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DRAFT ENVIRONMENTAL MANAGEMENT PLAN (EMP) FOR THE:

PROPOSED CONSTRUCTION & OPERATION OF A FUEL SERVICE STATION AND ASSOCIATED ACTIVITIES IN OKAMAPUKU VILLAGE NEAR OMATJETE IN THE ERONGO REGION

ECC Application No.: **APP-003834**

Porto Marine Solutions CC

P.O Box 7424 Swakopmund

June 2022

DOCUMENT INFORMATION

Title: Draft Environmental Management Plan (EMP) for the Proposed Construction & Operation of a Fuel Service Station and Associated Activities in Okamapuku Village near Omatjete in the Erongo Region:

Prepared by:

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Date:	07 June 2022

EAP* - *Environmental Assessment Practitioner*

SERJA' STATEMENT OF INDEPENDENCE AND DISCLAIMER

As the Appointed Environmental Consultant to undertake the Environmental Scoping Assessment (ESA) Study and Preparation of this Draft Environmental Management Plan (EMP) for the Proposed Construction & Operation of a Fuel Service Station and Associated Activities in Okamapuku Village near Omatjete in the Erongo Region, Serja Hydrogeo-Environmental Consultants cc declare that we:

- do not have, to our knowledge, any information or relationship with any member from Porto Marine Solutions CC, the Ministry of Environment, Forestry and Tourism (MEFT)'s Department of Environmental Affairs and Forestry (DEAF) or the Competent Authority (Ministry of Mines and Energy (MME) that may reasonably have potential of influencing the outcome of this Environmental Assessment and the subsequent Environmental Clearance Certificate applied for.
- have knowledge of and experience in conducting environmental assessments, the Environmental Management Act (EMA) No. 7 of 2007 and its 2012 Environmental Impact Assessment (EIA) Regulation as well as other relevant national and international legislation, guidelines, policies, and standards that govern the proposed project as presented herein.
- have performed work related to the ECC application in an objective manner, even if the results in views and findings or some of these may not be favorable to the Proponent.
- have complied with the EMA and other relevant regulations, guidelines and other applicable laws as listed in this document.
- declare that we do not have and will not have any involvement or financial interest in the undertaking/implementation of the proposed project, other than remuneration (professional fees) for work performed to conduct the ESA and apply for the ECC in terms of the EIA Regulations' requirement as an Environmental Assessment Practitioner (EAP).

Disclaimer: Serja Hydrogeo-Environmental Consultants will not be held responsible for any omissions and inconsistencies that may result from information that was not available at the time this document was prepared and submitted for evaluation.

…….

Signature:

Fredrika N. Shagama: Managing Member & Principal Environmental Assessment Practitioner

Date: 07 June 2022

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1 INTRODUCTION

1.1 Project Background and Location

Porto Marine Solutions cc (hereinafter referred to as The *Proponent*), proposes to construct and operate a Fuel Service Station and associated activities in the Okamapuku Village near Omatjete in the Erongo Region. The proposed site is located about 10km southwest of Omatjete and covers an area of 7,532 square metres (m^2) or 0.75 hectare (Ha). The locality map and boundary coordinates are shown and presented in **Figure 1** and **Table 1**, respectively.

