	Department of Environmental Affairs and Forestry
EA	Environmental Assessment
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
EDS	Excel Dynamic Solutions
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
ESA	Environmental Scoping Assessment
GG & GN	Government Gazette & Government Notice
IAPs	Interested and Affected Parties
LPG	Liquefied Petroleum Gas
MEFT	Ministry of Environment, Forestry and Tourism
MME	Ministry of Mines and Energy

Abbreviation	Meaning
NAMCOR	National Petroleum Corporation of Namibia
PPE	Personal Protective Equipment
Reg / S	Regulation / Section
SABS	South African Bureau of Standards
SANS	South African National Standards
SHEQ	Safety, Health, Environment and Quality
SPCC	Spill Prevention, Control, and Countermeasure
USTs	Underground storage tanks

1 INTRODUCTION

1.1 Project Background and Locality

NAMCOR Petroleum Trading & Distribution (Pty) Ltd (the Proponent) operates and distributes fuel from a Fuel Depot i.e., carries out operations and maintenance activities within the Gobabis Municipal land in the Omaheke Region. The Proponent started operations on the existing site in November 2021, which was previously operated by TotalEnergies. The 9,405.7 m² Site and associated infrastructures are located within the industrial area of the Town as shown in Figure 1-1 and Figure 1-2 (the centre GPS coordinates: -22°26'47.21"S 18°58'41.23"E / -22.446447° 18.978119°). The site layout is shown in Figure 1-3.

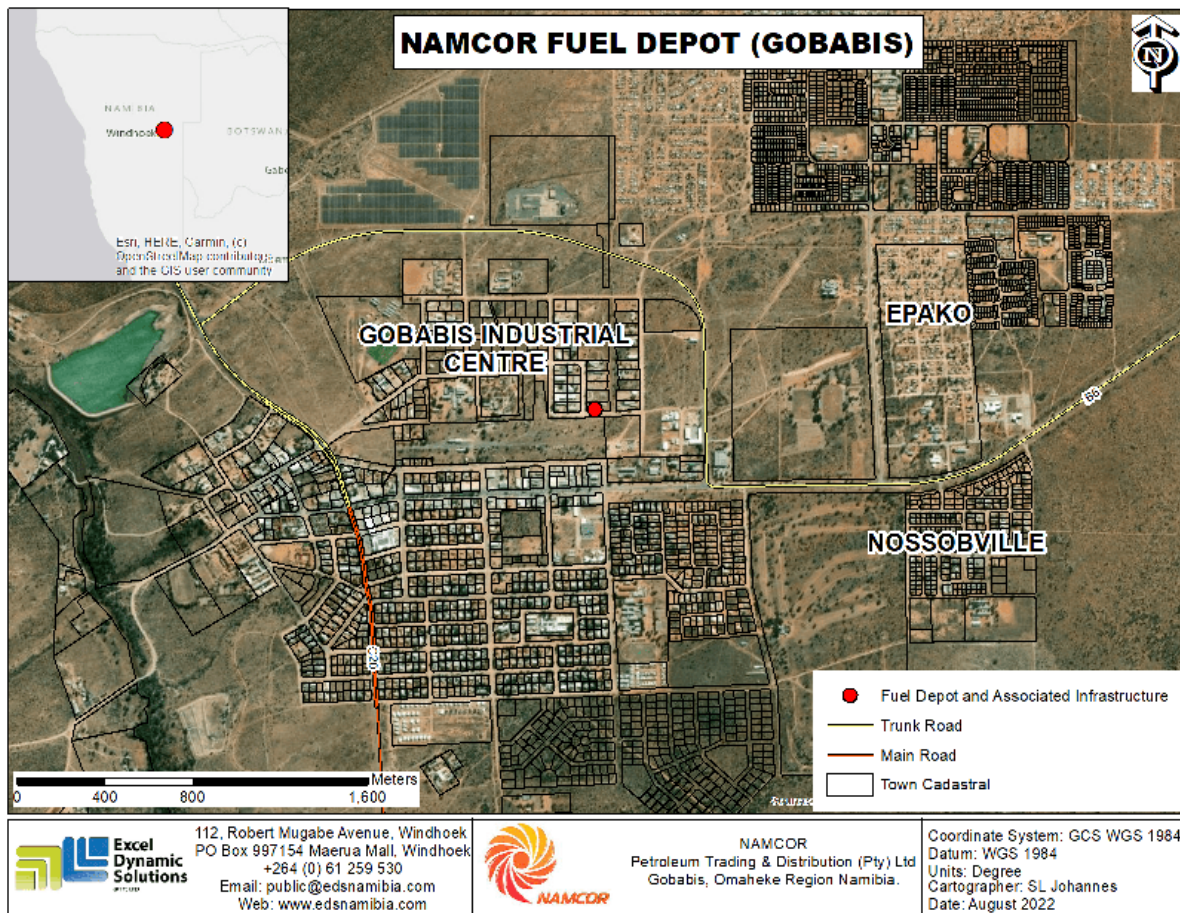


Figure 1-1: Locality of the Depot Facility and associated infrastructure in Gobabis Town of the Omaheke Region

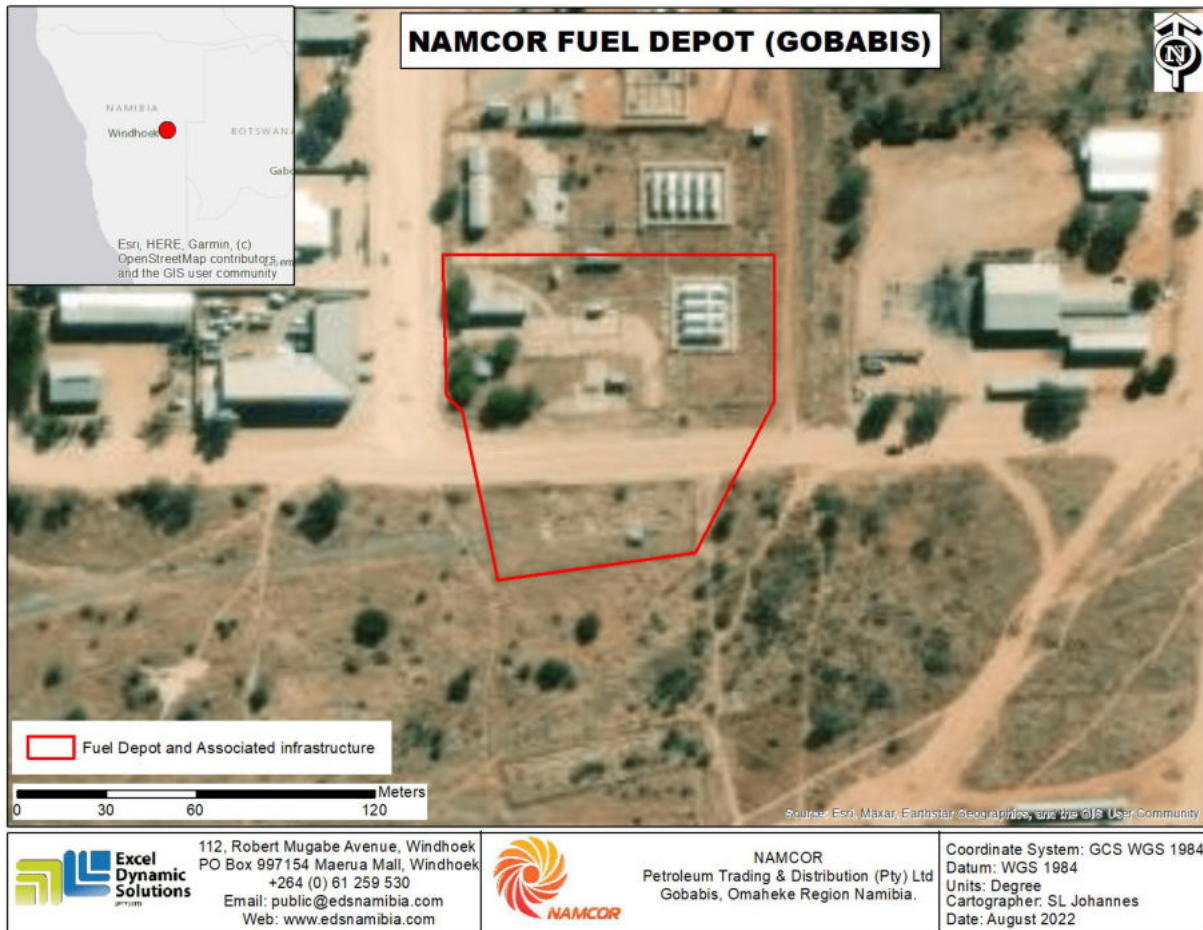


Figure 1-2: The zoomed in locality of the Depot Facility and associated infrastructure in Gobabis

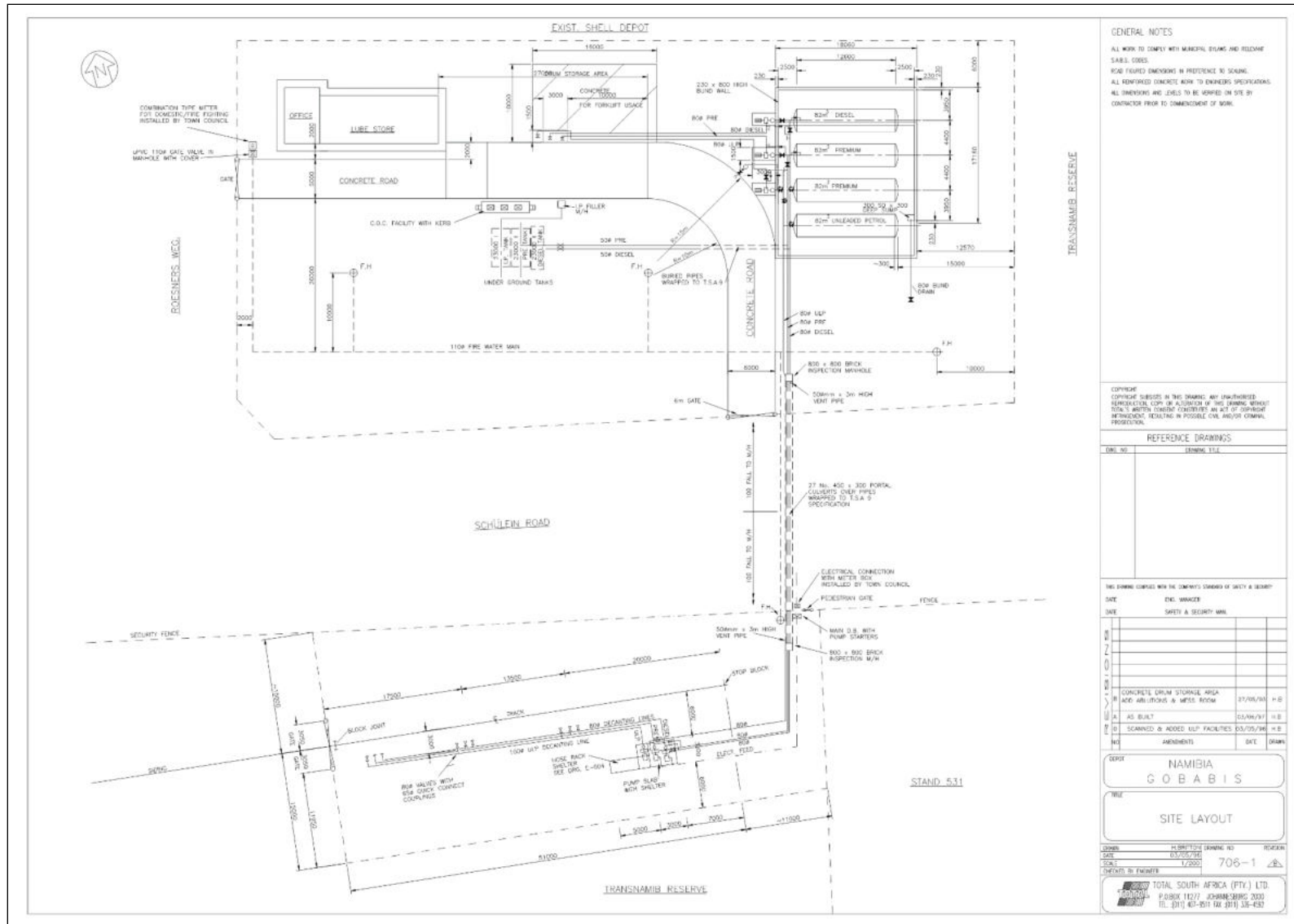


Figure 1-3: The Fuel Depot site layout

1.2 The Purpose of the Draft Environmental Management Plan (EMP)

Regulation 8(j) of the EIA Regulations (2012) requires that a draft Environmental Management Plan (EMP) shall be included as part of the Environmental Assessment (EA) scoping report. A 'Management Plan' is defined as:

"...a plan that describes how activities that may have significant environments effects on the environment are to be mitigated, controlled and monitored."

