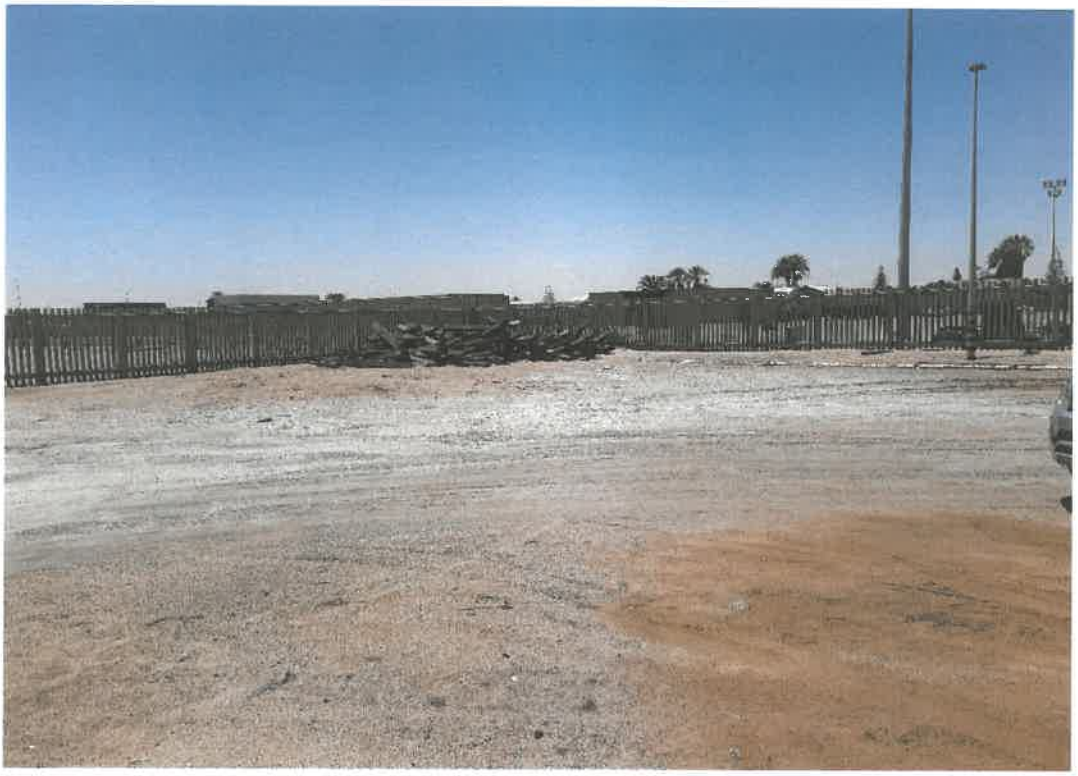
THE PROPOSED ABOVEGROUND TANK, FUEL MANAGEMENT SYSTEM, LOADING AND OFFLOADING EQUIPMENT AT TRANSNAMIB WALVIS BAY DEPORT, ERONGO REGION-NAMIBIA



ENVIRONMENTAL MANAGEMENT PLAN

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Acronyms

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

1. CHAPTER ONE: BACKGROUND

1.1. INTRODUCTION

National Petroleum Corporation of Namibia (NAMCOR) intends to install fuel storage aboveground tank, a fuel management system, loading and offloading equipment at Transnamib Walvis Bay Deport, Erongo Region-Namibia.

In this respect the proponent has appointed Junior Baiano Industrial Consultants cc to undertake an Environmental Scoping Assessment (ESA), formulate an Environmental Management Plan (EMP) and apply for an Environmental Clearance Certificate (ECC) to the Ministry of Environment, Forestry and Tourism (MEFT): Directorate of Environmental Affairs (DEA) for the intended development.

This document forms part of the application to be made to the DEA's office for an ECC for the proposed fuel retail facility (service station) establishment, according to the guidelines and statutes of the Environmental Management Act No.7 of 2007 and the Environmental Impacts Regulations (GN 30 in GG 4878 of 6 February 2012).

1.2. PROJECT LOCATION

The proposed project site is located at TransNamib warehouse in Walvis Bay, adjacent to the Walvis Bay port, accessed from 5th road. The map below (Figure 1) gives an aerial view of the project site.

Figure 1: Proposed Fuel Retail Facility site

1.3. PROJECT DESCRIPTION

1.3.1. DEVELOPMENT PROPOSAL & LAYOUT

NAMCOR intends to embark on the construction and operation of aboveground fuel storage tanks, fuel management system, fuel offloading equipment and a canopy at the existing Transnamib depot in Walvis Bay. Project development information is as follows:

Proposed Development Components:

- Above ground fuel management system
- Overhead Canopy
- Aboveground Fuel Storage Tanks
- Fuel Offloading Equipment
- Parking area

Current Land Use: Industrial zoned

Spatial Requirements: 1500 square meters.