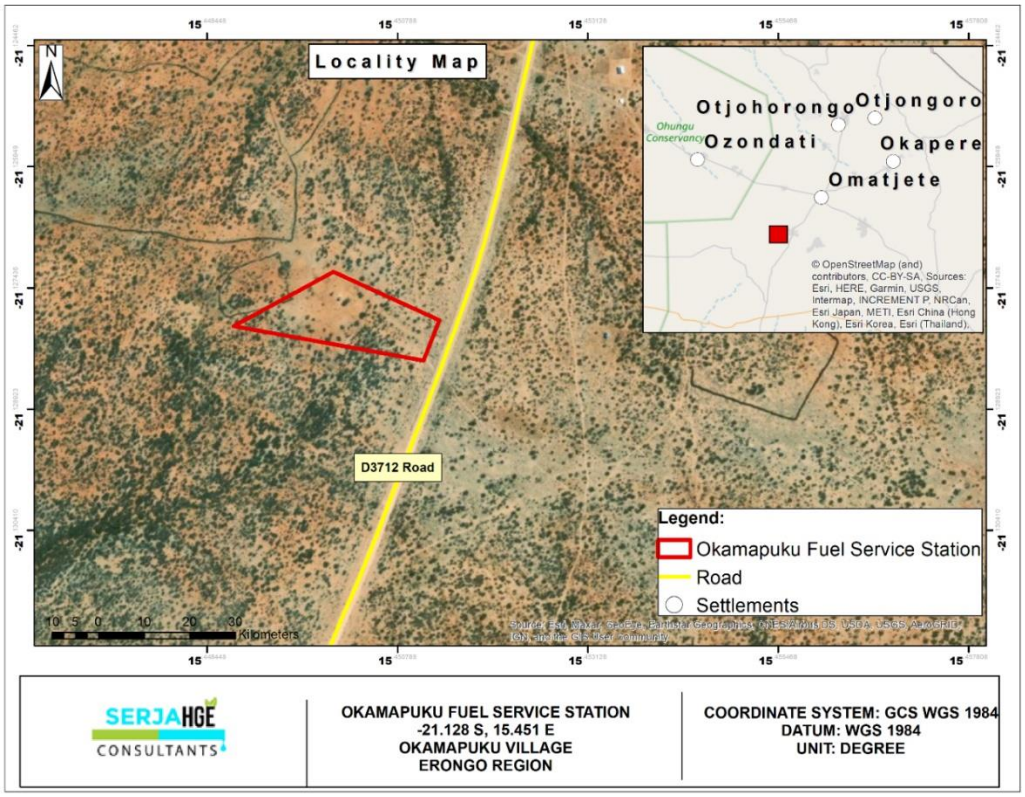

Figure 1: Location of the proposed Fuel Service Station Site in Okamapuku, Erongo Region

Table 1: The GPS Coordinates of the proposed site

Site Corner Point	GPS Coordinates
A	21°07'41.9" S 15°27'04.0" E / -21.128306° 15.451111°
B	21°07'40.4" S 15°27'04.7" E / -21.127889° 15.451306°
C	21°07'38.4" S 15°27'00.21" E / -21.127333° 15.450058°
D	21°07'40.1" S 15°26'59.6" E / -21.127806° 15.449889°

In preparation for the construction works, the site layout (Chyba! Nenalezen zdroj odkazů.) had been drawn by the project design engineers.

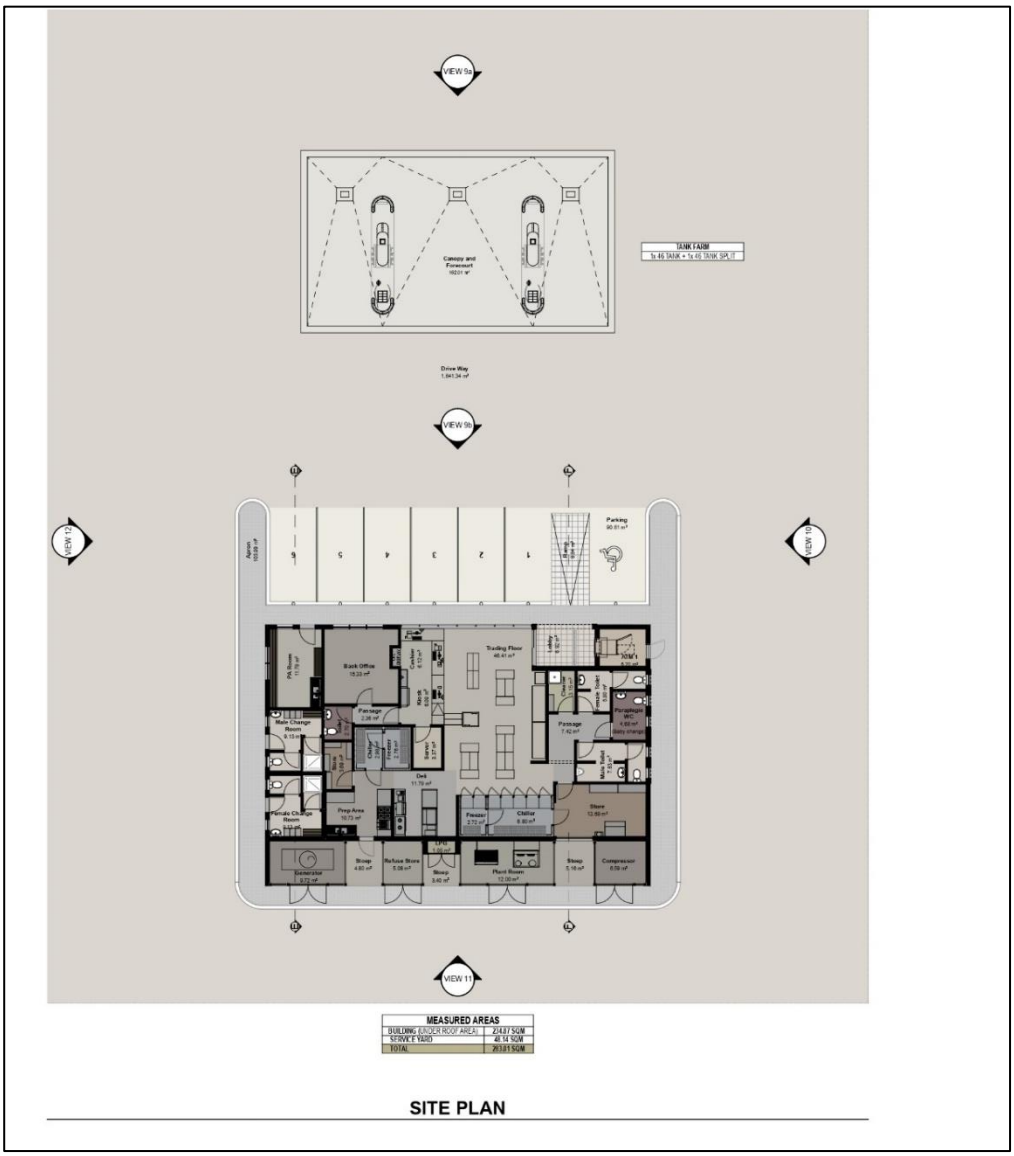

Figure 2: Preliminary site drawings (layout) of the proposed fuel service station in Okamapuku (Proponent, 2022)