An EMP is one of the most important outputs of the EA process as it synthesizes all the proposed management & mitigation and monitoring actions, set to a timeline and with specific assigned responsibilities. It provides a link between the impacts identified in the EA process and the required mitigation measures to be implemented during the project cycle. It is important to note that an EMP is a statutory document and a person who contravenes the provisions of this EMP may face imprisonment and/or a fine. This EMP is a living document and can be amended to adapt to address project changes and/or environmental conditions and feedback from compliance monitoring.

The purpose of this document is, therefore, to guide environmental management throughout the operation and maintenance phase (including upgrading works), and decommissioning phase.

1.3 Application for an Environmental Clearance Certificate (ECC)

Although the project site is existing, it has never been environmentally cleared, because the original operator (TotalEnergies) established the site years before the promulgation of the Environmental Management Act (EMA) in 2007 (No. 7 of 2007) and its Environmental Impact Assessment (EIA) Regulations in 2012. The project and related activities are listed in the EIA Regulations that need to be environmentally cleared. Therefore an environmental clearance certificate (ECC) is required for the project to ensure environmental management, and sustainability, and that the project activities comply with the requirements of the EMA. In the Regulations, the Depot facility and its activities fall under the '*Hazardous Substance Treatment, Handling and Storage*' and the relevant activities are as follows:

- "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 or 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 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 above ground storage of dangerous goods, including petrol, diesel, liquid, petroleum, gas or paraffin.”*

To ensure that the project activities comply with the environmental management laws going forward, the Proponent appointed Excel Dynamic Solutions Pty Ltd (a team of independent Environmental Assessment Practitioners) to undertake the develop an EMP and apply for the ECC. The EMP is submitted to the Environmental Commissioner at the Department of Environmental Affairs and Forestry (DEAF) for evaluation and consideration of the ECC.

The application for the ECC was compiled and submitted to the Environmental Custodian, the Ministry of Environment, Forestry and Tourism (MEFT)'s Department of Environmental Affairs and Forestry (DEAF) on the 24th of August 2022. The copy of the submitted ECC application is appended hereto as Appendix A.

1.4 Appointed Environmental Assessment Practitioner

To satisfy the requirements of the EMA and its 2012 EIA Regulations, The NAMCOR Petroleum Trading & Distribution appointed a team of independent environmental consultants (Excel Dynamic Solutions (Pty) Ltd (EDS)), to conduct the required Environmental Assessment (EA) process. This EMP was drafted by Ms. Fredrika Shagama, an experienced EAP and qualified Geohydrologist with over 7 years of experience in the Environmental and Groundwater Management Consulting sector.

The description of the project activities is provided under the next heading (Chapter 2).

2 THE DESCRIPTION OF PROJECT ACTIVITIES

The project activities and their description are presented below. However, it should be noted that the site is already in operation, and therefore the ESA Study and environmental clearance certificate are for better management of the operations and maintenance activities.

2.1 Operational and Maintenance Phase

The Depot facility has four above-ground tanks (comprising two unleaded petrol and two diesel tanks with a capacity of 82m³) and four underground tanks (comprising two 23m³ unleaded petrol and one 23m³ diesel tank) of which only three are currently in use. The photos of the fuel tanks onsite are shown in Figure 2-1.





Figure 2-1: A - The above ground tanks and B-marked covers of the underground tanks onsite

The operations currently supply fuel to the public institutions such as Ministry of Health & Social Services, Namibian Police (NamPol) and Customer Own Collection (COC) in the Town and the aim is to also export to the Botswana market. A total of about 20m³ is supplied to these consumers per month.

The tanks are refilled with fuel delivered by railway, offloaded at the rail siding located on the immediate south-eastern side of the Depot (Figure 2-2), where the fuel is transferred through the buried pipelines into the tanks. The refilling is done on a lined gantry (loading bay / zone) to prevent spills on the soils. The frequency is demand and product dependent.



Figure 2-2: The rail siding located on the immediate southeastern side of the Depot

For site maintenance, the Depot Operator logs a call with the NAMCOR Internal Engineer who informs the Maintenance Contractor to undertake the work onsite.

2.1.1 The Human Resources, Services, and infrastructure

The following services and infrastructure as provided below will be required for the project activities:

A. Human resources

There is currently three NAMCOR staff members (one Dispatcher and two Depot Operators). As for Security guards, there are five of them outsourced from Bertha Security Services. The guards work on shifts (day and night) with two guards assigned per shift. There is currently five people employed onsite. Four on the day shift (the Depot operator, dispatcher, cleaner and

security guard) and one security guard for the night shift. There is a plan to include an additional security guard for each shift.

B. Accommodation

Apart from the security guard on the night shift, no other employee stays onsite during the night. The site employees live in their houses in the Town and commute to site daily. Therefore, there is no on-site accommodation.

C. Offices and ablutions

There are two buildings on-site. One building serves as an administrative building with offices, mini kitchen, and toilets. The second building is a lubricant warehouse where machinery and equipment are kept. The site office and warehouse buildings are shown in Figure 2-4 and Figure 2-4.



Figure 2-3: Site office building and Warehouse

The Site is operated in a specific environment, and it is crucial to understand the environmental features. The environmental features (physical, biological and relevant social) are presented under Chapter 3 below.



Figure 2-4: A closer view of the site office building and Warehouse

D. Water supply

Water is provided by the Gobabis Municipality through the water supply line, i.e., the site connected to the municipal water supply system. There are two water taps and two 10m³ water storage tanks onsite - Figure 2-5.

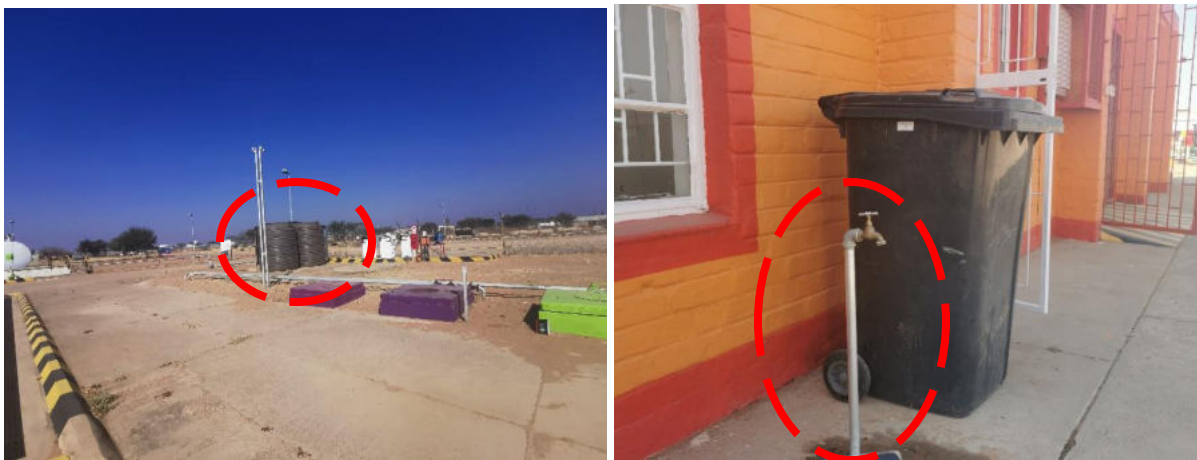


Figure 2-5: The two light brown water storage tanks and one of the two taps onsite

E. Site accessibility (roads)

the site is accessible from the municipal access roads via Schulein Street.

F. Waste management

The site waste is handled as follows:

- Solid waste: there are three waste bins (containers) onsite for different waste storage. The bins are emptied on a weekly by the municipal waste removal services for disposal at the Gobabis solid waste site.



Figure 2-6: The black solid waste bin outside the site office building

- Sewage: there are two flushing toilets inside the office building (one for female and one for male). The toilet sewage system is connected to the municipal sewage reticulation system. There is, however, a need to put up an additional toilet for the security guard on the night shift because the office closes at 17h00.
- Hazardous waste: hazardous waste is carefully stored in three standardized containers onsite (in the warehouse) until such a time that it can be disposed of at the nearest approved hazardous waste management facility.

Fuel spills control onsite: for the containment of accidental fuel spills are spill kits stored in the warehouse as shown in Figure 2-7.



Figure 2-7: The spill kits stored in the Warehouse onsite

To ensure that accidental fuel spills at the gantry (filling area) is contained, the surface of the gantry is lined with concrete layer as seen in Figure 2-8 below.



Figure 2-8: The concrete lined gantry at the aboveground and underground fuel tanks areas

Arrangements for a contractor to remove used oil is under consideration. There is an oil-water separator pit onsite (Figure 2-9), however, there is no personnel or contractor to clean up the pit. This is under consideration for appropriate action.



Figure 2-9: The oil-water separator onsite

G. Health, Safety and Site Security

Health: Adequate and appropriate full Personal Protective Equipment (PPE) is provided to all employees and visitors on-site - Figure 2-10. There is one fully equipped first aid kit onsite. Health and safety inductions are provided to visitors (and new workers) upon entrance by a NAMCOR employee (Dispatcher).



Figure 2-10: The first aid kit and some of the employees (with white and orange hard hats) in PPE

- Site signage and warnings: the site is well equipped with clear and concise signage at all risky site areas. Some of the site warning and safety signage are shown in Figure 2-11.



Figure 2-11: Some of the safety signs pasted on and around the site

The reporting of site incidents is reported to the Line Manager and Safety, Health, Environment and Quality (SHEQ) coordinator in Windhoek for immediate actions.

- Potential Accidental Fire Outbreaks: there are new and fully serviced fire extinguishers onsite. Ten are extinguishers mounted around the tank farm, three at the rail siding and the rest in the Depot' site buildings and necessary site areas. One extinguisher is kept in the warehouse.
- Site security: There is a mesh wire around the site (as seen in Figure 2-12). However, from a safety and security perspective and considering the type of commodity onsite, the fencing will need to be upgraded / improved to a reliable and safe standard. Further security measures will be recommended in the ESA Report and EMP.



Figure 2-12: The mesh wire around the Depot site

Emergency procedures are essential for the Depot's operations. Therefore, a qualified occupational health and safety professional will train the Proponent's onsite personnel.

3 PHYSICAL, BIOLOGICAL AND SOCIAL ENVIRONMENT

The project activities are undertaken in specific environmental and social conditions. The understanding of these conditions helps in identifying the sensitive environmental features that may need to be protected through the implementation of certain management and mitigation measures. The summary of selected physical, biological and social baseline information of the project area is provided below as per reports of studies conducted in the Omaheke Region and site visit conducted by the Environmental Consultant on the 05th of August and 30th of August 2022.

The climatic conditions of the Gobabis Town (project site area) are described using the available nearest data for Gobabis (host town) obtained from World Weather Online and Meteoblue websites (2022).

3.1 Climate

3.1.1 Temperatures

According to the World Weather Online (2022), the average temperature for Gobabis is 31°C experienced in October and minimum of 7°C in June. The average monthly high and low temperatures are shown in Figure 3-1.

The maximum and minimum temperature for Gobabis is 34°C and 6°C, respectively as shown in Figure 3-2.