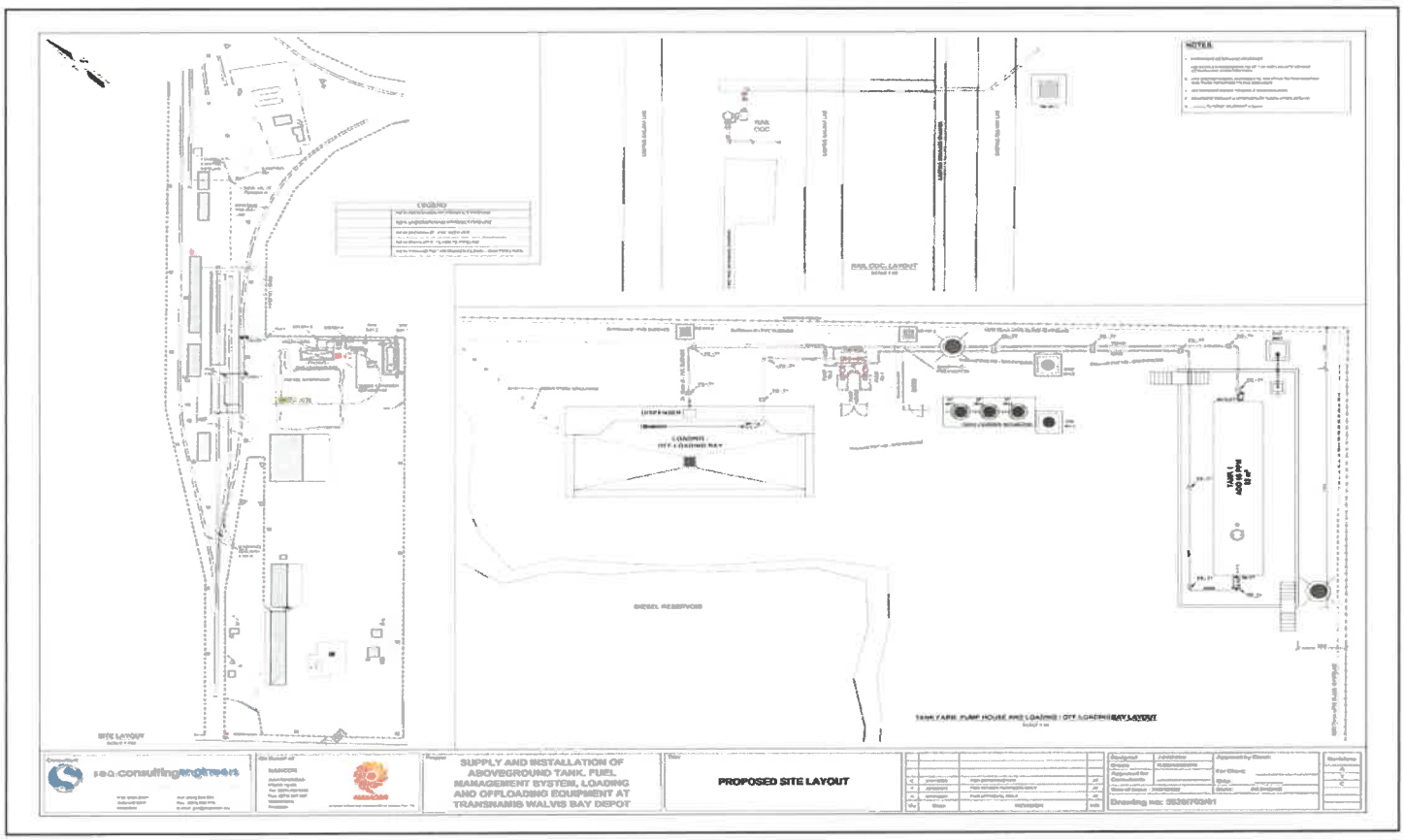

Figure 2: Proposed Site Layout

2. CHAPTER TWO: POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

2.1. INTRODUCTION

An important part of the ESA is identifying and reviewing the administrative, policy and legislative situation concerning the proposed activity, to inform the proponent about the requirements to be fulfilled in undertaking the proposed activities. This section looks at the legislative framework within which the proposed development will operate under.