1.2 Purpose of the Draft Environmental Management Plan (EMP)

The Draft EMP is developed in accordance with Regulation 8(j) of the EIA Regulations (2012) that it should 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 environmental effects will 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 construction and operational phases of the project. 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 EMP is therefore aimed at guiding environmental management throughout the different phases of the proposed project activities, namely: planning & design, construction, and operational maintenance:

- **Planning and Design phase** – Preparation of all the administrative and technical requirements needed for the construction. The planning would entail obtaining the necessary permitting and authorization from relevant authorities, facilitating the recruitment and procurement processes, etc.
- **Construction and related phase –** The site clearing, earthworks and installation of services and establishment of structures.
- **Operational and Maintenance phase** – The stage during which the Fuel Service Station and associated infrastructures are operational, and maintenance of the site is conducted by the Proponent or appointed maintenance contractor(s).

2 LEGAL FRAMEWORK: PERMITTING AND LICENSES

The Proponent has the responsibility to ensure that the proposed project activities as well as the ESA process conform to the principles of the EMA and must ensure that employees act in accordance with such principles.

Table 2 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 activities.

Table 2: List of legal requirements and permits to the construction and operational phases of the project

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Environmental Management Act EMA (No 7 of 2007) and the 2012 Environmental Impact Assessment (EIA) Regulations GN 28-30 (GG 4878)	The Regulations requires that an environmental clearance certificate (ECC) is obtained prior to the implementation of an activity or development. However, the ECC is inly valid for 3 years from the date of issue, therefore, it should be renewed every 3 years or cancelled if the project is no longer deemed not feasible.	The EMA and its regulations should inform and guide this EA process. Should the ECC be issued to the Proponent, it should be renewed every 3 years, counting from the date of issue. 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: 061-284 2701
Petroleum Products and Energy Act (No. 13 of 1990) Regulations (2001)	Regulation 3(2)(b) states that "No person shall possess 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 ensure that all necessary permits/authorization for fuel storage onsite and the Retail License are obtained from the Ministry of Mines and Energy (MME). **Mr. Carlo Mcleod** (Ministry of Mines and Energy: Acting Director – Petroleum Affairs) Tel: 061-284 8291
Road Traffic and Transport Act 52 of 1999 and its 2001 Regulations	Provides for the control of traffic on public roads and the regulations pertaining to road transport, including the licensing of vehicles and drivers. A site access road permit from the D3712 should be applied for and obtained from the Roads Authority and conditions set therein to be compiled with.	**Mr. Eugene de Paauw** (Roads Authority – Specialist Road Legislation) Tel.: 061-284 7027

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Water Resources Management Act (No 11 of 2013)	Ensure that the water resources of Namibia are managed, developed, used, conserved, and protected in a manner. **Therefore, should the Proponent consider drilling their own borehole, Drilling, and Groundwater Abstraction & Use Permits should be applied and obtained.**	The permits should be applied from the Ministry of Agriculture, Water and Land Reform (MAWLR) Department of Water Affairs (DWA) **Contact: Mr. Franciskus Witbooi** Division: Water Policy and Water Law Administration Division Tel: 061-208 7158
	For any project wastewater planned for discharge into the environment, **a discharge permit should be applied for and obtained.**	MAWLR, DWA: Water Environment Division **Contact: Ms. Elise Mbandeka** Tel: 061-208 7167
National Heritage Act No. 76 of 1969	Call for the protection and conservation of heritage resources and artefacts.	Should any archaeological material, such as bones, unknown graves, old weapons/equipment etc be found on and below the site, work should stop immediately, and the National Heritage Council of Namibia must be informed as soon as possible. The Heritage Council will then decide to clear the area or decide to conserve the site or material. Contact Details at National Heritage Council (NHC) **Mrs. Erica Ndalikokule – NHC Director** **Tel: 061-301 903**

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Communications Act No. 8 of 2009	There is an overhead Telecom Namibia line passing on the immediate eastern side of the site. There is a potential of it being damaged by elongated construction and project materials loaded on heavy trucks when entering and leaving the site. Although not distinctively provided for in the Act, the Proponent should still notify Telecom of this issue. If permission, or consent is required from Telecom, then it should be done to ensure that the line and poles are protected (not damaged).	For advice and consent confirmation please contact Telecom Namibia **Headquarters (Windhoek):** **Tel: 061-201 9211** **Technical Operations (Windhoek):** **Tel: 061-201 2367** **Erongo Region (Teleshop):** **Tel: 064-412 000**

3 EMP IMPLEMENTATION RESPONSIBILITIES

Porto Marine Solutions (the Proponent) is ultimately 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 3**.