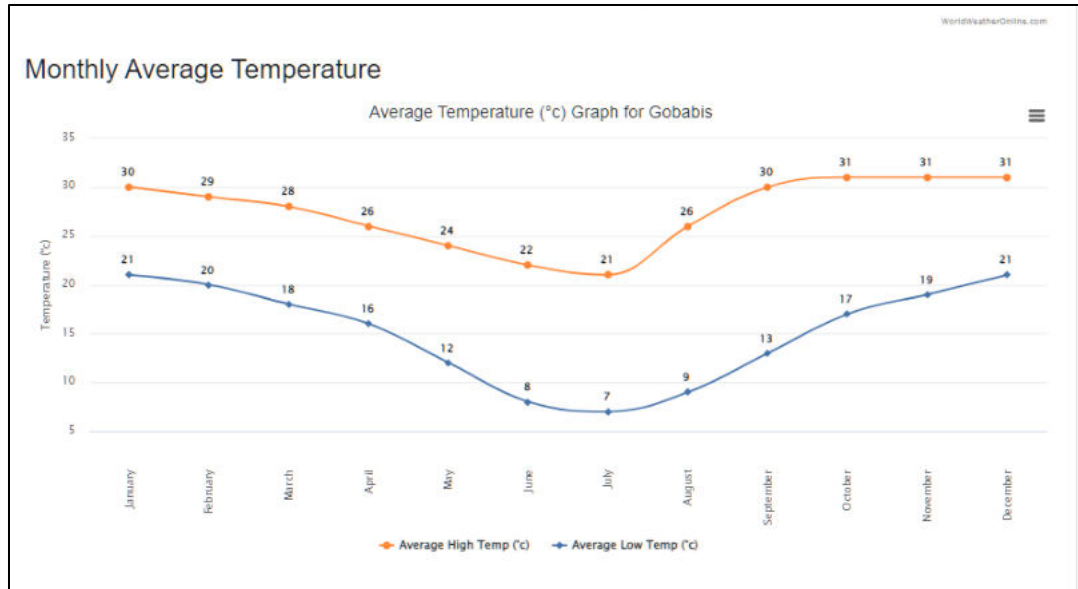


Figure 3-1: The monthly average temperatures for Gobabis (World Weather Online, 2022)

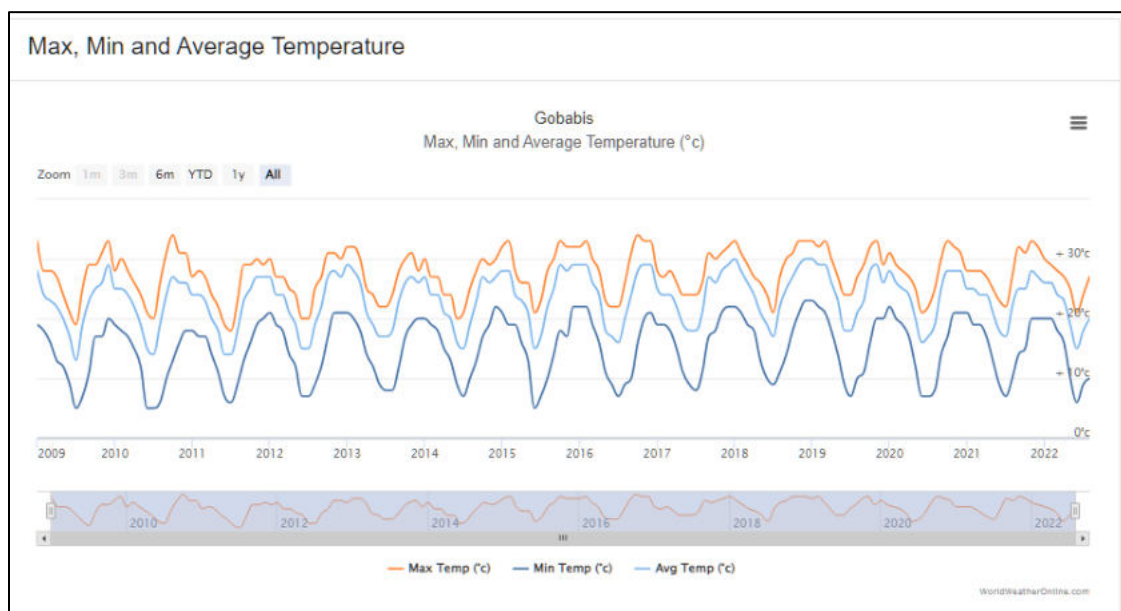


Figure 3-2: The maximum, minimum, and average temperatures for Gobabis (World Weather Online, 2022)

3.1.2 Rainfall

The average rainfall for Gobabis thirteen (13) year-period, i.e., from 2009 to 2022 are shown in Figure 3-3. The Gobabis Town receives reexperience good rains between November and March.

According to World Weather Online (2022) average rainfall graph, the month of February experienced the highest rainfall at an average of about 387mm in 2012 (rained 15 days), followed by 373mm in January 2021 (rained for 11 days) and 306mm (for 8 days) in December 2019. The monthly average rainfall is 112mm where it rained for 4 days in January.

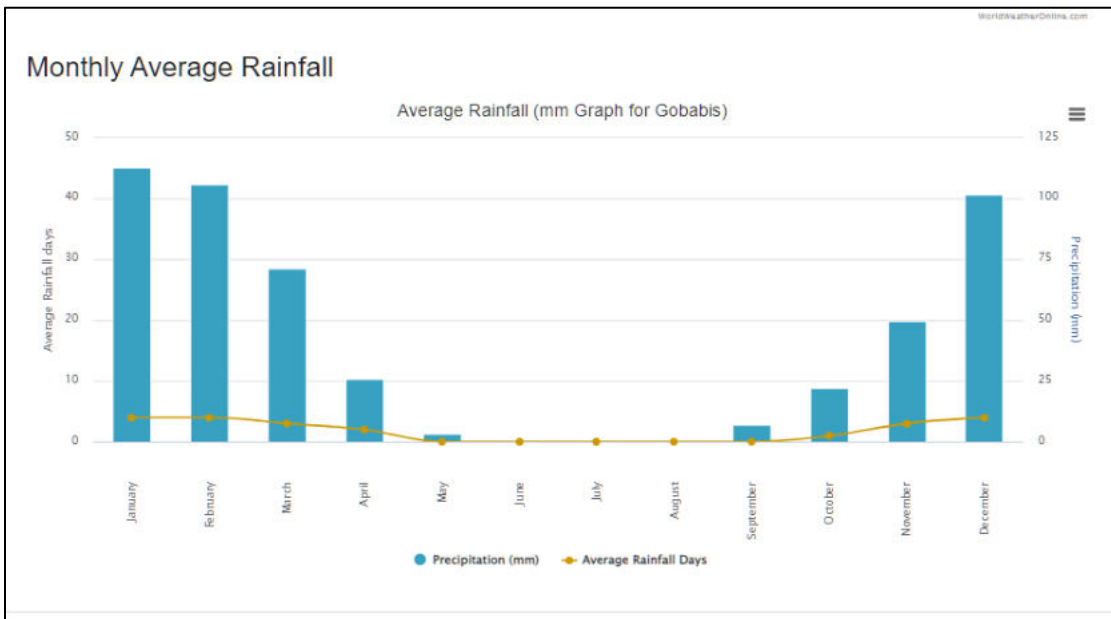
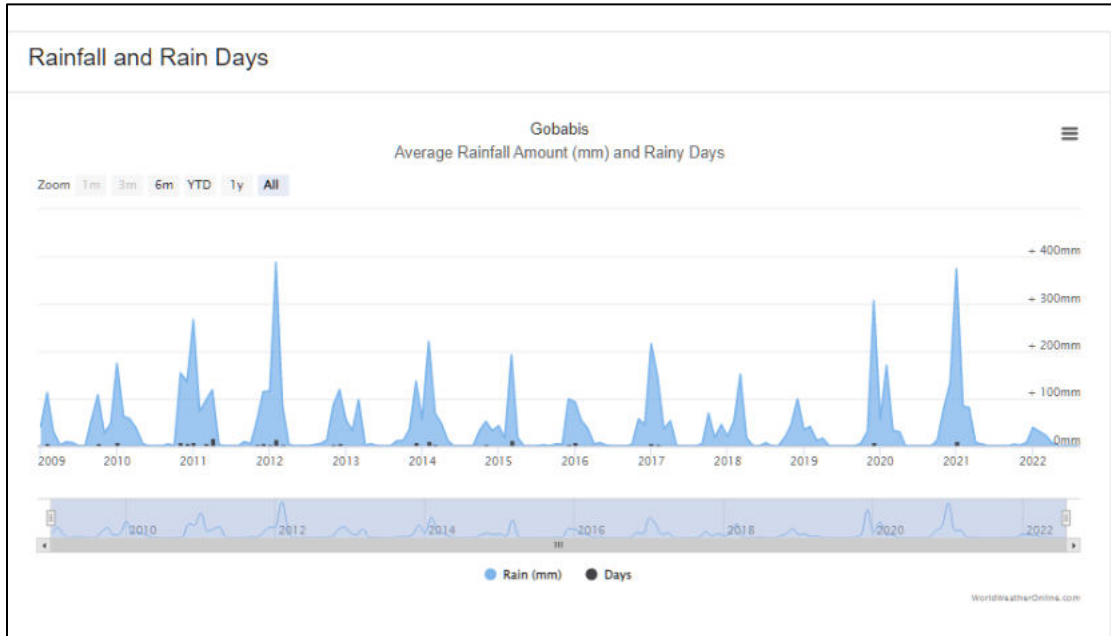


Figure 3-3: The rainfall & rainy days and monthly average rainfall for Gobabis (World Weather Online, 2022)

3.1.3 Air and Wind

Air: the current known sources of air pollution in the area are dust emissions from unpaved access roads within the project site area, particularly in dry and windy months.

According to the Air Quality Index (2022)¹, Gobabis’ air quality as indicated by the PM25 concentration is 43.2µg/m³. Particulate matter (PM) 2.5 known as the PM2.5 concentration in Gobabis is currently 8.6 times the World Health Organization (WHO)’s annual air quality guideline value. The concentration value is considered unhealthy for Sensitive Groups.

Wind: The wind rose for Gobabis from the Meteoblue modelled climate is shown in Figure 3-4 and indicates that the wind is dominantly blowing from South to Northeast with the speed ranging between 12 and 28km/h.

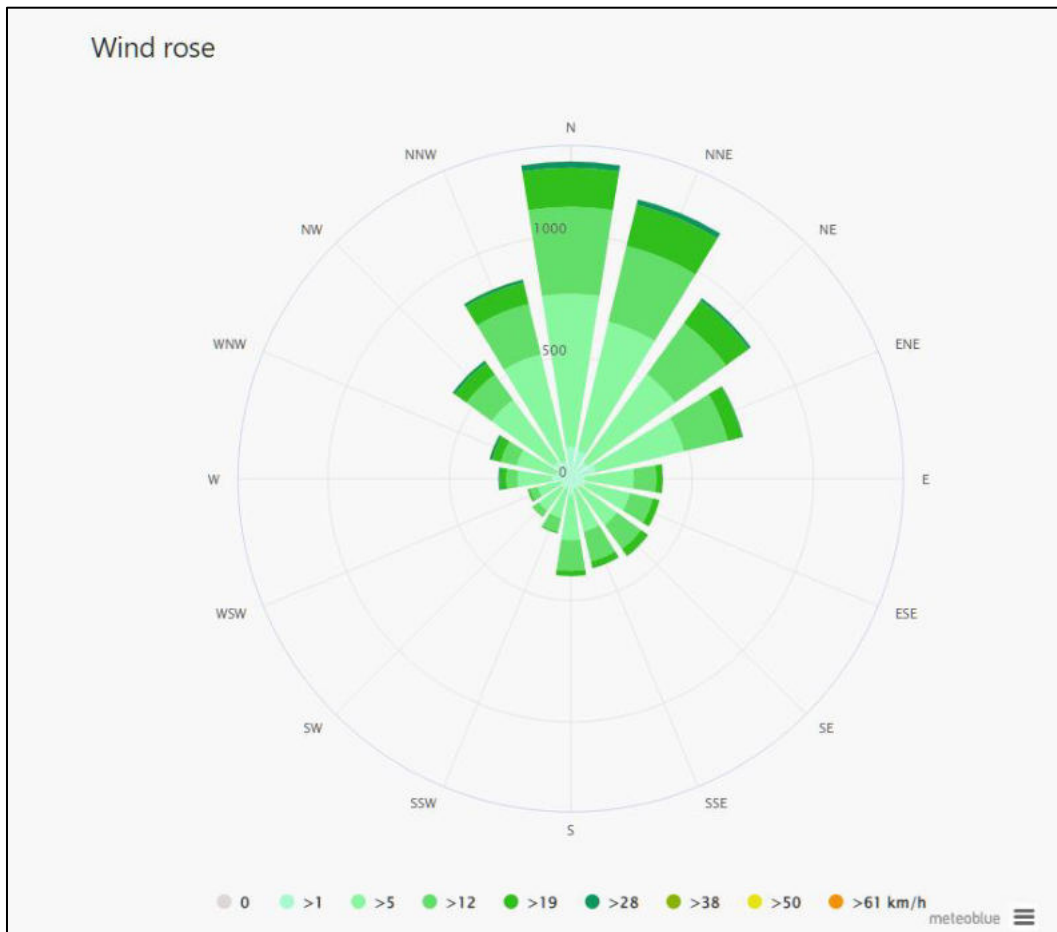


Figure 3-4: The wind rose for Gobabis (Meteoblue, 2022)

¹ Air Quality Index. (2022). World Air Quality: Air Quality in Gobabis. <https://www.iqair.com/namibia/omaheke/gobabis>

3.2 Topography and Landscape

Gobabis is found in flat area with undulating terrains in some surrounding areas. The elevation of the project site ranges between 1,216 and 1,453 meters above sea level (masl) as shown on the map in Figure 3-5. Whereas the north-western, north-eastern, and eastern area of Gobabis Town have elevations ranging from 1,453 to 2,559 masl.