The focus is on the compliance with the legislation during the planning, construction and operational phases. All relevant legislation, policies and international statutes applicable to the project are highlighted in **Error! Reference source not found.** below as specified in the Environmental Management Act, 2007 (Act No.7 of 2007) and the regulations for Environmental Impact Assessment as set out in the Schedule of Government Notice No. 30 (2012). An explanation is additionally provided regarding how these provisions apply to this project.

Table 1: Relevant legislation, policies and international statutes applicable to the project

Aspect	Legislation	Relevant Provisions	Relevance to the Project
The Constitution	Namibian Constitution First Amendment Act 34 of 1998	• Article 16(1) guarantees all persons the right to property. It therefore provides everyone a right to acquire, own and dispose of property, alone or in association with others and to bequeath such property. • Article 95(l) "The State shall actively promote and maintain the welfare of the people by adopting policies that are aimed at maintaining ecosystems, essential ecological processes and the biological diversity of Namibia. It further promotes the sustainable utilisation of living natural resources basis for the benefit of all Namibians, both present and future."	• The project will enable the full execution of right to practice any profession, or carry on any occupation, trade or business by availing necessary provisions such as practising any profession, or carry on any occupation, trade or business in the country. • Through implementation of the environmental management plan, the proponent will ensure conformity to the constitution in terms of environmental management and sustainability.
National Development Plans		Namibia's overall Development ambitions are articulated in the National Vision 2030. At the operational level, five-yearly national development plans (NDP's) are prepared in extensive consultations led by the National Planning Commission in the Office of the President. The Government has so far launched a 4th NDP focusing on high and sustained economic growth, increased income equality Employment creation.	The proposed project will propel NDP4 targets in logistics, tourism and commodities market. Adding on, this will create employment which will work towards the NDP and Vision 2030.
Archaeology	National Heritage Act 27 of 2004	Section 48(1) states that "A person may apply to the Namibian Heritage Council (NHC) for a permit to carry out works or activities in relation to a protected place or protected object"	Any heritage resources discovered would require a permit from the NHC for relocation. The site is however already disturbed and semi-developed.

Aspect	Legislation	Relevant Provisions	Relevance to the Project
	National Monuments Act of Namibia (No. 28 of 1969) as amended until 1979	• "No person shall destroy, damage, excavate, alter, remove from its original site or export from Namibia: • Meteorites, fossils, petroglyphs, ornamental infrastructure graves, caves, rock shelters, middens, shells that came into existence before the year 1900 AD; or any other archaeological or palaeontological finds	The proposed site of development is not within any known monument sites, both movable and immovable as specified in the Act, however in finding any materials specified in the Act, contractors on site will take the required route and notify the relevant commission.
Environmental	Environmental Management Act 7 of 2007	• Requires that projects with significant environmental impacts are subject to an environmental assessment process (Section 27). • Requires for adequate public participation during the environmental assessment process for interested and affected parties to voice their opinions about a project (Section 2(b-c)). • According to Section 5(4) a person may not discard waste as defined in Section 5(1)(b) in any way other than at a disposal site declared by the Minister of Environment and Tourism or in a manner prescribed by the Minister. • Details principles which are to guide all EIAs	This Act and its regulations should inform and guide this EIA process.
	EIA Regulations GN 57/2007 (GG 3812)	• Details requirements for public consultation within a given environmental assessment process (GN No 30 S21). • Details the requirements for what should be included in a Scoping Report (GN No 30 S8) and EIA report (GN No 30 S15).	This Act and its regulations should inform and guide this EIA process.

Aspect	Legislation	Relevant Provisions	Relevance to the Project
	Pollution and Waste Management Bill (draft)	• This bill defines pollution and the different types of pollution. It also points out how the Government intends to regulate the different types of pollution to maintain a clean and safe environment. • The bill also describes how waste should be managed to reduce environmental pollution. Failure to comply with the requirements considered an offence and is punishable.	The project should be executed in harmony with the requirements of the act to reduce negative impacts on the surrounding environs from waste during construction or operation.
	Soil Conservation Act 76 of 1969	This act makes provision for combating and for the prevention of soil erosion, it promotes the conservation, protection and improvement of the soil, vegetation, sources and resources of the Republic of Namibia.	The Project impact on soil will rather be localised, however the Act should provide for guidelines of operation during construction to prevent soil erosion and contamination during operation.
	National Biodiversity Strategy and Action Plan (NBSAP2)	The action plan was operationalised in a bid to make aware the critical importance of biodiversity conservation in Namibia, putting together management of matters to do with ecosystems protection, biosafety, and biosystematics protection on both terrestrial and aquatic systems.	Forming part of the EIA of and EMP for this Project, the proponent will consider all associated impacts, both acute and long term, and will propose methods and ways to sustain the local biodiversity.
Forestry	Forest Act 12 of 2001	• Tree species and any vegetation within 100m from a watercourse may not be removed without a permit (S22(1) • Provision for the protection of various plant species.	On site there are no trees.
Water	Water Act 54 of 1956	• The Water Resources Management Act 24 of 2004 is presently without regulations; therefore, the Water Act No 54 of 1956 is still in force:	The protection of ground and surface water resources should guide development's layout plans.