Table 3: The EMP implementation roles and responsibilities

Role	Responsibilities
Porto Marine Solutions (Proponent) or Proponent Representative (PR)	-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. -Liaising between the local and regional leadership and community. -Ensure effective communication with stakeholders, media (if necessary) and the public. -Managing public relation issues and collaborating with personnel and maintaining project-related open communication among personnel.
Technical Staff / Consultants (Engineers)	-Effectively monitor various technical parameters related to mechanical designs of the Fuel Service Station & associated facilities, waste & water resources management, soil preservation / protection, operations & maintenance, and employee / contractor health. -Incorporating the recommended project environmental requirements into the final designs -Advise the Proponent on the technical matters pertaining to the site layouts and considering environmental implication thereof.

Role	Responsibilities
Department of Environmental Affairs & Forestry (DEAF, MEFT))	-The DEAF is responsible for enforcing compliance with the EMA, its regulations and full implementation of this EMP. The competent authority also reviews biannual reports and grant ECC renewal after 3 years.
Ministry of Mines and Energy (MME)	-Ensuring the relevant and required permits and licenses are issued to the Proponent including site inspection. The permits include Retail License and Fuel Storage Permit.
Project or Site Manager (as appropriate)	This individual will be responsible to ensure that the project activities of the project are completed on time. The Manager's duties and responsibilities will include: -Ensure that relevant commitments contained in the EMP Action Plans are adhered to. -Ensure relevant staff is trained in procedures entailed in their duties. -Maintain records of all relevant environmental documentation for the project. -Reviewing the EMP annually and amending the document when necessary. -Issuing fines to individuals who may be in breach of the EMP provision and if necessary, removing such individuals from the site. -Cooperate with all relevant interested and affected parties/stakeholders. -Development and management of schedules for daily activities.

Role	Responsibilities
Environmental Control Officer (ECO) or Safety, Health and Environmental (SHE) Officer	-Management and facilitation of communication between the Proponent, PR and Interested and Affected Parties (I&APs) 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 or Project / Site Manager on the removal of person(s) and/or equipment not complying with the provisions of this EMP. -Making recommendations to the Proponent or Proponent Representative with respect to the issuing of fines for contraventions of the EMP. -Undertaking an annual review of the EMP and recommending additions and/or changes to this document. -Ensuring that the project activities on site are conducted in accordance with the International System organization (ISO) standard 14001: 2015.

4 ENVIRONMENTAL MANAGEMENT MEASURES

4.1 Key identified Potential negative Impacts

The key potential negative impacts identified, described, and assessed in the Environmental Scoping Assessment Report and for which the management measures (action plans) have been provided are listed below:

- Potential disturbance of grazing areas, and Soil (land) disturbance,
- Soil and water pollution, and impact on water resources (water over-abstraction and use),
- Impact on local biodiversity (fauna and flora),
- Noise (nuisance), and air pollution,
- Vehicular traffic,
- Environmental pollution,
- Occupational & community health and safety,
- Archaeological and cultural heritage impact.

4.2 The Environmental Management Measures and Rehabilitation

The management actions are aimed at avoiding the above-listed potential negative impacts, where possible, and where it is impossible to avoid these impacts, measures are provided to reduce the impacts' significance. The Management action plans (measures) recommended for the potential impacts rated in the ESA Study were based on the following project stages (phases):

- Planning and design phase (**Table 4**), Construction and Operational & maintenance phase (**Table 5**), and Post-construction rehabilitation and decommissioning measures (**Table 6)**.

4.3 The Environmental Monitoring

To ensure that the implementation of recommended environmental management measures is working and produces the desired results (minimizing the "medium" and uphold the "low" significance ratings of impacts), certain key impacts will need to be monitored and reported on.

Monitoring reports are to be compiled by the project ECO, audited by an Independent Environmental Consultant, and submitted to the DEAF for archiving on a bi-annual basis (every 6 months throughout the project operations) or as required by the Environmental Commissioner (as per the ECC conditions). The environmental components or features provided in the Table will be updated accordingly once the project commences.

Table 4: The Environmental and mitigation action plans for the planning and design

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
PLANNING AND DESIGN PHASE					
EMP implementation and training	Lack of EMP awareness and implications thereof	-A Comprehensive Health and Safety Plan for the project activities should be compiled. -An EMP non-compliance penalty system should be implemented on site. -The Proponent should appoint an Environmental Control Officer (ECO) or ensure that the Construction Contractor team include an ECO or Safety, Healthy & Environment (SHE) Officer to be responsible for managing the EMP implementation and monitoring.	-All required EMP implementation Plans, and Systems are compiled and in place. ECO / SHE Officer is appointed or part of the Construction Contractor Team	-Proponent	Pre-constructions
Authorizations	Lack of Agreements, Permits/ Licenses	-All the required agreements and licenses or permits should be applied for and signed, respectively before commencement of work on site, or as required. -The permits, agreements referred to herein include: (a) Land use / leasehold (Zeraeua Traditional Authority) (b) Water supply agreements or groundwater abstraction & use permit (if abstracting drilling water directly from a borehole) – Ministry of Agriculture, Water and Forestry (MAWLR) (c) Waste management disposal permits (The preferred local authorities where the waste is transported to, e.g., Omaruru Municipality (d) Retail License and Fuel storage permit from the Ministry of Mines and Energy (MME)	-Applicable permits and licenses to obtained from relevant authorities. -Agreements/permits signed and obtained from on time	-Proponent	Pre-construction
Social Grievance	Lack of communication and insufficient consultation	-The Proponent should timely notify the community of the anticipated date of commencement of construction work. -Thorough consultation and engagement with the communities should be conducted and amicable solutions found and agreed on. -The Proponent should have a Grievance Mechanism in place.	Environmental Consultant includes the community in the Public Engagement Process (as part of the environmental assessment process)	-Proponent	Pre-construction Communications and grievances issues to be addressed