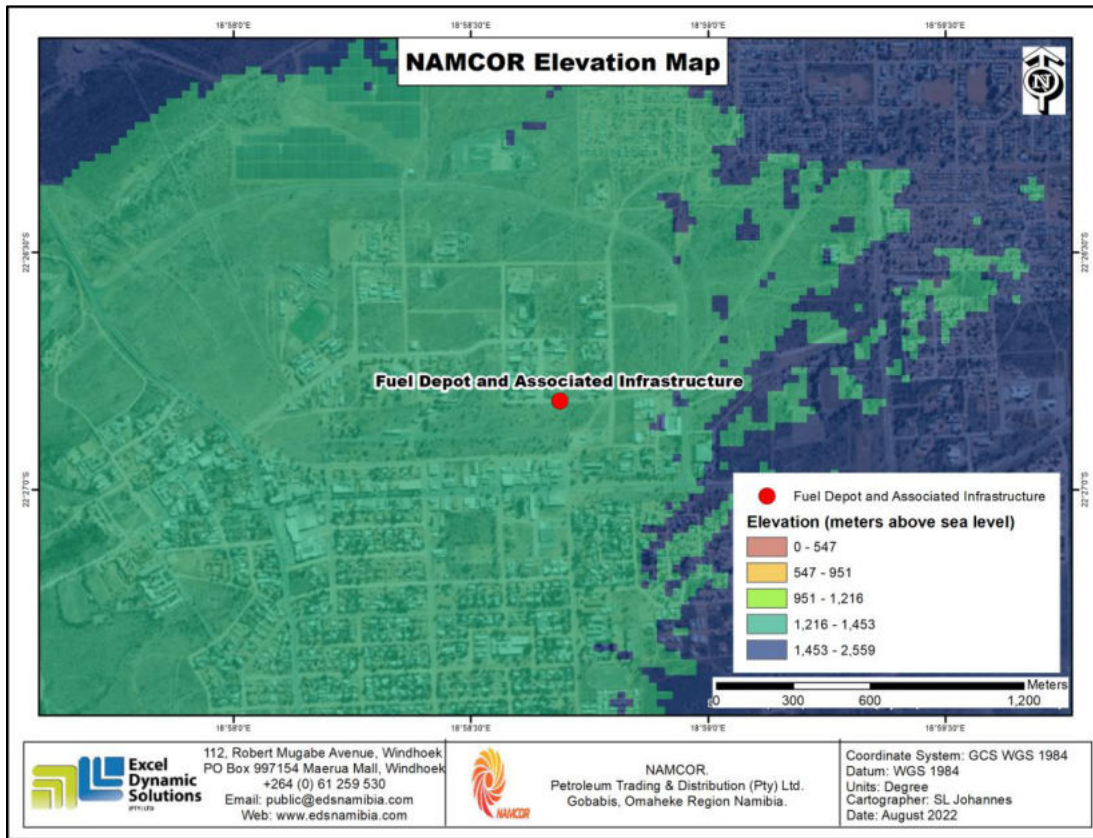


Figure 3-5: The elevation around the project site and Gobabis

3.3 Geology and Soil

The site and its south-eastern surroundings are overlain by the relatively thick layer of sand cover of the Kalahari Group. The sand cover is underlain by rock units of sandstone, black limestone, conglomerate, and shale. The western-north-north-eastern areas from the site are covered by quartzites, conglomerates, schists and marbles as shown on the geology map in Figure 3-6.

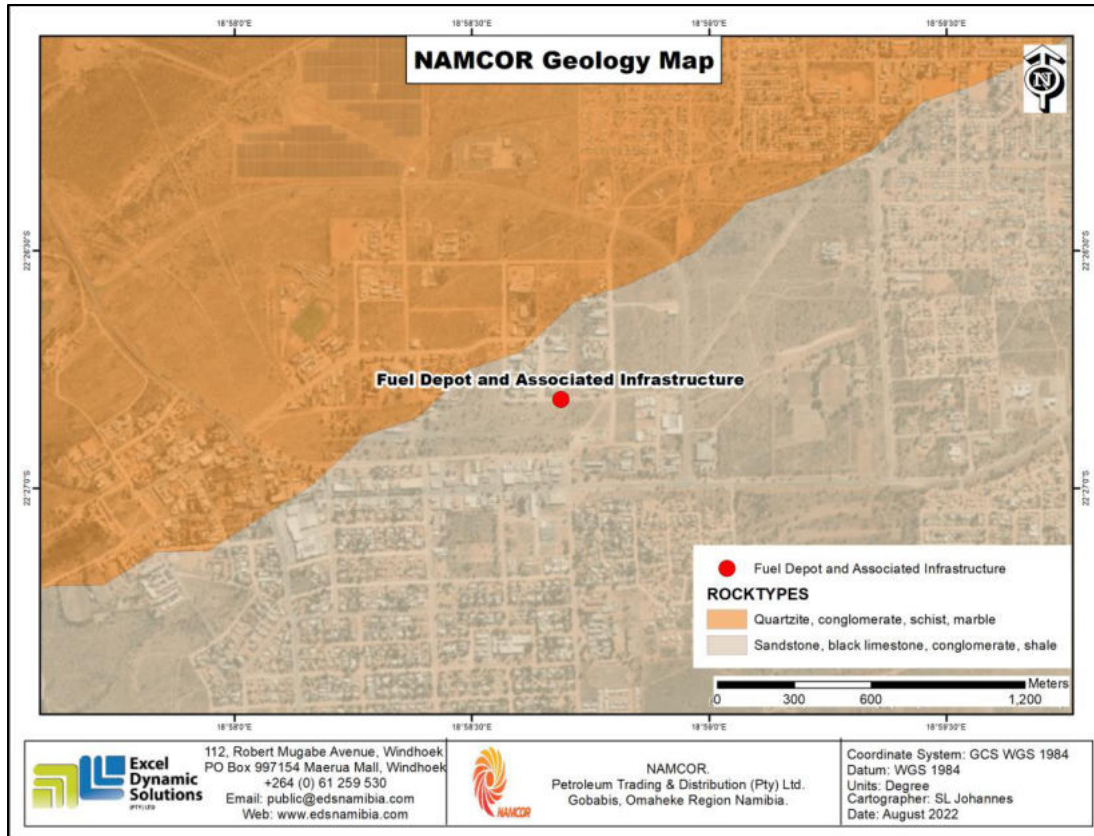


Figure 3-6: The geology of the Fuel Depot site and surrounding areas

In terms of soil, the Project area is covered by the Eutric Fluvisols as shown on the dominant soil map in Figure 3-7. Fluvisols are found typically on level topography that is flooded periodically by surface waters or rising groundwater, as in river floodplains and deltas².

Typical soil found onsite comprises of reddish and light brown sandy loamy soils - in Figure 3-8.

² Britannica, The Editors of Encyclopaedia. (2011). Fluvisol. Encyclopedia Britannica. Available from <https://www.britannica.com/science/Fluvisol>. Accessed 03 July 2022.

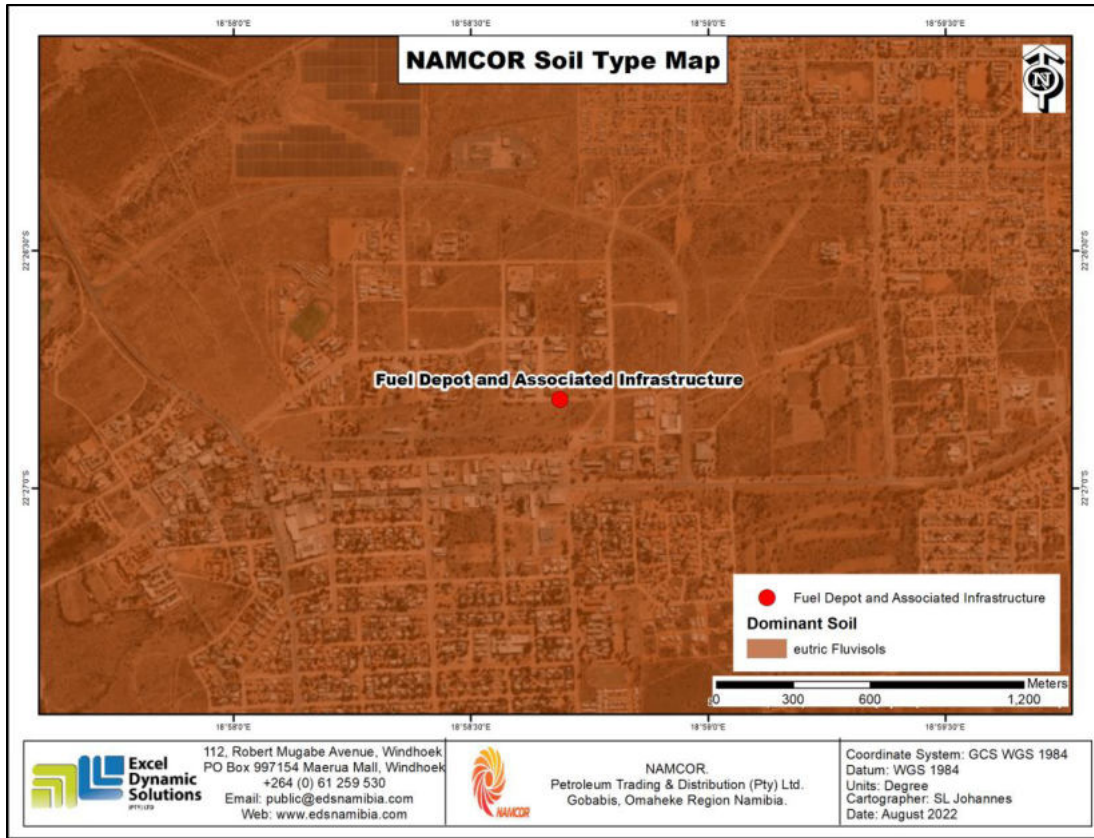


Figure 3-7: The dominant soil found within and around the site



Figure 3-8: The sandy loamy soils observed onsite

3.4 Water Resources: Groundwater and Surface Water

The site area falls within the Hochfeld-Dordabis-Gobabis Groundwater Basin, stretching from the east of Windhoek to the eastern Namibian border. According to Lohe *et al*, (2021), a porous

aquifer exists to the northeast of Gobabis where Kalahari sediments overlie quartzites. The drilling of well (correctly) sited boreholes can tap a combination of primary porous and secondary fractured aquifers. Furthermore, most of the groundwater basin is underlain by either schist or sandstone/quartzite, which have inherently different water-bearing characteristics (Lohe *et al.*, 2021). Groundwater within the project area is hosted in fractured, fissured and karstified aquifers as indicated by blue lines on the map Figure 3-9. There are also several boreholes within Gobabis Town but not onsite – as shown in the Figure below.

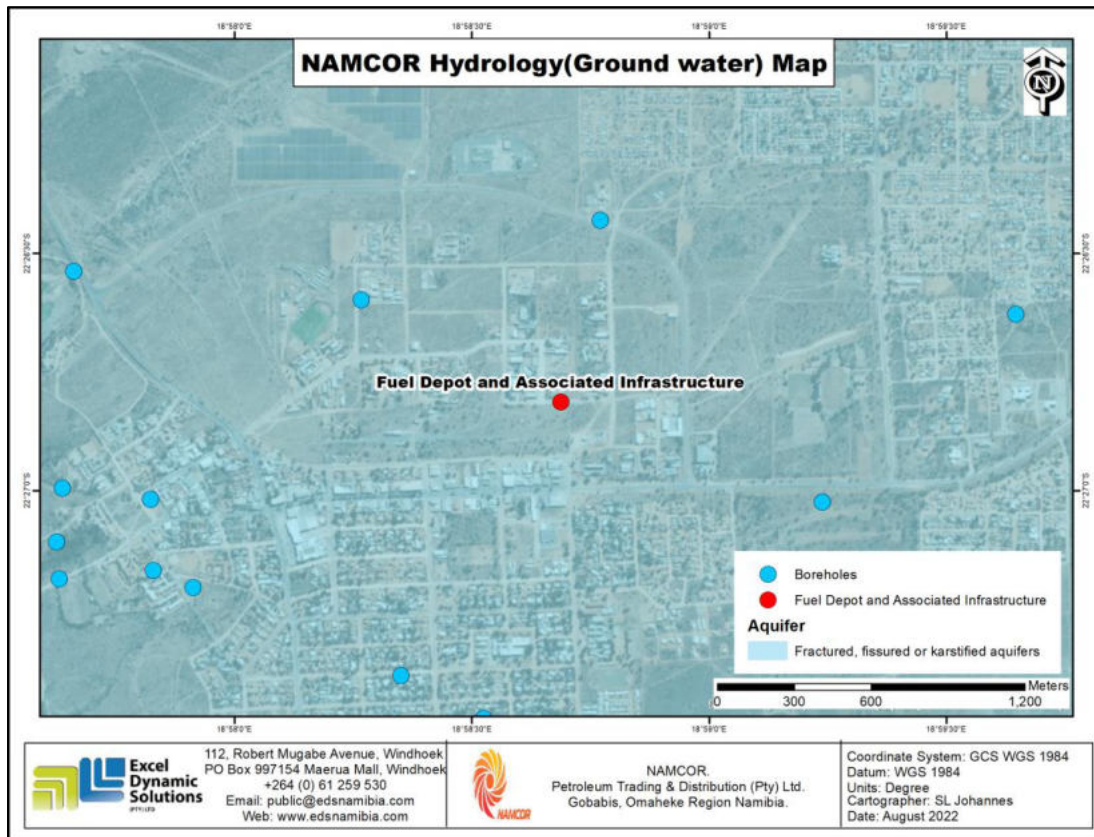


Figure 3-9: The hydrology and groundwater of the Project area

3.4.1 Groundwater Vulnerability to Pollution

The vulnerability of groundwater to pollution of the Gobabis area and surrounding is considered moderate to high as shown on the Groundwater Resources Vulnerability Map of Namibia by Van Wyk *et.al* (2001) in Figure 3-10.