Aspect	Legislation	Relevant Provisions	Relevance to the Project
		• A permit application in terms of Sections 21(1) and 21(2) of the Water Act is required for the disposal of industrial or domestic wastewater and effluent. • Prohibits the pollution of underground and surface water bodies (S23(1). • Liability of clean-up costs after closure/ abandonment of an activity (S23(2)). • Protection from surface and underground water pollution	
Health and Safety	Labour Act (No 11 of 2007) in conjunction with Regulation 156, 'Regulations Relating to the Health and Safety of Employees at work'.	• 135 (f): "the steps to be taken by the owners of premises used or intended for use as factories or places where machinery is used, or by occupiers of such premises or by users of machinery about the structure of such buildings of otherwise to prevent or extinguish fires, and to ensure the safety in the event of fire, of persons in such building;" (Ministry of Labour and Social Welfare). • This act emphasizes and regulates basic terms and conditions of employment, it guarantees prospective health, safety and welfare of employees and protects employees from unfair labour practices.	The proponent will employ several people and shall ensure securing a safe environment and preserving the health and welfare of employees at work. This will include applying appropriate hazard management plans and enforcing Occupational Health and Safety (OHS) enforcement by contractors.
	Public Health and Environmental Act, 2015	• Under this act, in section 119: "No person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health."	The operation will ensure compliance to the terms of the Act.

Aspect	Legislation	Relevant Provisions	Relevance to the Project
Services and Infrastructure	Road Ordinance 1972 (Ordinance 17 0f 1972)	• Width of proclaimed roads and road reserve boundaries (S3.1) • Control of traffic during construction activities on trunk and main roads (S27.1) • Infringements and obstructions on and interference with proclaimed roads. (S37.1) • Distance from proclaimed roads at which fences are erected (S38)	Although the project is a major boost for the town, the commodities market and the national highways the proponent needs to ensure that the development do not affect the major roads within their vicinity during construction and operation phases.

3. CHAPTER THREE: ENVIRONMENTAL MANAGEMENT PLAN (EMP)

3.1. INTRODUCTION

In line with the Namibian Environmental Management legislation and International best practices the proponent will implement an Environmental Management Plan (EMP) to prevent, minimise and mitigate negative impacts. The environmental management plan is being developed by Junior Baiano Industrial Consultants (JBIC) cc to address all the identified expected impacts, the plan will be monitored and updated on a continuous basis with aim for continuous improvement to addressing impacts.

This section outlines the Environmental Management Plan (EMP) for the proposed Aboveground fuel storage tank and associated infrastructure at TransNamib Depot in Walvis Bay. The EMP stipulates the management of environmental programs in a systematic, planned and documented manner. The EMP below includes the organizational structure, planning and monitoring for environmental protection at the proposed development site and other areas of its influence. The aim is to ensure that the facility maintains adequately controlled over the project operations to:

- To prevent negative impacts where possible;
- Reduce or minimise the extent of impact during project life cycle;
- Prevent long term environmental degradation.

3.2. EMP ADMINISTRATION

There is a strong need to clearly outline the roles and responsibilities of all stakeholders to ensure that the EMP is fully implemented. There is also a need for the proponent to appoint an overall responsible person (project manager) to ensure the successful implementation of the EMP as highlighted on table 3:

Table 2: Roles and Responsibilities in EMP Implementation

ROLE	RESPONSIBILITIES
NAMCOR	Responsible to enforce EMP implementation to contractors
Environmental Control Officer	• Implement, review and update the EMP. • Ensure all reporting and monitoring required under EMP is undertaken, documented and distributed as needed • Conduct environmental site training (toolbox talks) and inductions with the support of an environmental consultant. • Conducts environmental audit at work site with the support of environmental consultant. • Close out all non-conformances. • Ensure materials being used on site are environmentally friendly and safe.
The Department of Environmental Affairs	• Review the EMP and any amendments to the EMP. • Review reports of environmental issues and non-conformances as issued. • Review and approve environmental reports submitted as part of EMP implementation
Site Engineers	• Control and monitor actions required by the EMP. • Report all environmental issues to HSE Manager. • Ensure documented procedures are followed and records kept on site. • Ensure any complaints are passed onto the management within 24 hours of receiving the complaint.
Workers	• Follow requirements as directed by site engineers. • Report any potential environmental issues to site engineer/project manager, indicating spilt oil, excess waste, excessive dust generation, dirty water running off the site and other possible non-conformances

3.3. EMP MANAGEMENT ACTIONS

The management actions aim to avoid potential impacts where possible. Where impacts cannot be avoided, management actions are outlined in order to minimize the significant impacts.

