ENVIRONMENTAL MANAGEMENT PLAN FOR THE PROPOSED TOWNSHIP ESTABLISHMENT ON PORTIONS 15, 16 AND 17 OF FARM 37 (GREEN VALLEY) WALVIS BAY, ERONGO REGION

SHACK DWELLERS FEDERATION OF NAMIBIA

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1. THE OBJECTIVES OF ENVIRONMENTAL MANAGEMENT PLAN

The Shack Dwellers Federation of Namibia requires an Environmental Impact Assessment (EIA) and an Environmental Management Plan (EMP) for the proposed township development on Portions 15, 16 and 17 of Farm 37 (to be known as Green Valley), (hereafter referred to as The Development). The EMP provides management options to ensure impacts of the proposed construction activities and normal operations are minimised.

An EMP is a tool used to take pro-active action by addressing potential problems before they occur. This should limit the corrective measures needed, although additional mitigation measures might be included if necessary. The EMP acts as a stand-alone document, which can be used during the various phases (planning, construction, operational and decommissioning) of any proposed activity or development. All contractors taking part in the construction of this facility should be made aware of the contents of the EMP, so as to plan the relevant activities accordingly in an environmentally sound manner.

The objectives of the EMP are:

- to include all components of the various activities;
- to prescribe the best practicable control methods to lessen the environmental impacts associated with the construction and operations of The Development;
- to monitor and audit the performance of the construction and operational personnel in applying such controls; and
- to ensure that appropriate environmental training is provided to responsible construction and operational personnel.

The Proponent could implement an environmental management system like ISO 14001. At the heart of an Environmental Management System (EMS) is the concept of continual improvement of environmental performance with resulting increases in operational efficiency, financial savings and reduction in environmental, health and safety risks. An effective EMS would need to include the following elements:

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

2. THE EMP

2.1 Land Use, Planning, Design, Construction and Operations – Identified Impacts and Mitigation Measures

The following is the summary of the identified impacts and mitigation measures:

- Portions 15, 16 and 17 are currently zoned "Undetermined" in terms of the Walvis Bay Zoning Scheme. The current "Undetermined" zoning does not permit any primary use or building(s) without the written consent of the Council or unless the zoning is changed. In the case of Portion 15, township establishment will result in different zoning allocations to the land portions. However, the current zoning does not restrict the development of the land as a township.
- The planned construction is in line with the Environmental Management Act of Namibia of 2007 that came into force on 6 February 2012 and requires The Applicant to apply for an Environmental Clearance Certificate with an EIA and EMP.
- The Planned construction is in line with Portions 15, 16 and 17 township establishment and layout design plans developed by the Town Planner.
- The most significant risks identified were impacts associated with biodiversity loss: illegal harvesting of !Naras *Acanthosicyos horridus* (Cucurbitaceae) melon plants in the Kuiseb Delta; unauthorized collection of firewood from the riverine ecosystem; potential incidences of wildlife poaching in the Dorob National Park and Namib Naukluft National Park; waste production and sewage management.
- Wildlife monitoring should be conducted by SDFN in collaboration with and with the support of other partners (such as residents of other extensions/portions of Farm 37 (Green Valley), Ministry of Environment and Tourism, Municipality of Walvis Bay, etc., as applicable).

2.2 Responsibilities and Implementation of the EMP

- The appointment of a reputable contractor for the construction of the access roads and services amenities will ensure that construction is carried out to industry specifications and that the best work practices are followed.
- SDFN has overall responsibility for environmental management during both the construction and operations/maintenance phases of the proposed township development on Portions 15-17 on Farm 37 (Green Valley).
- SDFN Management Committee will be responsible to ensure that the commitments as set out in this EMP are implemented during the design, construction and operations/maintenance phases. The SDFN Management Committee is responsible for ensuring that the contractors involved with the proposed project comply with the EMP and will conduct regular inspections.
- The Contractor Managers will be contractually required to comply with the various commitments in this EMP. The contractors will be formally audited on the implementation of the in order to determine compliance with EMP.

The EMP gives the environmental commitments, which will be implemented by SDFN and their Contractors. Table 2.1 to Table 2.3 outline the management of the environmental elements that may be affected by the different activities, grouped in each phase of the development. These groups are as follows:

- Planning Phase
- Construction Phase
- Operational Phase
- Decommissioning Phase

Contents of these tables should be incorporated into a HSEQ Management System.