The vulnerability of groundwater to pollution in the area could be explained by the fractured and karstified and fissured nature of the bedrock/aquifers underlying the Town (as shown under the Geology section above) because these open/fractured rock formations provide ready pathways for pollution transport (in case of pollution). Groundwater pollution would therefore be a concern on such areas if there is a significant amount of pollution (fuel spills or leakage) associated with the project during its operations or even decommissioning (mishandling of fuels from tanks and accidental leakages, etc).

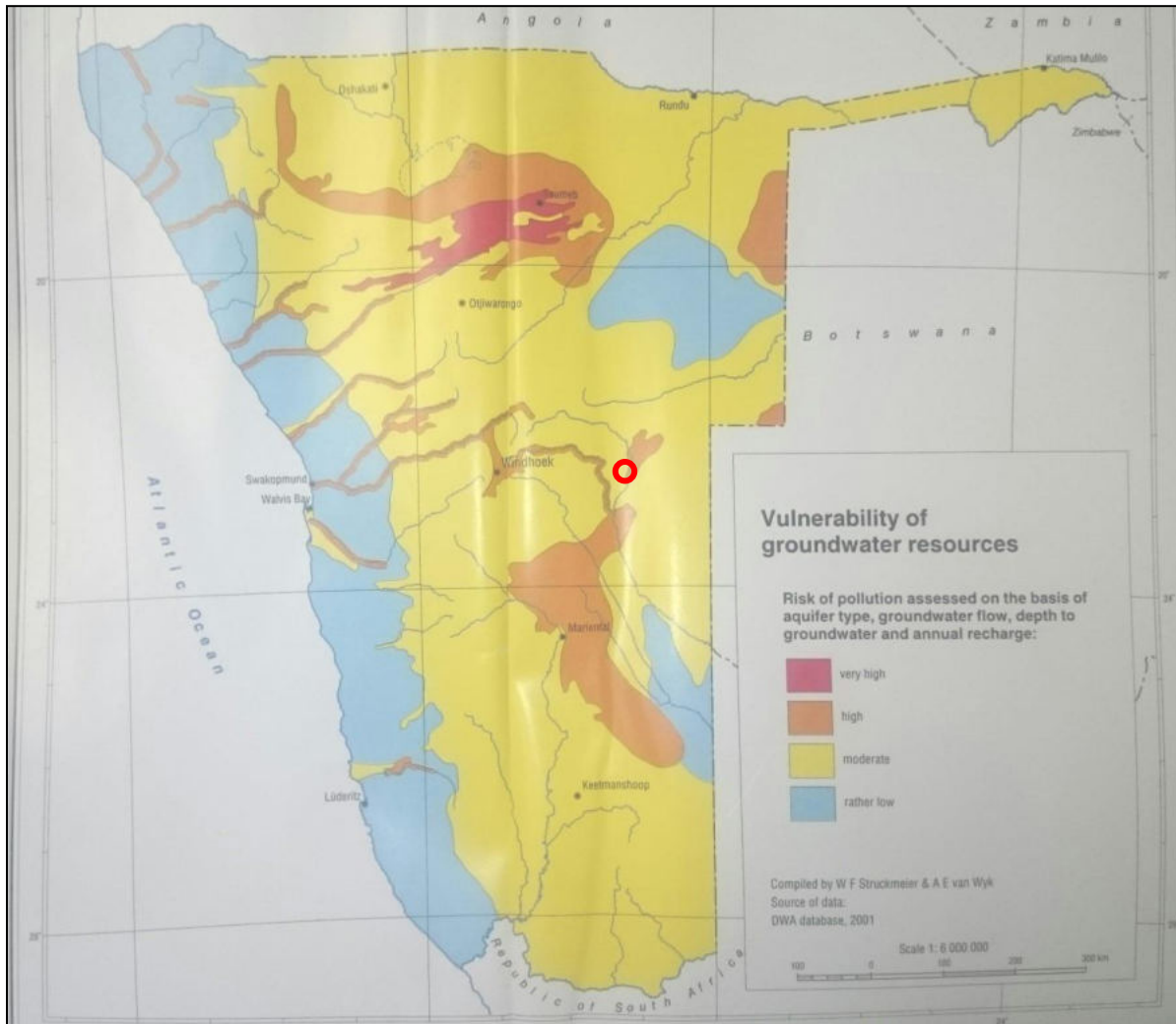


Figure 3-10: The general vulnerability of groundwater resources to Pollution in Namibia (source: Van Wyk et.al, 2001)

A map of groundwater resources vulnerability to pollution of the site was created as shown in Figure 3-11 below. The map indicates that the site has a high vulnerability to pollution. This could be explained by the fractured, fissured and karstified rock units, that if in a case of large fuel spills or leakage, the groundwater aquifers would be a high risk. It is important to note that vulnerability does not equal “guaranteed” pollution, but it is a state of groundwater being exposed to something (pollution), its level and significance when it occurs.



Figure 3-11: Groundwater Vulnerability to pollution map on and around the site

3.5 Biodiversity: Fauna and Flora

According to Omaheke Regional Council (2015), despite the unfavorable temperature of the central Nama-Karoo Basin that is flanked by the Namib Desert in the west and the Kalahari Desert and shrub savanna in the east, The Omaheke Region has the advantage of showcasing the Sperrgebiet area in the south-western corner of the Region, which is an internationally recognised hotspot for biodiversity and area of conservation importance.

3.5.1 Fauna

The project site is situated in a Town that has been cleared to pave way for development in the past. The establishment of structures and constant movement of people and vehicles would be a nuisance to mammals to inhabit the site area. Therefore, there are no mammals were observed onsite. There is a possibility of small animals such as reptiles in the site soils. Some birds were seen flying near site at the shrubs in proximity of the rail siding.

3.5.2 Flora

The site has been cleared for infrastructure and structure establishment in the past and therefore, there is not much of vegetation onsite. However, there is about seven trees that are left for preservation onsite. The trees, however, could not be identified due to lack of leaves during site visit and assessment. The dominant vegetation map of the area is shown in Figure 3-12 (woodland shrubs). Some photos of the common vegetation species observed within and near the site are shown in Figure 3-13. The common vegetation around the Site are shrubs of camelthorn shrubs (*Vachellia reficiens*) and grass cover, particularly to the southeastern side.

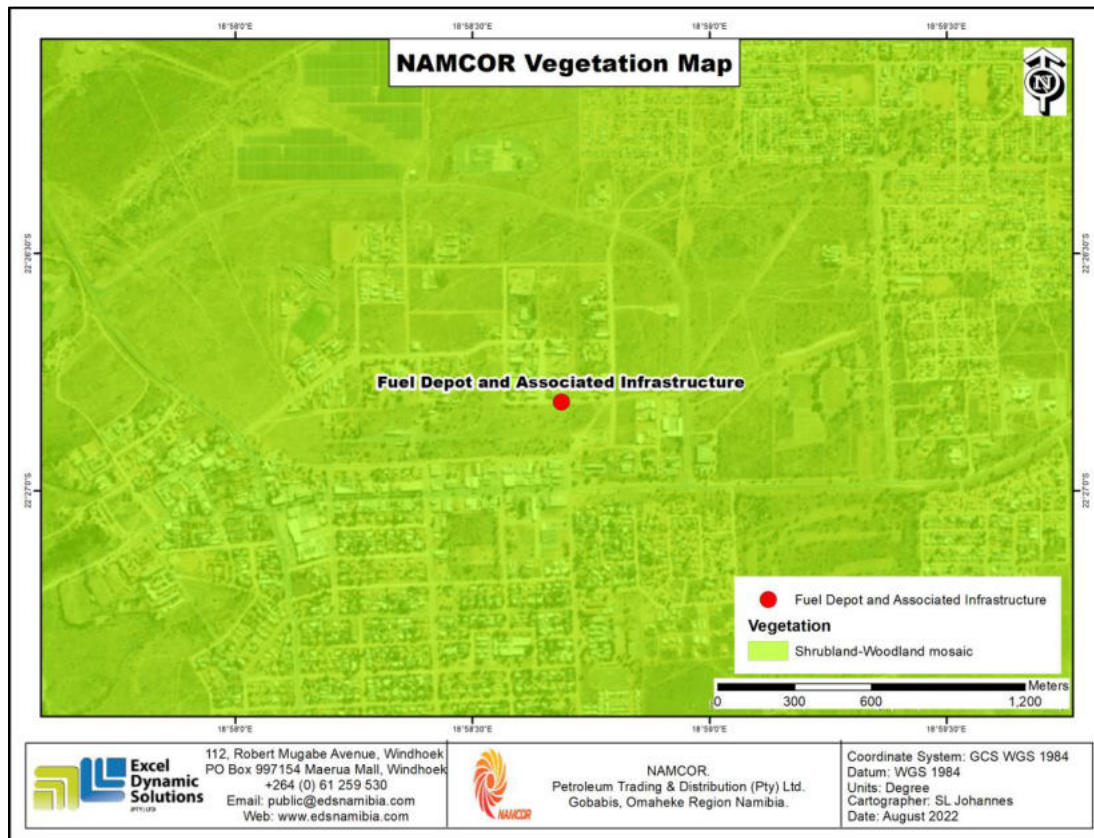


Figure 3-12: Dominant vegetation (woodland shrubs – *Vachellia reficiens*) around the site



Figure 3-13: The leafless trees on site and camelthorn shrubs and grass cover in proximity of the rail siding

3.6 Social Conditions

3.6.1 Demography

By 2011, Omaheke Region had a population of 71,233 (34,016 females and 32,217 males) (Namibia Statistics Agency, 2011). The Region is vast with a total land surface area of 84,612 square kilometers (km²), making up 10.3% of the country's land surface (Omaheke Regional Council, 2015). The project site is located with the Gobabis Urban Constituency, which had a population of 20,993 in 2011, comprising 10,671 women and 10,322 men (Omaheke Regional Council, 2015).

3.7 Economic Activities

In terms of economic activities, the fundamental pillars of economy in the Omaheke Region are the Trans-Kalahari Corridor, agriculture, tourism, manufacturing, industrial development, mining, and natural resources (Omaheke Regional Council, 2015).

The main sources of income of the Constituency as per the Namibia Statistics Agency (2014) were farming (3%), wages & salaries (66%), cash remittance (9%), business, non-farming (10%) and pension (9%).

The Gobabis Town has potential of economic development and business growth. The main economic sectors in the Town and Constituency are as follows (Omaheke Regional Council, 2015):

A. Agriculture and Beef Production

To enhance the agriculture in the region the town of Gobabis has four marketing facilities for livestock, namely Karoo, Agra and WLA, Gobabis Abattoir and Meatco Feedlot.

B. Tourism and Accommodation

Gobabis accommodation can be found at SafariNow.com which has a selection of Lodge, Bed and Breakfast, Camping and Caravanning holiday accommodations in Gobabis and surrounds. The site features ten listings, an online map search and competitive prices. The common accommodation facilities in the Town are guest houses, Bed& Breakfast, self-catering flats and campsites.

C. Housing development

Even though there is lack of serviced land, the housing demand remains high and as such Gobabis requires investors to support the Gobabis Municipality with the construction of houses as well as servicing of land.

D. Other economic opportunities

Micro finance projects such as Mushroom cultivation, Kanaan bread making, and Ombapa Utuku gardening (Omaheke Regional Council, 2015).

3.7.1 Infrastructure and Services

The Omaheke Region is well-serviced with roads, tarred and good gravel roads. The Project area has good and leveled gravel roads. There are also good health care centers, schools and other services.

The Region is supplied with electricity by the Central North Regional Electricity (CENORED) and in some areas by Namibia Power Utility (NamPower).

Water is supplied either through privately owned boreholes, mainly on commercial farms. For communal areas, water is supplied by the Directorate of (Rural) Water Supply & Sanitation Coordination (DWSSC) or Namibia water corporation (NamWater).

In terms of services and infrastructure in for the site area, the following are available:

Water supply: NamWater supplies the Town with water from boreholes. The Town through the Municipal Council then supplies the residents, institutions, and businesses.