The tables below outline the specific management actions which need to be undertaken during the construction and operational phase of the development to ensure that the site activities are compliant.

3.4. CONSTRUCTION PHASE MANAGEMENT ACTIONS

Table 8 below outlines the management actions to be undertaken during the construction phase of the project to ensure compliance with the EMP.

Table 3 : Construction Phase Management Actions

Impact	Description	Effects	Time frame	Responsibility	Action
Noise pollution	Noise will be generated through: • Construction of drainage services and water reticulation systems. • Construction of site structures • Moving of vehicles.	• The health of working personnel could be disturbed. • Passers-by could be disturbed by the noise. • General annoyance • Drive away local animal species near the project site	6-8 months	• ECO • Site Manger	• A construction interval will be established, used and adhered to, daytime only (6am to 5pm). • During operation the facility will operate 24 hrs a day. • Workers will be issued ear plugs to protect them from excessive noise. • Public will be notified through printed timetable stating planned operational activities. • Site notices will be erected on and around the site notifying visitors and nearby residents of different hazards on site.
Dust Generation	Dust will accumulate because of the land preparation, onsite movements of vehicles and machines, wind blowing on loose	• Can lead to respiratory illnesses especially to those working in the area. • General air pollution. • Nuisance to nearby residents	6-8 months	• ECO • Project Manger	• Dust suppression will be done through watering dust sources surfaces. • Ensure that protective equipment such as respirators are distributed to employees and ensure their use.

Impact	Description	Effects	Time frame	Responsibility	Action
	material during construction and tipping.				• Site notices to be erected on and around the site to inform visitors and surrounding residents. • Avoid construction operations during windy days. • Regular testing of dust levels during construction period (PPM), maintain dust levels at minimum by monitoring construction activities, stop operations if dust levels are high.
Debris Accumulation	Debris will accumulate due to construction activities, removal of existing dilapidated infrastructure on site	• Can be an eyesore. • Can be source of water and soil pollution. • Can result in scenic pollution	2-3 months	ECO	• Reuse reusable material such as bricks. • Recycle where possible • Reduce debris accumulation by acquiring/procuring only material that is sufficient, avoid over stocking of construction material.
Loss of Biodiversity	• Vegetative plants on site will be removed • Habitat destruction for both ground dwelling species and	• The clearing of vegetation will result in the breaking of the ecosystem processes in the area.	Construction phase	• ECO • Site Manager	• The proposed project area surroundings are already developed, hence there is little vegetation to be affected by the development.

Impact	Description	Effects	Time frame	Responsibility	Action
	tree dwelling species. • Soil disturbance on and around the site.	• Loss of aesthetic value of the proposed project area. • The few small animals still habituating the place such as small rodents and birds will be forced away. • The ecosystem food chain on and around the area will be broken.			
Greenhouse gas emissions	Green House Gasses (GHGs) emissions will be produced from the following activities: • Fuels combustion for transport (construction vehicles and equipment) • Ground excavation	-Global climate change - Air pollution	12 Months	• ECO • Project Manager • Department of Environmental Affairs.	• Adopt the use of ethanol blended fuels wherever necessary. • Design an operation system that cuts on fuel consumption. • Promote the use of energy efficient machinery, equipment and electricals during construction and operation

Impact	Description	Effects	Time frame	Responsibility	Action
	releases phosphorus found underground and releases particulate matter into the atmosphere.				
Pollution from construction activities	Construction is associated with a lot of raw material and activities that results in pollution	• Chemical pollution from oil spills resulting from the handling of various machineries used during the construction phase • Construction rubble, empty packaging containers/bags and materials remnants. • Construction workers can also pollute the surrounding environs if they are not provided with	Construction phase	• ECO • Project Manger	• Ensure that all waste from construction activities is stored and contained in designated skip containers and transported to a nearby waste disposal site. • Bulky waste such as building rubbles must be collected and disposed of at any of the various municipal satellite sites or for landfilling. • Adequate mobile toilets must be provided at the construction camps for the use of the workers.