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		-Where compensation is the case, the Proponent should amicably compensate the affected landowner according to the National Compensation Policy.		-Environmental Consultant / Staff	throughout all the project phases
Site designs and layout	Mechanical failure due to poor design	-The Fuel Service station designs, and materials should be in line with the South African Bureau of Standards (SABS) such as SABS 089-3: 1999, 0131-1: 1977, 0131-2: 1979 and National Standard (SANS) 10087-4:2011.	-The drawings and layout are properly designed -the materials bear the logo of SANS / SABS for fuel station infrastructures.	-Technical Consultant (Planning & Design Engineer)	Pre-construction
Stormwater management	The stagnation of rainwater and possible overtopping during rainy seasons (site damage and flooding)	-Stormwater management systems should be designed 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 incorporated into the final design	-Proponent -Planning & Design Engineer	Pre-construction
Soil and water	Pollution of soil and water resources	-The underground storage tanks should be equipped with double layer to minimize the pollution of groundwater in case of tank burst or leaks. -The fuel tanks should be equipped with fuel leakage detectors to ensure that the leak is detected on time to avoid major pollution -the design should include water/ oil separator systems.	-Fuel tanks are sufficiently designed to prevent leakage and pollution -The leakage detectors are included in the tank design	-Technical Consultant (Planning & Design Engineer)	Pre-construction
Employment	Creation of employment opportunities	-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 Okamapuku and immediate surrounding villages). Out-of-area employment should be justified, for example by the unavailability of local skills only.	-Number of locals employed for construction activities	-Proponent in collaboration with the Construction Contractors	Pre-construction and when necessary, throughout

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		-The anticipated work opportunities and number of positions should be announced through the local leadership at the Zeraeua Traditional Authority. -The name of the prospective workers should be screened by the local leaders to verify their place of origin to ensure that the opportunities reserved for the locals are not given to outsiders. -Equal opportunity should be provided for both men and women, when and where possible.		-Proponent Human Resources for the operational phase	
Specialised procurement of services	Contractors, goods and services supply	-The procurement stage for the construction works should follow a fair and transparent process. -Procurements for construction should be open only to 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 site clearing, cleaning services and maintenance should be given to local companies. In the case that the locals are not well-equipped or capacitated for some of the business, joint ventures should be formed with other companies from other immediate regions to build capacity for the local company(ies).	Number of hired contractors. Record of hired or contracted companies or services providers	-Proponent -Project Manager	Pre-construction

Table 5: The Environmental and mitigation Measures for the Construction and Operational & Maintenance Phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
CONSTRUCTION, OPERATIONAL & MAINTENANCE PHASE					

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
EMP implementation and training	Lack of EMP awareness and implications thereof	-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. The site should be inspected, and a compliance audit done throughout **the project activities, monthly.** An EMP non-compliance penalty system should be implemented.	Compliance monitoring conducted bi-annually and should be recorded. -The ECC is renewed every 3 years -Bi-annual reports -Records of EMP training conducted.	-Proponent -ECO DEAF (for ECC renewal)	Throughout the project phases
Social Grievance	Lack of communication and insufficient consultation	-Thorough consultation and engagement with the communities should be conducted and amicable solutions found and agreed on. -The Proponent should have a Grievance Mechanism in place.	-There is a Grievance and Response system in place -The community grievances are addressed, amicably resolved and recorded in a Complaint logbook	-Proponent -ECO	Communications and grievances issues to be addressed throughout all the project phases
Grazing land	Loss of grazing areas	-Any unnecessary removal or destruction of grazing land should be avoided. -Vegetation found on the site, but not in the footprints should not be removed but left to preserve biodiversity and grazing land. -Workers should refrain from driving off road and creating unnecessary tracks that may contribute to loss of grazing land. -Environmental awareness on the importance of the preservation of grazing land for local livestock should be provided to workers.	-Limited cleared sites -Less access tracks -No complaints from communities regarding significant land/vegetation clearing	-Proponent -Project Manager -ECO	Throughout the project phases
Soils	Physical soil/land disturbance and loss of topsoil	-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.	-No proliferation of informal vehicle tracks. -No new erosion gullies.	-ECO	Throughout the project phases