Electricity: NamPower supplies electricity to the town and then to houses and businesses alike.

Sanitation: There is a water borne system sewerage for serviced plots and formal houses.

Health facilities: the Gobabis Town has five private doctor practices, four private pharmacies, one state hospital, one private health centre and state clinic.

Financial institutions: there are about eight financial institutions including Bank Windhoek, First National Bank, Standard Bank, NamPost, Old Mutual, Metropolitan, and Letsego.

Telecommunication Network: Telecommunication and delivery services providers include MTC Namibia, Telecom Namibia, and NamPost, respectively.

The services and infrastructure map around the site is shown in Figure 3-14.

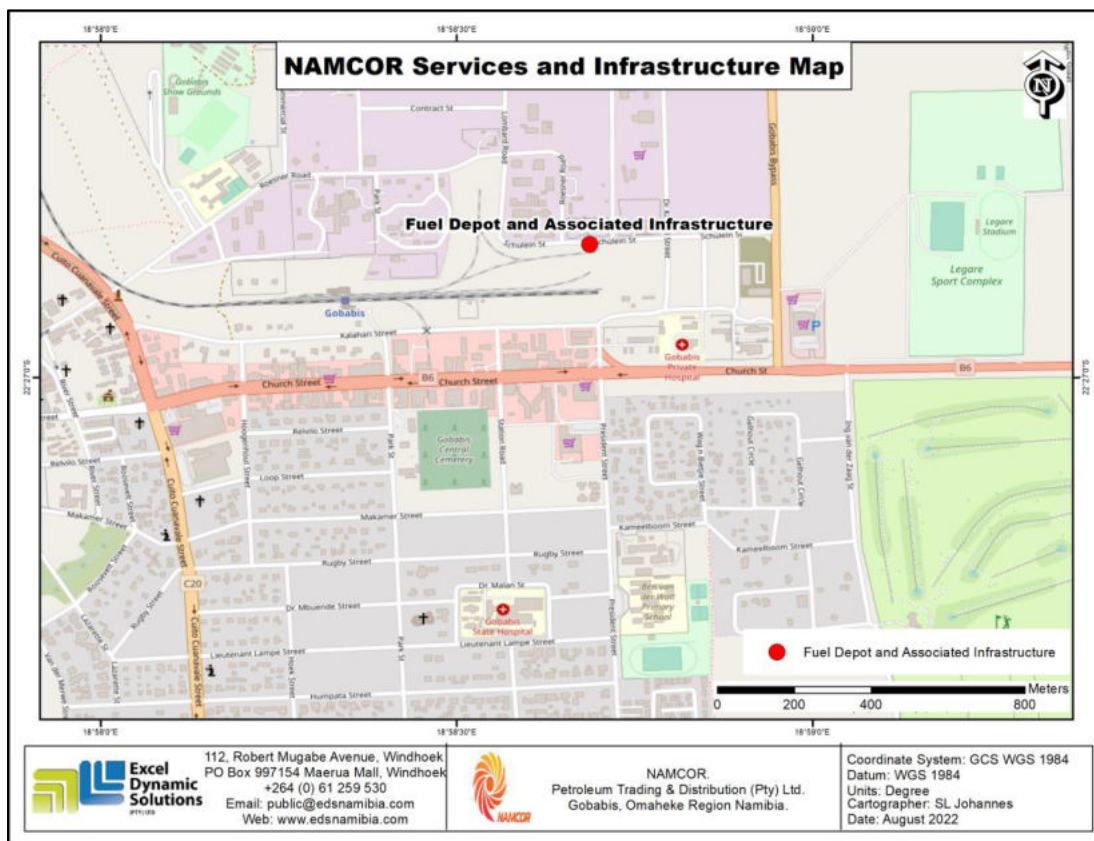


Figure 3-14: The services and infrastructure map on and around the site

3.8 Archaeology, Cultural and Heritage Resources

During the site visit and personal interviews with the locals, there are no known archaeological and heritage resources or sites recorded nor mapped on the surface of the site or immediate associated infrastructure.

4 LEGAL FRAMEWORK: PERMITTING AND LICENSING

The Proponent has the responsibility to ensure that the project activities conform to the principles of the EMA and must ensure that employees act in accordance with such principles. Table 4-1 below lists the requirements of an EMP as stipulated by Section 8 (e) of the EIA Regulations, primarily on specific approvals and permits that may be required for the project activities.

Table 4-1: The list of applicable of legal requirements and permits to the project activities

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Project Activity Licensing and Contact Details
Environmental Management Act (No. 7 of 2007) and its 2012 Environmental Impact Assessment (EIA) Regulations (Government Gazette (GG) No. 4878 Government Notice (GN) No. 30)	The EMA has stipulated requirements to complete the required documentation to obtain an Environmental Clearance Certificate (ECC) for permission to undertake certain listed activities.	The ECC should be renewed every 3 years, counting from the date of issuance. Contact details at the Department of Environmental Affairs and Forestry (DEAF), Ministry of Environment, Forestry and Tourism (MEFT), Office of the Environmental Commissioner Mr. Timoteus Mufeti Tel: +264 61 284 2701
Petroleum Products and Energy Act (No. 13 of 1990) Regulations (2001):	Regulation 3(2)(b) states that “No person shall possess [sic] or store any fuel except under authority of a licence or a certificate, excluding a person who possesses or stores such fuel in a quantity of 600 litres or less in any container kept at a place outside a local authority area”	The Proponent should obtain the necessary authorisation form the MME for the storage of fuel on-site. Mr. Carlo Mcleod (Ministry of Mines and Energy: Acting Director – Petroleum Affairs) Tel: +264 61 284 8291
Forestry Act 12 of 2001, Amended Act 13 of 2005:	Prohibits the removal of any vegetation within 100 m from a watercourse (Forestry Act S22 (1)). The Act prohibits the removal of and transport of various protected plant species.	Should there be protected plant species, which are known to occur within the project site, and need to be removed, a permit should be obtained from the nearest Forestry office (MEFT). Mr. Johnson Ndokosho (Forestry)

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Project Activity Licensing and Contact Details
		<p>Director) Tel: +264 61 208 7666</p>
<p>National Heritage Act No. 27 of 2004</p>	<p>To provide for the protection and conservation of places and objects of heritage significance and the registration of such places and objects; to establish an NHC; to establish a National Heritage Register; and to provide for incidental matters.</p> <p>This impact is likely during site upgrades' earthworks when there is a potential of inadvertent unearthing and damage of heritage resources.</p>	<p>Contact Details at National Heritage Council (NHC) of Namibia Mrs. Erica Ndalikokule (NHC Director): Tel: +264 61 301 903</p>
<p>Road Traffic and Transport Act 52 of 1999 and its 2001 Regulations</p>	<p>Provides for the control of traffic on public roads and the regulations pertaining to road transport, including the licensing of vehicles and drivers.</p>	<p>A site access road permit from the existing road should be formalized by applying for it and obtained from the Roads Authority.</p> <p>Mr. Eugene de Paauw (Roads Authority – Specialist Road Legislation) Tel.: +264 61 284 7027</p>

5 EMP IMPLEMENTATION ROLES AND RESPONSIBILITIES

The Proponent has the overall responsible for the implementation of the EMP. However, the Proponent may delegate this responsibility or part of it to someone else at any time, as they deem necessary. The roles and responsibilities of all delegates/parties involved in the effective implementation of this EMP are set in Table 5-1.

Table 5-1: The list of responsible parties and their roles in implementing the EMP

Role (Person and or Institution)	Responsibilities
The Proponent	<ul style="list-style-type: none"> -Managing the implementation of this EMP and updating and maintaining it when necessary. -Management and monitoring of individuals and/ or equipment on-site in terms of compliance with this EMP and issuing fines for contravening EMP provisions.
Environmental Control Officer (ECO) or Safety, Health & Environmental (SHE) Officer	<p>Environmental Control Officer (ECO) or SHE Officer. The ECO will have the following responsibilities:</p> <ul style="list-style-type: none"> -Management and facilitation of communication between the Proponent and Interested and Affected Parties (IAPs) regarding this EMP. -Conducting site inspections of all areas with respect to the implementation of this EMP (monitor and audit the implementation of the EMP). -Advising the Proponent on the removal of person(s) and/or equipment not complying with the provisions of this EMP. -Undertaking an annual review of the EMP and recommending additions and/or changes to this document.
Site Operator	<ul style="list-style-type: none"> -Collaborate with the ECO to ensure the implementation of the EMP, especially on the technical aspects and operations of the project operations.

6 IMPACTS AND ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURES

6.1 Key Identified Impacts

The key positive and negative impacts associated with the Fuel Depot are presented in Table 6-1 below.

Table 6-1: The key positive and negative impacts associated with the Fuel Depot

Positive Impacts	Negative (Adverse) Impacts
<ul style="list-style-type: none"> -Socio-economic development through employment and revenue generation. -The availability of the product to the Botswana market will increase and stimulate Namibian exports market, thus contributing to the national economy from the energy sector. -Fuel storage and supply convenience in the town. -Local empowerment and boosting the local economic growth and regional economic development. -Increased support for local businesses through the procurement of goods such as PPE, maintenance works. 	<ul style="list-style-type: none"> -Soil and water pollution: improper handling fuels may lead to pollution of soil and water resources. -Noise (nuisance) -Vehicular traffic: potential increase in local traffic during fuel delivery and loading/offloading of other services and goods. -Waste generation leading to environmental pollution. -Occupational / community health & safety risks -Accidental fire outbreaks and Site safety and security

The recommended measures to be implemented to mitigate and manage the adverse negative impacts listed above are provided under the next chapter and Tables.

6.2 Environmental Management and Mitigation Measures- Operation and Maintenance

The management actions are aimed at avoiding the above-listed potential negative impacts, where possible. Where it is impossible to avoid these impacts, measures are provided to reduce the impacts' significance. The measures recommended (Table 6-2) for the potential impacts are described and assessed in the Scoping Report compiled for the Site based on the operations phase.

Table 6-2: The Environmental management and mitigation measures for the Operational and Maintenance Phase (including Site Upgrade works)

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
Site Operations and Maintenance Phase					
EMP implementation and training	Lack of EMP awareness and implications thereof	<ul style="list-style-type: none"> -EMP trainings should be provided to all new workers on site. -All site personnel should be aware of necessary health, safety, and environmental considerations applicable to their respective work. -The implementation of this EMP should be monitored. <p>The site should be inspected, and a compliance audit done throughout <u>the project activities, monthly.</u></p> <ul style="list-style-type: none"> -Implement an EMP non-compliance penalty system onsite. 	<ul style="list-style-type: none"> -Compliance monitoring conducted bi-annually and should be recorded. -The ECC is renewed every 3 years -Bi-annual reports -Records of EMP training conducted. 	-ECO	Throughout the project cycle
Bulk fuel supply	Insufficient and inconveniences due to the unavailability of bulk fuel supply would lead to interruption of services	<ul style="list-style-type: none"> -Ensure that the Fuel Depot has sufficient fuel always. -The Depot should consider putting up business arrangements with local and regional small business such as fuel stations that are interested in buying bulk fuel for further supply in their areas 	<ul style="list-style-type: none"> -There is always sufficient fuel supply for customers -Information is shared with regional business to enter into supply agreements with NAMCOR for their businesses 	-Proponent	Throughout the project cycle and when deemed necessary
Employment opportunities	Unfair practices of labour recruitment an opportunity may lead to	<ul style="list-style-type: none"> -It should be mandatory to contractors to give all unskilled and semi-skilled work to be given to the locals before considering outsiders (anyone from outside Gobabis). -There should be transparency in the notification of anticipated work opportunities and number of positions 	<ul style="list-style-type: none"> -There is a fair recruitment process -Locas are given preference for the work they can perform (positions they can 	-Proponent (Human Resources Department)	When deemed necessary during operations

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
	conflicts	onsite. -Equal opportunities should be given to both men and women, where possible. -Have a plan to meet the Labour Act's requirements when retrenchment of staff is considered. -Where possible staff can be relocated to another facility or town where business continues in the same way.	occupy).		
Goods and services procurement	The procurement of goods and service from outsiders over local business may lead to conflicts and overlooking local suppliers	-The procurement of works for site upgrade works should follow a fair and transparent process. -Procurements for goods and services should be open only to local and Namibian companies with strong local participation. A percentage of the scope should be reserved for Small-Medium Enterprise (SME) contractors who may be recruited on a sub-contract basis to build local capacity. -The business opportunities such as cleaning services and site maintenance should be given to local companies	-Goods and services are procured from Gobabis -Local businesses are considered for procurement opportunities	-Proponent (Procurement Department)	When deemed necessary during operations
Soils	Physical soil / land disturbance and loss of topsoil during site upgrade	-The topsoil that was stripped from certain site areas to enable project works and can be returned to its initial position, should be returned. This is to avoid unnecessary stockpiling of site soils which would leave them prone to erosion. -All construction trenches and pits excavated on site should be backfilled and areas rehabilitated.	-No proliferation of informal vehicle tracks. -No new erosion gullies.	-ECO	Throughout the project cycle
Site Fire outbreaks	Accidental fire outbreaks and Explosion risks	-No locomotives may enter the rail gantry – fire risk. -Coupling of hoses should be tight and old perished	-No wildfires recorded caused by site personnel -Fire extinguishers are	-Proponent	Throughout the project cycle