Impact	Description	Effects	Time frame	Responsibility	Action
		adequate toilet facilities and a waste management system for domestic waste.			• A skip container will be put on site and regularly emptied to handle domestic waste.
Hydrocarbons release into the environment	The storage of fuel in underground tanks poses a risk of spillage of hydrocarbons additionally also from vehicles and machinery operations, maintenance through leakages and spillages which may result in environmental contamination	• Washing away of contaminated soils by rains into nearby rivers • Pollution of soil and affecting small living organisms habituating the soil • Result in possible groundwater pollution. • Possible fire risk on and around the site	Construction Phase	• ECO • Project Manager • Department of Environmental Affairs.	• Implement a maintenance programme to ensure all vehicles, machinery and equipment are remain in proper working order • Vehicle maintenance should be Conducted in designated areas only, preferably off-site. • Waste oil, fuels and other chemicals from drip trays on stationery vehicles and machinery will be disposed of as hazardous waste at a licensed facility by a specialist hazardous waste handler. • Oil residue will be treated with oil absorbent material such as Drizit or bio-remediation and removed to an approved waste disposal site.

Impact	Description	Effects	Time frame	Responsibility	Action
					• No bins containing organic solvents such as paint and thinners shall be cleaned on site, unless containers for liquid waste disposal are provided on site.
Safety and Health risks	Construction related Safety and Health hazards	Injuries to workers such as Occupational dermatitis, slips and fall of humans and objects, musculoskeletal disorders, etc.	Construction phase	Project manager	• Equip workers with Personal Protective Equipment (PPE), provide trainings on how to effectively use the PPE. • Provide platforms for briefings and meetings about possible safety and health hazards in the workplace. • Provide site signs warning and informing about different hazards on site.
Population Influx	The project will bring in skilled and unskilled workforce into Walvis Bay from other places increasing population density in the area.	• There is potential for cultural systems conflict between locals and new people in the area	Construction phase	• ECO • Project Manger	• Train and brief employees to respect local cultures and leaders, • Engage on massive sexual health training and awareness and providing contraceptives such as condoms, as well as provide means counselling for

Impact	Description	Effects	Time frame	Responsibility	Action
		• Potential for rife prostitution and spread of HIV/AIDS and other STDs • Potential for scaring away of local wild animals, poaching and removal of protected indigenous vegetative species			those that are affected by HIV/AIDS and other STDs, • Provide environmental trainings and continue a regular basis briefing the employees about nature conservation (animal and plants) and discourage indiscriminate vegetation clearance.
Land use change	The existing environment will drastically change from a dormant piece of land to a modernised urban development.	Sudden change in landscape appearances may be unfavourable to the residents who frequent the area.	Permanent	• ECO • Project Manger	• The development should blend into the existing area through designing and colour coding. • Green designing will bring life to the site and blend with surrounding areas. • The project area is already within an existing depot, hence there are no anticipated impacts to the land use change, since the proposed development will have a low significance in impacting current land uses.

Impact	Description	Effects	Time frame	Responsibility	Action
Employment creation	The construction exercise provides an opportunity of outsourcing work	Improves disposable income to those employed and their immediate families.	Project lifetime	Project Manger	Work with local leadership (councillor) on acquiring non-skilled labour from the residents.
Business linkages	Raw materials acquiring and contracting companies provide an opportunity for businesses.	• Local suppliers will be presented with an opportunity to empower their businesses. • Construction workers can be provided with accommodation, food and services from the local community increasing business activities.	Construction phase	Project Manger	The proponent will outsource most of its materials and services from Walvis Bay.

3.5. OPERATIONAL PHASE

The operational phase is the most critical component of project implementation since it is more on a long term, however and it is normally associated with less impacts as compared to construction phase. This phase will comprise of the actual day to day running of the service station. This phase is expected to last permanently, but with upgrading activities occasionally. There will be several impacts that will occur on a daily basis or other sequential routine. The phase forms the basis of an Environmental Management Plan that is detailed in Chapter and will be followed by the decommissioning phase. The major impacts identified by this study for the operational phase are as detailed in the previous chapter.

Table 4: Impacts associated with the Operation Phase

Aspect	Description	Effects	Time Frame	Responsibility	Action
Noise pollution	• Vehicle movements • People at the operational sites	• The health of working personnel could be disturbed. • Residents could be disturbed by the noise. • General annoyance • Driving away of local animal's species near the project site.	Project lifetime	ECO	Provide public notices through printed timetable showing schedule of planned work.
Air Quality	• Noxious Smells • Fumes	• Dizziness amongst employees • General environmental nuisance • Intoxication • Fumes poses fire risk	Project lifetime	ECO	• Tanks must have vent pipes installed on the tanks • During fuel tank refilling, a vapour containment system must be installed.
Occupational health and safety risks and accidents	Dealing with hazardous substance can pause threats to workers and the surrounding people.	Injuries to workers such as Occupational dermatitis, slips and fall of humans and objects, musculoskeletal disorders, etc.	Project lifetime	ECO	• Equip workers with Personal Protective Equipment (PPE). • Provide trainings on how to effectively use the PPE. • Provide platforms for briefings and meetings about possible safety and health hazards in the workplace