2.3 The Planning Phase

Table 2.1 provides the outline the management of the environmental elements that may be affected by the Planning activities.

Table 2.1. Planning Phase

Activity	Objective	Action	Timing	Proof of Compliance	Responsible Body
Compliance	To comply with all legal requirements for the operations of the facility in Namibia.	Ensure that all the necessary permits from the various ministries, local authorities and any other bodies that govern the operations are available.	During operations.	All contracts, permits, certificates and other legal documents on file.	Proponent
Appointments	To appoint reputable contractors and operational personnel and establish the EMP, a legal requirement that forms part of the contract with the contractor and employees.	Appoint a contractor and employees and enter into an agreement which includes the EMP. Ensure that the contents of the EMP are understood by the contractor, subcontractors, employees and all personnel who will be present on site.	During operations.	Contracts on file.	Proponent, Contractor
Management	Establish a management system to implement and monitor Health, Safety and Environment.	Make provisions to have a Health, Safety and Environmental Coordinator to implement the EMP and oversee occupational health and safety as well as general environmental related compliance at the site. Have the following emergency plans, equipment and personnel in place to deal with all emergencies: Risk Management / Mitigation / Environmental Management Plan/ Emergency Response Plan and HSE Manuals Adequate protection and indemnity insurance cover for incidents;	During operations.	Documentation on file Personal Protection Equipment (PPE) on site. Document the operational procedures. Signage related to restricted areas, dangerous areas, and PPE requirements on site. Emergency response material on site.	Proponent

Activity	**Objective**	**Action**	**Timing**	**Proof of Compliance**	**Responsible Body**
		Comply with the provisions of all relevant safety standards; Procedures, equipment and materials required for emergencies.			
Restoration Fund/Insurance	To establish a fund/insurance for future environmental restoration or pollution remediation if ever required.	To establish a fund for future ecological restoration of the site should operational activities cease and the site is decommissioned and environmental restoration or pollution remediation is required.	During operations.	Insurance or warranty statement of restoration fund/insurance	Proponent
Reporting	To establish a reporting system to report on monitoring aspects of operation and decommissioning as outlined in the EMP	Establish a reporting system to report on aspects of construction, operation and decommissioning as outlined in the EMP. Keep monitoring reports on file for submission with Environmental Clearance Certificate renewal applications where needed.	During operations.	Monitoring Reports.	Proponent; Contractor
Environmental Clearance Renewal	To renew the Environmental Clearance Certificate every three years	Appoint a specialist environmental consultant to update the EMP and apply for renewal of the Environmental Clearance Certificate.	Prior to expiry of Environmental Clearance Certificate	Renewed Environmental Clearance Certificate	Proponent; Independent Specialist Consultant

2.4 The Construction Phase

Table 2.2 provides the outline the management of the environmental elements that may be affected by the Construction activities.

Table 2.2 Construction Phase

Criteria	Nature	Mitigation	Monitoring	Responsible Body
Physical disturbance and general destruction of biodiversity during site clearance activities	The development of access roads and the provision of services within the townships could have additional effects on local biodiversity. However, since the project site has limited vegetation, the anticipated impact on biodiversity is unlikely to be severe or significant enough to cause irreversible harm to the biodiversity or endemic species of the area or Namibia as a whole.	• Proactively reduce the chances of disturbance of birds and other wildlife; deter wildlife poaching • Reduce the amount of vegetation destruction to a minimum; Replanting of vegetation may be required in the area. • On-going awareness should be promoted about the value of biodiversity and the negative impacts of disturbance, especially to breeding birds, and of poaching. At the same time, the need for reporting incidents should be stressed, and reporting procedures clarified. Biodiversity awareness and training must be provided to the contractor before to construction commences. • The contractor is to report all biodiversity (fauna and flora) related incidents in report format and incident investigation must be completed. • Anti-poaching measures should be strictly enforced, with zero tolerance, and this should be emphasised during induction to contractors; construction workers should be under supervision at all times to prevent poaching; offenders should be prosecuted.	• The contractor/proponent should report all biodiversity (fauna and flora) related incidents and the incident investigation must be completed.	Proponent, Contractor
Health, Safety and	During construction phase,	All Health and Safety standards specified in the	A register of all incidents must be	Contractor