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		<p>materials should be replaced before leaks occur.</p> <ul style="list-style-type: none"> -Use non-sparking tools and explosion-proof equipment. Use in well-ventilated area away from all ignition sources. -Keep product away from high-energy ignition sources, heat, sparks, pilot lights, static electricity, and open flames. -The areas within 50 meters of the rail siding and Depot fences/walls should be cleared of any shrubs and grass. This is to prevent the risk of bush fire from reaching the siding and site, which would lead to fire catastrophe. -Warning signs of "NO SMOKING" and "NO THROWING USED CIGARETTES near the site and rail siding" should be clearly written and pasted around the site and rail siding. -Consider fencing the site using concrete wall (instead of a see-through fence) to reduce the risk of smokers throwing newly used cigarettes into the Depot or even tanks. -The site fire extinguishers should be serviced accordingly, and personnel trained on how to use them. -No open fires to be created by project personnel onsite. -Potential flammable areas and structures such as fuel storage tanks should be marked as such with clearly visible signage. -The contact details of fire services should be readily and visibly displayed in both the office and warehouse buildings for site personnel. -All fire precautions and fire control at the site must be in 	<p>readily available and up to date with service</p>	<p>-ECO</p> <p>-Site Operator</p>	

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		<p>accordance with SANS 089-1, or better. Firefighting measures as per the Material Safety Data Sheets of the product should be adhered to.</p> <p>-All personnel must be sensitised about responsible fire protection measures and good housekeeping such as the removal of flammable materials (e.g., rubbish, dry vegetation, and hydrocarbon-soaked soil) from the vicinity of the gantry and tank areas. Regular inspections should be carried out to check for these materials at the site.</p>			
Storage and handling of hydrocarbons in relation to fire hazards	The risk of fire outbreaks due to poor storage and handling of hydrocarbons and other flammables substances	<p>-Electrical equipment and fittings must comply with local fire prevention regulations for this class of product. Refer to national or local regulations covering safety at petroleum handling and storage areas for this product</p> <p>-Emergency training and an emergency drill program must be implemented to be given at least every 6 months on Emergency Procedures.</p>	<p>-All fire procedures and measures are implemented</p> <p>-All personnel are trained and understand these requirements</p>	<p>-ECO</p> <p>-Site Operator</p>	Throughout the project cycle
	Safe Offloading Distance in relation fire occurrences	<p>-The distance from the main railway line to the gantry railway line must meet the required safety distance for offloading. If the distance does not meet the stipulated requirements, then a concrete protection wall must be erected between the gantry railway line and the main railway line.</p> <p>-Regular testing of automated fire and leak response systems.</p> <p>-Record any irregularities and refer to operation manuals provided by MME for the monitoring of bulk fuel tanks.</p>	<p>-The safe offloading and loading distances are adhered to</p> <p>-Fire emergency procedures are understood by site personnel and personnel trained on responsiveness.</p>	<p>-ECO</p> <p>-Site Operator</p>	Throughout the project cycle
Site safety and security	Compromising site security	-A high concrete wall should be constructed around the site to upgrade its security	-The site fencing and all raised security concerns	-Proponent	During site upgrading

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
	and safety	<p>-A new and modern security gate and security control point should be installed at the site entrance</p> <p>-The entrance should be equipped with an alcohol testing device to ensure that no visitor or employee is allowed onsite when under the influence of alcohol or any narcotic substances.</p> <p>-A warning siren should be installed at the site office building to notify the site employees, contractors, and visitors of danger.</p> <p>-the site should be equipped with 24-hour security surveillance in case of opportunistic activities such as theft and vandalism.</p> <p>-The number of security guards for the night shift should be increase to three and two during the day shift.</p>	have been improved	-Site Operator	works
Occupation and community health and safety	Project related injuries and other health and safety related issues on personnel and locals	<p>-As part of their induction, the Project personnel should be provided with an awareness training of the risks of mishandling equipment and materials on site as well as health and safety risk associated with their respective jobs.</p> <p>-The contact details of ambulance and other extensive health care services should be readily and visibly displayed in both the office and warehouse buildings for site personnel.</p> <p>-the First aid kit should always be fully furnished and ensure that 2 or 3 site personnel ate trained on administering first aid.</p> <p>-Employees and visitors should be properly equipped with adequate personal protective equipment (PPE) such as coveralls, gloves, safety boots, earplugs, or safety</p>	<p>-Comprehensive health and safety plan for all project activities compiled.</p> <p>-Occupational Health and Safety Personnel</p> <p>-Health and Safety Trainings</p> <p>-Fully equipped first aid kits onsite</p> <p>-Trained workers to administer first aid</p>	-ECO -Site Operator	Throughout the project cycle

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		<p>glasses (depending on the job and site area visited, etc.</p> <ul style="list-style-type: none"> -The heavy vehicle, equipment and fuel storage area should be properly secured to prevent any harm or injury to the Proponent's personnel. -Protective equipment such as handrails should be installed on top of rail or road tankers. -The Material Safety Data Sheets (MSDS) should be reviewed, and training provided to all site personnel. -An emergency preparedness plan should be compiled, and all personnel appropriately trained. -Personnel should not be allowed to drink alcohol prior to and during working hours nor allowed on site when under the influence of alcohol as this may lead to mishandling of equipment which results into injuries and other safety risks. -The site areas that are considered risks should be equipped with "danger" or "cautionary" signs written in English, Afrikaans and Otjiherero for easy understanding by the residents (locals). 			
Stormwater management	rainwater stagnation and possible overtopping during rainy seasons (site damage and flooding)	<ul style="list-style-type: none"> -Stormwater management systems should be improved and incorporated into the site layout to ensure that the rainwater is collected and diverted to specific rainwater collection area (point) and not idle on site. -A runoff diversion ditch must be constructed and maintained. 	-Stormwater discharge systems are improved and incorporated into the upgraded/improved site works	-Proponent	During site improvement
Water Resources Use	Over-abstraction	-Water reuse/recycling methods should be implemented	-No water leakages from site water storage tanks	-ECO	Throughout the project life cycle

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
	(water demand and availability)	<p>as far as practicable.</p> <p>-Project water storage tanks should be inspected daily to ensure that there is no leakage, resulting in wasted water.</p> <p>-Water conservation awareness and saving measures training should be provided to all the project workers in both phases so that they understand the importance of conserving water and become accountable</p>	-Water is recycled where possible		
Soils and water resources	Soils and water resources pollution	<p>-Spill control preventive measures should be in place on site to management soil pollution, thus preventing and or minimizing soil and water resources pollution.</p> <p>-The underground storage tanks should be equipped with double layer to minimize the pollution of groundwater in case of tank burst or leaks.</p> <p>-The fuel tanks should be equipped with fuel leakage detectors to ensure that the leak is detected on time to avoid major leakage leading to significant pollution to soil and groundwater.</p> <p>-Spill control structures and procedures must be in place according to SANS 089-1 and SANS 089-3 standards or better, including impounding around the loading areas by bunding with appropriate slopes of 1:100.</p> <p>-All fuelling should be carried out on dedicated surfaces, i.e., concrete slabs with regularly maintained seals between slabs.</p> <p>-Any spillage of more than 200 litre must be reported as per the Petroleum Products License.</p> <p>-Spill clean-up kit must be available on site as per the relevant Material Safety Data Sheets.</p>	<p>-No complaints of pollutants on the soils and eventually in the water due to project activities</p> <p>-No visible oil spills on the ground or pollution spots.</p> <p>-Sufficient waste containers provided onsite</p> <p>-Non-permeable material to cover the ground surface at areas where hydrocarbons and potential pollutants are utilized.</p>	-ECO	Throughout the project life cycle

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		<p>-Personnel should be sensitized on the impacts of soil pollution and advised to follow appropriate fuel delivery and handling procedures.</p> <p>-Ensure basic Spill Prevention, Control, and Countermeasure (SPCC) Plan training for all personnel.</p> <p>-Project machines and equipment should be equipped with drip trays to contain possible oil spills.</p> <p>-Polluted soil should be removed immediately and put in the designated hazardous waste storage containers for later disposal.</p> <p>-Drip trays must be readily available at filling areas and monitored to ensure that accidental fuel spill is cleaned on time (soon after the spill has happened).</p> <p>-Polluted soil must be collected and transported away from the site to an approved and appropriately classified hazardous waste treatment facility.</p> <p>-The oil-water separator should be properly and regularly maintained (drained and cleaned) by a specialized contractor to ensure that the levels of oil in the released water do not go beyond the limits of the pit.</p> <p>-Washing of equipment contaminated hydrocarbons, as well as the washing and servicing of vehicles should take place at a dedicated area (impervious surface), where contaminants cannot contaminate soil or water resources.</p>			
Biodiversity	Loss Fauna and Flora	<p>-Avoid unnecessary removal of vegetation, thus promoting a balance between biodiversity and Project operations.</p> <p>-If necessary and obstructing the project activities, the</p>	<p>-No killing or disturbance of biodiversity</p> <p>-The permit to remove the necessary protected</p>	<p>-Site Operator</p> <p>-ECO</p>	Throughout the project cycle

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		<p>permit to remove the trees should be obtained from the nearest Forestry Directorate at MEFT (Forestry Office in Gobabis).</p> <p>-Avoid the killing or hurting of all kinds of animals, birds and reptiles encountered onsite.</p> <p>-Environmental awareness on the importance of biodiversity preservation should be provided to workers.</p>	<p>trees is obtained from the nearest Forestry Directorate prior to removing them (only if obstructing operations)</p> <p>-Visible preservation of onsite vegetation</p>		
Road use and safety	Increase in vehicular traffic flow	<p>-The transportation of fuel should be limited to twice a week only to reduce the pressure on local roads.</p> <p>-Ensure that the access roads are frequently maintained and have sufficient road signs.</p> <p>-Ensure that the fuel trucks do not use roads that pass-through town to avoid traffic congestions owing to slow moving heavy trucks.</p> <p>-The heavy truck loads should comply with the maximum allowed speed limit for respective vehicles while transporting materials and equipment/machinery on the public and access roads is 40km/h.</p> <p>-Vehicles drivers should be in possession of valid and appropriate driving licenses and adhere to the road safety rules.</p> <p>-Drivers should drive 40km/hour and be on the lookout for people on roadsides, especially children.</p> <p>-Vehicle's drivers should not be allowed to operate vehicles while under the influence of alcohol.</p> <p>-The deliveries and collection to and from site should be done during weekdays between the hours of 8am & 5pm.</p>	<p>-No complaints from members of the public regarding vehicular traffic issues related to the project activities.</p> <p>-A formal road access permit has been obtained from Roads Authority</p> <p>-All personnel operating the project vehicles and machinery are appropriately licensed and possession of valid driving licenses.</p> <p>-Demarcated areas for parking, offloading, and loading zones are on sites.</p>	<p>-Proponent</p> <p>-ECO</p>	Throughout the project life cycle

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
Archaeology and heritage	Accidental disturbance of archaeological or heritage objects	<ul style="list-style-type: none"> -On-site personnel and contractor (during site upgrade works involving earthworks) must be sensitized to exercise and recognize “Chance Finds Heritage”. -Adhere to the provisions of Section 55 of the National Heritage Act in event significant heritage and culture features are discovered while conducting site upgrading works. -When the removal of topsoil and subsoil on the site for site upgrading purposes, the site should be monitored for subsurface archaeological materials by Environmental personnel. 	-Preservation of all artefacts and objects that are discovered on and around project site during earthworks	<ul style="list-style-type: none"> -Site Operator -ECO 	As and when required, i.e., and during site upgrading works
Littering and waste management (general waste and sanitation)	Environmental Pollution	<ul style="list-style-type: none"> -Project personnel should be sensitized to dispose of waste in a responsible manner and not to litter. -Ensure that there are no wastes left on the sites at the end of each day. -All domestic and general operational waste produced daily should be contained onsite until such that time it is removed by the Municipal waste removal staff / contractor. -No waste may be buried or burned on site or anywhere else. -Maintain separate waste bins for different wastes, i.e., hazardous, and general/domestic waste should be in separate waste bins. -A penalty system for irresponsible disposal of waste on site and anywhere in the area should be implemented. -Used fuels should be contained on site and disposed of 	<ul style="list-style-type: none"> -No visible litter within and around the Project area owing to the Project -Provision of sufficient waste storage containers -Waste management awareness -Waste disposal permits to municipalities -Environmental, Health and Safety Statements and Policy in place -Waste storage containers 	-ECO	Throughout the project cycle