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		-All construction trenches and pits excavated on site should be backfilled and areas rehabilitated. -Soils that are not within the intended footprints of the site boundaries should be left undisturbed. -Project vehicles/machinery should stick to access roads provide and not to unnecessarily create further tracks on and around the site by driving everywhere resulting in soil compaction.			
Water Resources Use	Over-abstraction (water demand and availability)	Water should be used efficiently, and recycling and re-using of water onsite should be encouraged. -The Proponent should connect the site to the communal water supply. Water supply authorization should be made between the DWSSC and the Proponent. -Should the Proponent decide to site and drill their own borehole, they should apply for Borehole Drilling and Groundwater Abstraction & Use Permits from the Department of Water Affairs of MAWLR. -Water storage tanks should be inspected daily to ensure that there is no leakage, resulting in water wastage. -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.	Water supply agreements Proof / recording/ quantification of water saving efforts. Water supplying agreements Water storage tanks on site	-Proponent -Project Manager	Once off supply agreement Throughout the project phases
Soils and water resources	Soils and water resources pollution	-Spill control preventive measures should be in place on site to manage soil contamination, thus preventing and or minimizing the contamination from reaching water resource bodies. -All project employees should be sensitized about the impacts of soil pollution and advised to follow appropriate fuel handling procedures.	No complaints of pollutants on the soils and eventually in the water due to project activities No visible oil spills on the ground or pollution spots.	-ECO	Throughout the project phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		-The fuel storage tanks should be designed to have a double layer to contain the fuel in case of tank burst. -The Proponent should develop and prepare countermeasures to contain, clean up, and mitigate the effects of any oil spill. This includes keeping spill response procedures and a well-stocked cache of supplies easily accessible. -Ensure employees receive basic Spill Prevention, Control, and Countermeasure (SPCC) Plan training and mentor new workers as they get hired. -Project machines and equipment should be equipped with drip trays to contain possible oil spills. -Polluted soil should be removed immediately and put in a designate waste type container for later disposal at a hazardous waste management and treatment facility. -Drip trays must be readily available on project vehicles onsite and fuel consuming machinery and monitored to ensure that accidental fuel spills along the tanks around the site are cleaned on time (soon after the spill has happened). -Toilet water should be treated using chemical portable toilets and periodically emptied out before reaching capacity and transported to a wastewater treatment facility.	Complaint's logbook Waste containers Impervious material to cover the ground surface at areas where hydrocarbons and potential pollutants are utilized.		
Biodiversity	Loss of Fauna and Flora	**Fauna** **-**Workers should be sensitized to refrain from disturbing, killing or stealing livestock and killing small soil species. -Construction trenches and holes should be backfilled after completion of work to prevent injuries. -Environmental awareness on the importance of biodiversity preservation should be provided to the workers. **Flora**	No disturbance to unmarked areas. No complaints from locals regarding unauthorised vegetation removal or cutting down of trees. No intentional disturbance and destruction of site	-ECO	Throughout the project phases

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		-The Proponent should limit the vegetation removal, to promote a balance between biodiversity and their activities. -Vegetation that is not within the footprints of site structures or access routes should not be disturbed (preserve biodiversity). -The movement of vehicle and machinery should be restricted to existing roads and tracks to prevent unnecessary damage to the surrounding vegetation. -Breeding sites for fauna occurring onsite should not be destroyed nor disturbed. Environmental awareness on the importance of faunal and floral biodiversity preservation should be provided to personnel.	vegetation and faunal species Barricading tape (to indicate working areas) Visible preservation of onsite vegetation		
Road use and safety	Increase in vehicular traffic flow and compromising of road safety	-Project related goods and services should be delivered to site twice a week to reduce the daily movement of trucks and pressure on local roads. A special case would be due to emergencies only. -Drivers of all project phases' vehicles should be in possession of valid and appropriate driving licenses and adhere to the road safety rules. Drivers should drive slowly (40km/hour or less) and be on the lookout for livestock and people, particularly children. -The Proponent should ensure that the site access roads are well equipped with temporary road signs. -Project vehicles should be in a road worthy condition and serviced regularly to avoid accidents owing to mechanical faults. -Vehicle drivers should only make use of designated site access roads provided and as agreed. Vehicle drivers should not be allowed to operate vehicles while under the influence of alcohol.	No complaints from the public / community regarding vehicular traffic issues related to the project activities. All personnel operating the project vehicles and machinery are appropriately licensed and possession of valid driving licenses. Demarcated areas for parking, offloading, and loading zones are on sites. No creation of unnecessary tracks on site.	-Proponent -ECO	Throughout the project phase Site access permit (s) to be applied for and obtained prior to commencement of construction works

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		-Project related vehicles should be parked within the project site boundary or demarcated areas.			
Local roads	Overuse and maintenance	-The heavy trucks transporting materials and services to site should be scheduled to travel twice a week to avoid daily travelling to site, unless on cases of emergencies. -The site access road(s) should be maintained to an unacceptable standard for the vehicles. -The Proponent should consider frequent maintenance of local roads to ensure that the roads are in a good condition for other road users such as locals, tourists, and travellers from and outside the area.	-Visible efforts of maintaining access and community roads by the Proponent	-Proponent	Throughout the project phases, when necessary
Occupational & Community Health and safety	General health and safety associated with project activities in both phases	-During inductions, project workers 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. -Project workers should be properly equipped with adequate and appropriate personal protective equipment (PPE) such as coveralls, gloves, safety boots, earplugs, dust masks, safety glasses, etc. -Heavy vehicle, equipment and fuel storage site should be properly secured, and appropriate warning signage placed where visible. -Construction trenches should be secured and should be backfilled after completion of work. -Excavated materials should be put back into the construction holes and the holes filled, and trenches backfilled respectively. -An emergency preparedness plan should be compiled, and all personnel appropriately trained. -Workers should not be allowed to enter the working sites when under the influence of alcohol as this may lead to mishandling of	Comprehensive health and safety plan for all project activities compiled. Occupational Health and Safety Personnel Health and Safety Trainings Fully equipped first aid kits onsite Trained workers to administer first aid	-Proponent -Project Manager -ECO	Throughout the project phases and trainings offered as and when required