Aspect	Description	Effects	Time Frame	Responsibility	Action
					• OHS legal appointments on site in accordance with the Labour Act and the OHS regulations. • Specific safety measures should be in place in case of fire and explosion. • On site staff should be trained in firefighting
Water and soil quality	Hydrocarbons release into the environment	Ground and surface water contamination: Both chemical and physical contamination	Project lifetime	DEA / Namwater	• Visual monitoring and photographic record of any surface and/or groundwater intersected during construction. • There is need to drill monitoring wells around the service station facility to monitor water samples quarterly, to check for pollution. • Visual monitoring during rainfall events to measure the level of contamination of runoff water • Vehicles and machinery are to be regularly serviced to minimise oil and fuel leaks. • An oil separator should be installed around the fuel dispensing bay, car washing bay and the truck parking bay to prevent oils being channelled into the main sewerage works.

Aspect	Description	Effects	Time Frame	Responsibility	Action
					• The Aboveground storage tanks should be double walled bunded to ensure that spillages are contained • A stormwater management system with an oil separator shall be fitted to ensure that any wastewater is free of hydrocarbons and will not contaminate the environment. • Leak detection systems and alarms shall be installed on all tanks and pipes, to ensure swift response to spills and leakages. • There shall be spoil cleaning kits on site at all times, and employees shall be trained on use and storage of used spill cleaning materials
Energy usage	Operation of the service station consume electrical energy daily on some cases generators and standby, this can affect the atmosphere	Energy supply through the main grid will be strained	Permanent	Building/Site manager	The proponent should explore the use of energy efficient appliances.

Aspect	Description	Effects	Time Frame	Responsibility	Action
Solid Waste	Solid waste will be generated by the activities and operations at the service station. It is therefore very important to construct appropriate infrastructure to management thus waste types like bins etc.	• Eyesore to the environment • Unwanted nutrient disposal into the soils, • Detrimental to livestock health	Permanent	-Site manager	• Visual inspections and monitoring • All waste will be managed by the Walvis bay municipality from collection to dumping, the developer will ensure that domestic waste handling facilities such as solid waste bins and skip containers are available at the service station. • Waste separation will be provided for to allow for recycling of recyclable materials.
Sewerage and effluent waste	Sewer and wastewater release into the environment	• Health hazard • Communicable diseases • Eutrophication of rivers • Groundwater Contamination	Permanent	Site Manager	• All sewerage waste will be channelled into the town council sewer reticulation system. • Wastewater and solids on site will be cleared (desludged) regularly and the interval depends on actual tank capacity and disposal habits. • Wastewater from the oil and water separation pits to be analysed regularly to ensure that it's within acceptable quality. • General maintenance of all pipes and temporary tanks on site.

Aspect	Description	Effects	Time Frame	Responsibility	Action
Spillages and leakages	Underground tanks can leak or surface leaks and spillage during refilling	Adverse environmental contamination	Project lifetime	ECO	• Sand buckets to be on site to clean minor spillages during fill up • Spillages above 200 litres are to be reported immediately to Ministry of Mines and Energy and MET:DEA., • Fuel, oils and chemicals are to be stored in bunded areas. • Hazardous chemicals (such as fuels) are to be handled over areas provided with impervious surfaces. • Spills of hazardous chemicals are to be contained and cleaned-up to ensure protection of the environment. • All the necessary PPE required for the safe handling and use of petrochemicals and oils shall be provided to, and used or worn by, the onsite staff • Chemicals, oil and fuel must be stored securely to prevent any accidental spills. • A leakage detecting system to monitor underground fuel storage tanks should be installed to enable strict and practical detection of leakages. • The underground fuel storage tanks should be replaced on regular as

Aspect	Description	Effects	Time Frame	Responsibility	Action
					recommended by suppliers as well as depending on environmental conditions and natural disasters. • All fuel storage and handling facilities in Namibia must also comply with strict safety distances as prescribed by SANS 10089.
Increased storm water flow	The area is undeveloped hence most water quickly infiltrates as it reaches the ground, but due to the paving and hard surfaces storm water will increase	• Enhance the chances of flood occurrences • Chances of soil erosion and gully formation will be increased	Permanent	• Site Engineer • ECO	Standard storm water drainage will be part of the water reticulation designs indicating the storm water deposit areas.
Infrastructure hazards	Infrastructure hazards are potential risks that building pose to its inhabitants, local environment or surrounding residents.	• There is potential for building collapse. • Firebreaks potential	Permanent	• Site Engineer • Contractor-Project proponent • Buildings inspectorate • Ministry of Health and	• Sewerage infrastructure will be regularly monitored and inspected over time. • Standard buildings will be constructed • Fire emergency evacuation plan will be put in place to avoid fatalities and injuries in case of an emergency.