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		<p>in accordance with municipal waste disposal standards.</p> <p>-An emergency plan should be available for major/minor spills at the site during operations and maintenance.</p>			
	Wastewater (sewage)	-Ensure that there are sufficient and accessible toilets for both day and night shift (for security guards)	-Adequate toilet and basic ablution facilities on site.	-Proponent -ECO	Throughout the project cycle
Air Quality	Dust generation, fumes and fuel vapours emission (poor air quality)	<p>-Vehicles should only be driven at the authorized site speed to avoid dust generation onsite and surroundings.</p> <p>-Ensure that the fuel refill and delivery is limited to working days to minimize heavy vehicle-related dust level in the area from the unpaved/untarred access roads.</p> <p>-The heavy vehicles and fumes generating equipment (during maintenance and site upgrade) should not be left idling when not in use.</p> <p>-The venting systems and procedures should be designed according to South African National Standards to minimize fuel vapour emissions</p>	<p>-No complaints from the public about vehicle emissions and dust generation.</p> <p>-Visible efforts to curb dust</p>	-Site Operator -ECO	Throughout the project cycle
Noise	Nuisance	<p>-Noise from operations' vehicles and equipment on the sites should be at acceptable levels.</p> <p>-The project activities should not be carried out during the night or before 08h00 in the morning and should be carried out during weekdays only.</p> <p>-Working hours, including site upgrading works should be restricted to between 08h00 and 17h00 to avoid noise and vibrations generated by equipment and the movement of vehicles before or after hours.</p> <p>-Site workers and contractors should be equipped with</p>	<p>-No complaints from local communities such as neighbours about excessive noise from site</p> <p>-Noise protective equipment for workers</p>	-Site Operator -ECO	Throughout the project cycle

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		personal protective equipment (PPE) such as earplugs to reduce exposure to excessive noise.			

6.3 Environmental Management and Mitigation Measures- Decommissioning

The measures provided in Table 6-3 below are aimed at decommissioning the Depot and associated infrastructure, when the Proponent can no longer operate or supply fuel from the Depot. These measures will be implemented to ensure that the Depot site does not pose an environmental and social risk post its operations.

The first step to decommissioning a Depot and its infrastructures, particularly the fuel tanks is to:

- Notify to the licensing authority: The Petroleum Officer / Commissioner at the Ministry of Mines and Energy must be advised on which course of action it is proposed to take to render a decommissioned tank safe and can be in attendance when tanks are filled.

Table 6-3: The Environmental management and mitigation measures for the Decommissioning Phase (as adopted from DP Fuel Tank Services, 2016)

Aspect	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
Decommissioning Phase and Site Rehabilitation				
Fuel tanks	<p>1. Abandoning tanks in-situ:³</p> <p>Any tank to be abandoned in place should be rendered safe by one of the following methods:</p> <ul style="list-style-type: none"> -by filling with cement slurry using the following procedure: -drain back all pipelines associated with the tank and remove all residual 	-Implementation of the measures	-Proponent (By appointing a specialized contractor for decommissioning)	Upon cessation of operations

³ DP Fuel Tank Services. (2016). Methods of Fuel Tank Decommissioning: <https://dptanks.co.uk/methods-fuel-tank-decommissioning/>

Aspect	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
	<p>petrol the tank must then be bottomed out which involves the removal of that quantity of petrol and deposits which remain below the pump suction pipeline, using a hand pump or a flame-proof electrical pump. This procedure should be performed by a specialist contractor</p> <p>-the atmosphere in the tank must inerted by means of nitrogen, nitrogen foam or carbon dioxide (see guidance on these inerting methods in HSE Guidance Note CS 15)</p> <p>-disconnect all pipework entering the tank via the tank lid. Flush through and cap at each end all pipelines previously connected to the tank or compartment</p> <p>-remove the tank lid. (It should be remembered that this can be a hazardous exercise unless great is care taken.) In the case of old tanks without tank lids the suction pipe should be unscrewed leaving a hole approximately 75mm through which slurry of a thin consistency can be poured</p> <p>-the area surrounding the tank as far as boundaries permit should normally be classed as a hazardous area whilst filling the tank is taking place and all necessary precautions should be taken to prevent any source of ignition</p> <p>-fill the tank with 20 to 1 mix of concrete slurry. Wherever possible the slurry should be assisted to the extremities of the tanks by means of a vibrating device. (It is important to remember the previous point). It is essential that a Petroleum Officer of the Trading Standards Service is in attendance when the slurry fill takes place. Only when the slurry filing has been completed to the satisfaction of the Petroleum Officer is the manhole chamber to be filled with concrete.</p> <p><u>2. Removal of tanks</u></p> <p>Before excavation work starts, any tank to be removed from the ground should be rendered safe.</p> <p>For a tank without leaks the following initial procedure should be followed:</p>		fuel tanks)	

Aspect	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
	<ul style="list-style-type: none"> -drain all pipelines associated with the tank and remove all residual petrol -the tank must then be bottomed out which involves the removal of that quantity of petrol and deposits which remain below the pump suction pipeline, using a hand pump or a flame-proof electrical pump. This procedure should be performed by a specialist contractor -fill the tank or compartment with water to ensure a liquid seal -disconnect all pipelines (except vent pipes) and add water to the tank or compartment until clear water appears at the vent pipe opening -cap or blank off all openings to the tank or compartment flush through and cap at each end all pipelines previously connected to the tank or compartment 			
Disposal of tanks	<ul style="list-style-type: none"> -Any tank which has been removed from its excavation should be disposed of safely as soon as possible. Preparation for and removal by road should be in accordance with the provisions of the current legislation in force at the time. -The person responsible for removal of a tank from a filling station should ensure that the recipient of the tank is made aware of the tank's previous use and of the need to take adequate precautions against fires and explosions when dealing with it. -Cleaning or demolition of any tank on site should not take place without the agreement of the appropriate authority. -The location of any abandoned tank should be recorded in the site register and brought to the attention of any person who subsequently becomes responsible for the site. -Further, the Trading Standards Service (in this case MME) should be made aware of the destination of any tank which has been removed from the ground. 	-Implementation of the measures	-Proponent (By appointing a specialized contractor for decommissioning fuel tanks)	Upon cessation of operations

Aspect	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
Alternative use of tanks	<p>The tank may be used for the storage of diesel or gas oil providing the petrol tank has had all residual of petrol removed from it and been bottomed out (which involves the removal of that quantity of petrol and deposits which remain below the pump suction pipeline, using a hand pump or a flame-proof electrical pump). This procedure should be performed by a specialist contractor.</p> <p>-The tank must be filled totally to dispel any petroleum vapour. It is important to remember to drain down the pump and pipelines thereby removing all petrol before introducing an alternative fuel</p>	-Implementation of the measures	-Proponent (By appointing a specialized contractor for decommissioning fuel tanks)	Upon cessation of operations
Infrastructure and structures: Decommissioning of services and infrastructures	<p>-Dismantling of temporary structures and office spaces and donate them to the Municipality to be utilized for other purposes in the town. Or if cannot be donated, these structures can be sold o interested buyers to use for other similar projects within the zoning type of the site area.</p> <p>-All the waste generated from leading to the last days on site should be transported to the municipal dumpsite.</p> <p>-Transport all equipment and vehicles to offsite storage facilities.</p>	<p>-Structures are sold or donated to the Municipality</p> <p>-Waste transported to approved dumpsites</p>	-Proponent -ECO	At the end of the project operations
Rehabilitation funds: financial and technical resources	-Make provision of both financial and technical resources for decommissioning.	-Records of finances set aside for decommissioning	-Proponent	Updated throughout the project phase
Generated and Accumulated Waste	<p>-All re-usable pipelines, pumps, tanks, valves and other equipment must be removed to another site or sold.</p> <p>-Those items that cannot be used again must be scrapped in the appropriate manner.</p> <p>-Upon demolition of buildings and concrete, the rubble must be removed from the property and taken to an approved dumpsite designated by the</p>	-All waste is disposed of at the respective waste facilities (based on waste types)	-Proponent	Before complete site closure

Aspect	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
	Gobabis Municipality. -Site Rehabilitation, if necessary, is to be done using the designated funds. -Waste should be sorted accordingly and disposed of at the Municipal waste management sites/facilities. -No waste should be buried nor left scattered on site.		-ECO	

Further readings on Decommissioning can be found on some of the following websites:

- <https://www.epa.nsw.gov.au/-/media/21p3279-decommissioning-underground-petroleum-storage.pdf>
- <https://www.nqpetro.com.au/tank-decommissioning/>
- <https://jwhinchliffetanks.co.uk/fuel-oil-tank-decommissioning-guide/>.

7 RECOMMENDATIONS AND CONCLUSIONS

7.1 Recommendations

EDS Consultants are confident that the potential negative impacts associated with the project activities can be managed and mitigated by the effective implementation of the recommended management and mitigation measures. This would also be improved by more effort and commitment towards monitoring the implementation of these measures.

It is therefore, recommended that the project activities be granted an Environmental Clearance Certificate. The Proponent will be required to ensure that:

- All the management and mitigation measures provided herein and Draft EMP are effectively and progressively implemented and monitored.
- All required permits, and approvals / consents for the certain activities should be obtained as required.
- Permits and or approvals required to undertake specific site activities are obtained and renewed as stipulated by the issuing authorities and ensuring compliance with the specific legal requirements attached thereto.
- All project personnel, contractors and visitors onsite comply with the legal requirements governing their project and its associated activities.
- The disturbed areas owing to the project activities such as site upgrades/improvements should be rehabilitated, as far as practicable.
- Environmental Compliance monitoring reports should be compiled and submitted to the DEAF every 6 months (bi-annually).

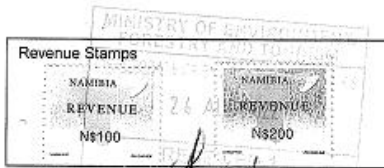
7.2 Conclusions

Based on the assessment done for the Fuel Depot in Gobabis, the project and its associated activities do not pose a significant risk to the environment that would prompt its discontinuation or closure. However, it is highly recommended that the measures provided are effectively implemented and monitoring to protect the biophysical and social environment throughout the project duration.

8 LIST OF REFERENCES

1. Lohe, C., Amster, R. and Swartz, B. (2021). (editors). Groundwater in Namibia: An Explanation to the Hydrogeological Map. Windhoek: Ministry of Agriculture, Water and Land Reform.
2. Meteoblue (2022). Meteoblue Weather: Simulated historical climate & weather data for Gobabis. Available from https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/gobabis_namibia_3357247 Accessed 04 September 2022.
3. Namibia Statistics Agency. (2014). 2011 Population and Housing Census: Omaheke Profile 2011, Census Regional Profile. Windhoek: Namibia Statistics Agency.
4. Omaheke Regional Council. (2015). Omaheke Regional Development Profile. Gobabis. Omaheke Regional Council.
5. World Weather Online. (2022). Gobabis - Omaheke Region, Namibia Weather. Available from: <https://www.worldweatheronline.com/gobabis-weather-averages/omaheke/na.aspx> Accessed 04 September 2022.

APPENDIX A: THE COPY OF ENVIRONMENTAL CLEARANCE CERTIFICATE (ECC) APPLICATION SUBMITTED TO THE MINISTRY OF ENVIRONMENT, FORESTRY & TOURISM (MEFT)



ANNEXURE 1

FORMS

Form 1

REPUBLIC OF NAMIBIA

ENVIRONMENTAL MANAGEMENT ACT (No. 7 of 2007)

(Section 32)

APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATE

PART A: DETAILS OF APPLICATION

- | | | |
|----|-----------------------------|--|
| 1. | Name: | NAMCOR Petroleum Trading & Distribution (Pty) Ltd |
| 2. | Business Registration: | CY/2000/0421 |
| 3. | Correspondence Address: | Private Bag 13198 Windhoek, Namibia |
| 4. | Name of Contact Person: | Ms. Imelda Tjijenda |
| 5. | Position of Contact Person: | Environmental Coordinator |
| 6. | Telephone No.: | +264 61 204 5221 |
| 7. | Fax No: | N/A |
| 8. | E-mail Address: | tjijenda@namcor.com.na |

PART B: SCOPE OF THE ENVIRONMENTAL CLEARANCE CERTIFICATE

1. THE ENVIRONMENTAL CLEARANCE CERTIFICATE IS FOR:

The 'listed activities' that might be affected are listed below:

"HAZARDOUS SUBSTANCE TREATMENT, HANDLING AND STORAGE"

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 or new permit, licence or authorisation in terms of a law governing the generation or release of emissions, pollution, effluent or waste.