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		equipment which results into injuries and other health and safety risks. -Warning signage should be erected at hazardous site areas such as open construction trenches and fuel tanks sites. -Prohibition signs such as '***"No smoking, Flammable, open fire is prohibited***" should be erected at appropriate sites. -The site areas that are considered temporary risks should be equipped with "danger" or "cautionary" signs clearly written in the locally spoken languages, i.e., Otjiherero, Afrikaans and English. -Community safety and health awareness should be raised by educating the locals not to enter the site unauthorized.			
	Potential increase of prevalence of HIV and AIDS, as well as other sexually transmitted diseases (STDs) prevalence	-The Proponent and their contractors should prioritize the employment of more local people, and only if necessary and due to lack of skills in the area, out-of-area people can be given some of the work. -The locals employed should be provided with the necessary training of skills required for the project to avoid bringing in many out-of-area employees. This way, skills development and transfer is ensured in the local community. -The project workers should be engaged in health talks and training about the dangers of engaging in unprotected sexual relations which results in contracting HIV/AIDS and other sexual related infections. -Provision of condoms and sex education through distribution of pamphlets and health trainings. These pamphlets can be obtained from local health facilities (Omatjete Clinic).	No new infections recorded linked to project workers Occupational health and safety personnel Sex and Health Education/Awareness Provision of condoms onsite	-Proponent -ECO	Throughout the project phases
	Accidental fire outbreak	-Portable fire extinguishers should be provided on site in vehicles, campsite, forecourt and in the facility buildings. -No open fires should be created by project personnel onsite.	No wildfires recorded (due to presence of workers)	-Proponent -ECO	Throughout the project phases

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		-Potential flammable areas and structures such as fuel storage tanks should be marked as such with clearly visible signage.	Fire extinguishers (1 per vehicle) and 1 per working site		
Archaeology and heritage	Accidental disturbance of archaeological or heritage objects	The Proponent and Contractors should adhere to the provisions of Section 55 of the National Heritage Act No. 27 of 2004 in event significant heritage and culture features are discovered while conducting construction works. -On-site personnel and contractor crews must be sensitized to exercise and recognize “chance finds heritage” in the course of their work. -During the construction works, it is important to take note and recognize any significant material being unearthed and making the correct judgment on which actions should be taken (refer to CFP Appendix 1 attached to the EMP). -The footprint impact of the project activities should be kept to minimal to limit the possibility of encountering chance finds within the site boundaries. -When the removal of topsoil and subsoil on the site for construction purposes, the site should be monitored for subsurface archaeological materials by a qualified Archaeologist.	Preservation of all artefacts and objects that are discovered on and around project site Salvage equipment Archaeologist Flag tapes GPS (site marking)	-Proponent -ECO liaising with the construction operator and an Archaeologist	As and when required, i.e., prior to site set up, and during construction
Littering and waste management (general / solid, hazardous waste and sanitation / wastewater)	Environmental Pollution	-Workers should be sensitized to dispose of waste in a responsible manner and not to litter. -Ensure that there are no wastes left scattered onsite at the end of each day. -All domestic and general operational waste produced daily should be contained onsite until such that time it will be transported to designated waste sites. -No waste may be buried or burned on site or anywhere else. -The site should be equipped with separate waste bins for hazardous and general/domestic waste.	No visible litter around the project area Provision of sufficient waste storage containers Waste management awareness Waste disposal permits to municipalities	-ECO	Throughout the project phases

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		-Sewage waste should be properly stored and handled and regularly disposed of at the nearest treatment facility -Oil spills should be taken care of by removing and treating soils affected by the spill. -A penalty system for irresponsible disposal of waste on site and anywhere in the area should be implemented. -Ensuring careful storage and handling of hydrocarbons on site is essential. -An emergency plan should be available for major/minor spills at the site during operation activities (with consideration of air, groundwater, soil, and surface water) and during the transportation of the product(s) to the sites.	Environmental, Health and Safety Statements and Policy		
	Wastewater generated by project workers	-Potential contaminants such as hydrocarbons and wastewater should be contained on site and disposed of in accordance with municipal wastewater discharge standards so that they do not contaminate surrounding soils and eventually groundwater. -Provision of toilet facilities for workers should be made -Emptying of chemical toilets according to the manufacturer's specifications. -Sewage waste should be stored as per the portable chemical toilets supplied on site and regularly disposed of at the nearest treatment facility.	Adequate toilet and basic ablution facilities on site. Sewage removal operator waste treatment agents/chemicals	-Proponent -ECO	Throughout the project phases
Air Quality	Dust generation	-Project vehicles should not be driven at a speed more than 40 km/h to avoid dust generation within the site. -Construction schedule should be limited to the given number of days of the week, and not every day. This will keep the vehicle-related dust level minimal in the area. -Dust masks, eye protective glasses and other respiratory personal protective equipment (PPE) such as face masks should	No complaints from the public about vehicle emissions and dust generation. Visible efforts to curb dust	-ECO	Throughout the project phases