Aspect	Description	Effects	Time Frame	Responsibility	Action
				Social Services. • Ministry of Safety and security	
Development of the area	The project will further develop the project area.	Ripple effects will result in construction of supporting infrastructure such as schools, hospitals, car services and supermarkets.	Permanent	Regional council	The Development should be regulated in such a way that the local people are empowered and benefit from the development activities.
Revenue generation	The development is bound by to pay tax and rates to the Ohangwena Regional Council and the government.	-The municipality and other service providers will benefit from revenue generation from the development -Business facilities will be paying tax to the government benefiting the country at large.	Permanent	• Project proponent	The project will benefit the locals, authorities and the government if all dues, rates and taxes are adhered to.

Aspect	Description	Effects	Time Frame	Responsibility	Action
Rehabilitation maintenance of the environment.	Currently the project environment is already degraded	-After construction trees will be planted and a green zone created improving the aesthetic value of the environment to a better position than it was before.	Permanent	Building/site manager	• During operation phase tree planting will continue and maintenance of the green zone. • Regular watering of the lawns that will be planted.

3.6. Environmental Monitoring Plan

Monitoring is very important for identifying the success of mitigation measures formulated for the significant impacts identified. Monitoring of activities will identify impacts that have not been foreseen and give enough time to analyse the situation and formulate measures to minimise impacts. Survey records and results must be maintained for these monitoring and inspections, highlighting any problems and the measures taken to address it.

Prior to site preparation and construction activities, the main contractor should present an environmental monitoring plan (including, *inter alia*, location of construction camp and toilet facilities, location of material storage areas, solid waste management plan, dust control measures, activity schedule, etc.) for review and approval by the DEA, the environmental control officer and the project manager. The developer should present a landscape plan and the trees/vegetation earmarked for protection should be flagged and hoarded by the contractor.

The entity selected to carry out environmental monitoring of the construction works should then prepare an environmental monitoring programme based on the above, the requirements of the EIA, and conditions of the development permit. The major elements of the environmental impact monitoring programme to be implemented during the construction phase of the project are as follows:

- Site clearance to ensure that trees marked for protection are left untouched and that large areas of soil are not left exposed and uncovered for extended periods of time.
- Site drainage and surface runoff, especially during and shortly after major rainfall events, to ensure there is no flooding, ponding and runoff of surface water Compliance of construction works with site management and landscape plans.
- Ensure transportation of earth materials is done by covered trucks and from approved sites.
- The contractor must immediately and completely clean up spills of materials in public areas.
- Solid waste disposal practices to ensure appropriate on-site management and final disposal at approved dump.

4. CHAPTER FOUR: CONCLUSION AND RECOMMENDATIONS

The Environmental Impact Assessment process for **The Proposed Aboveground Tank, Fuel Management System, Loading and Offloading Equipment at TransNamib Walvis Bay Deport, Erongo Region-Namibia** was conducted in accordance to the Environmental Management Act 2007 and EMA Regulation 2012. Further consideration was given to relevant legislation throughout the entire process to ensure a successful assessment process.

Impacts likely to occur during project phases (construction and operation) were assessed depicting a positive outlook despite limited details of the magnitude of the proposed development. Based on the assessment, the overall project is less damaging to the environment demonstrating high job creation opportunities and community development. Impacts with negative effects were also identified and summarized in a form of environmental management plan to ensure sustainable implementation.

The site has access to services such as electricity and roads for accessibility. Adding on the site has minimal vegetation such that no trees will be removed during the construction phase. It is important that the proponent observe and maintain accountability to both socio-economic and environmental sensitive activities from the project, such that the project is harmonized with policy, regulations, administrative frameworks and social interface with the public as proposed in the environmental management plan. Failure to observe these measures will significantly affect the local environment and lead to non-compliance. Therefore, implementation environmental protection measures should be executed in consultation with the key stakeholders.

JBIC cc hereby recommends that MET: DEA grant the environmental clearance certificate for **The Proposed Aboveground Tank, Fuel Management System, Loading and Offloading Equipment at Transnamib Walvis Bay Deport, Erongo Region-Namibia**, under the condition of full implementation of this EMP.

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