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		be provided to the workers at excavation areas, where they are exposed to dust -A reasonable amount of water should be used on site problematic access roads, using regular water spray to suppress the dust that may be emanating from certain site areas. -Excavating equipment should be regularly maintained to ensure excavation efficiency and so to reduce dust generation and harmful gaseous emissions.	Complaint's logbook Dust suppressant (Water)		
Noise	Nuisance	-Noise from operations' vehicles and equipment on the sites should be at acceptable levels. -Construction hours should be restricted to 08h00 and 17h00 to avoid noise generated by equipment and the movement of vehicles before or after hours. -When operating the machinery onsite, workers should be equipped with personal protective equipment (PPE) such as earplugs to reduce exposure to excessive noise.	Complaints from the community about excessive noise. Complaint's logbook Noise protective equipment for workers	-ECO -PRO	Throughout the project phases
Social nuisance	Local properties disturbance and values	-The project workers and contractors should be informed of the importance of respecting the locals' properties by not trespassing or injuring / killing their livestock. -Any worker or contractor found guilty of trespassing should be called in for disciplinary hearing and/or dealt with as per their employer' (Proponent)'s code of employment conduct. -The workers/contractors should be advised to respect the local's private properties, values, and norms. -Workers are prohibited from entering people's private yards or fences without permission. -The cutting down or damaging of vegetation belonging to the community without prior is strictly prohibited.	No complaints from the community about property theft, disturbance, or intrusion associated with the project personnel Grievance logbook Land use agreement and conditions	-ECO	Throughout the project phase

Table 6: The Post-Construction Rehabilitation Measures and Decommissioning of Site Works

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
POST-CONSRTUCTION REHABILITATION AND DECOMMISSIONING OF SITE WORKS					
Rehabilitation	Disturbance and damaging of land (site areas)	-All drilled construction holes and excavated pits related to the project activities should be capped and backfilled, respectively. -All waste generated and stored on site during construction activities should be disposed of at the respective nearest solid waste management sites. -The stockpiled topsoil should be levelled soon after completion of works onsite. -Any temporary setup on site should be dismantled, and the area rehabilitated as far as practicable. -Disturbed site areas should be progressively rehabilitated by stockpiling and backfilling. -Provision of both financial and technical resources for rehabilitation should be made.	-Backfilled trenches and level stockpiled topsoil and overburden rocks -Excavators and other backfilling and demolishing machinery -No sign of waste or littering seen on site and around site areas and carrying away of waste, and removal of vehicles and equipment from site -Campsite dismantled and materials taken away from site. -Visible signs of stockpiled topsoil	-Proponent -Construction Contractor	Progressive rehabilitation done throughout construction and complete decommissioning and rehabilitation done after completion of construction works.

Appendix 1: Chance Finds Procedure (CFP) After Kinahan, 2020

Areas of proposed activities are subject to heritage survey and assessment at the planning stage. These surveys are based on surface indications alone, and it is therefore possible that sites or items of heritage significance will be found during development work. The procedure set out here covers the reporting and management of such finds.

Scope: The "*chance finds*" procedure covers the actions to be taken from the discovery of a heritage site or item to its investigation and assessment by a trained archaeologist or other appropriately qualified person.

Compliance: The "chance finds" procedure is intended to ensure compliance with relevant provisions of the National Heritage Act (27 of 2004), especially Section 55 (4): "*a person who discovers any archaeological …. object ……must as soon as practicable report the discovery to the Council*". The procedure of reporting set out below must be observed so that heritage remains reported to the NHC are correctly identified in the field.
Manager/Supervisor must report the finding to the following competent authorities:

- **National Heritage Council of Namibia (061 244 375)**
- **National Museum (061 276 800)**
- **National Forensic Laboratory (061 240 461).**

Archaeological material must NOT be touched. Tempering with the materials is an offence under the Heritage act and punishable upon conviction by the law.

Responsibility:

Operator:	To exercise due caution if archaeological remains are found
Foreman:	To secure site and advise management timeously
Superintendent:	To determine safe working boundary and request inspection
Archaeologist:	To inspect, identify, advise management, and recover remains

Procedure:

Action by person identifying archaeological or heritage material:

a) If operating machinery or equipment stop work

b) Identify the site with flag tape

c) Determine GPS position if possible

d) Report findings to foreman

Action by foreman

a) Report findings, site location and actions taken to superintendent

b) Cease any works in immediate vicinity

Action by superintendent

a) Visit site and determine whether work can proceed without damage to findings

b) Determine and mark exclusion boundary

c) Site location and details to be added to project GIS for field confirmation by archaeologist

Action by Archaeologist

a) Inspect site and confirm addition to project GIS

b) Advise NHC and request written permission to remove findings from work area

c) Recovery, packaging and labelling of findings for transfer to National Museum

In the event of discovering human remains

a) Actions as above

b) Field inspection by archaeologist to confirm that remains are human

c) Advise and liaise with NHC and Police

d) Recovery of remains and removal to National Museum or National Forensic Laboratory, as directed.