Criteria	Nature	Mitigation	Monitoring	Responsible Body
Security	construction workers and heavy equipment will be onsite. Heavy machinery, electricity and working at height, increases the risk of injuries. However, due to the relatively small scale of the project, the risk can be well managed. A temporary laydown site will be established for safe storage of equipment, fuels, solvents, paints and construction materials.	Labour Act should be complied with. The responsible contractor must ensure that all staff members are briefed about the potential risks of injuries on site. The Contractor should be obliged to adhere to the following: Adhere to Health and Safety Regulations pertaining to personal protective clothing, first aid kits being available on site, warning signs, etc. Equipment that will be locked away on site must be placed in a way that does not encourage criminal activities. Ensure suitable personal protective equipment is in place for workers as well as permit to work systems.	maintained on a daily basis. This should include measures taken to ensure that such incidents do not repeat itself. The contractor must ensure that adequate emergency facilities, including first aid kits are available on site. Selected personnel should be trained in first aid. The numbers of all emergency services must be readily available.	
Traffic Impact	Construction activities are expected to have some impact on the movement of traffic to the site and its vicinity when building material, equipment and waste materials must be transported to the site.	The contractor must also liaise with the relevant traffic department to ensure that traffic flow along the affected route is minimally disrupted. Alternative roads should be clearly indicated with signs and/or personnel directing traffic. Excavations and pipeline construction must be done in sections. Each section must be covered before the next section is initiated	Summary report of all traffic related incidents, communications, etc.	Contractor
Socio-Economic (HIV/AIDS, In-migration, Informal Settlements and Property Prices)	Increased spread of HIV/AIDS; Increased influx to Walvis Bay; Increased informal settlement and associated problems.	Shack Dwellers Federation of Namibia to perform the construction work themselves or make use of an existing local contractor(s) for the construction work outside of their expertise. Appointing reputable contractors who implement educational program on HIV/AIDS for all the staff members is imperative.	Summary report of contractors employed during the project construction.	Proponent

Criteria	Nature	Mitigation	Monitoring	Responsible Body
		Restricted employment for local people only should be practiced. Deviations from this practice should be justified appropriately. Training of local people should be considered from the start. These measures will reduce the influx of newcomers to the town and thereby reduce growth in the informal settlement and maintain property prices.		
Existing Infrastructure and Underground Utilities	Damage to existing infrastructure such as power lines, pipelines, sewers, and roads is considered unlikely to be severe or significant, as the proposed site is currently undeveloped and key services (including water pipelines, power lines, and roads) are located outside the project area. Furthermore, the sewerage pump station and rising main for the whole of Farm 37 have yet to be constructed. However, connection to the amenities and pipelines will be required, and some damage may occur during the process of connecting these services.	Appointing qualified and reputable contractors is essential. Proper training of construction personnel would reduce the possibility of the impact occurring. The contractor must determine exactly where amenities and pipelines are situated before construction commence. Liaison with the Town Council and suppliers of services is essential. Emergency procedures and contact details of emergency response teams for dealing with the possible consequences of this impact must be in place before construction commence.	Maps and location information of existing underground amenities on file. A register of all incidents must be maintained on a daily basis. This should include measures taken to ensure that such incidents do not repeat itself. All information and reporting to be included in a summary report.	Proponent, Contractor
Noise Pollution from construction activities to third	Noise pollution will exist due to heavy vehicles accessing the site with building materials. Cement mixing,	There will be minor increases in the ambient noise level and it will be limited to the site. Nevertheless, noise will occur and therefore mitigation measures must be recommended for	A complaints register must be maintained, in which any complaints from the community must be logged. Complaints must be investigated and	Contractor

Criteria	Nature	Mitigation	Monitoring	Responsible Body
parties	drilling and excavating will be some additional noise producing activities. The scale of the construction activities will not result in significant noise generation. Moreover, the neighbouring properties are currently undeveloped, as no construction activities have taken place to date.	the construction workers. The Walvis Bay Municipality has no regulations with regard to noise levels. The World Health Organization (WHO) guideline on maximum noise levels (Guidelines for Community Noise, 1999) to prevent hearing impairment can be followed during the construction phase. This limits noise levels to an average of 70 db over a 24 hour period with maximum noise levels not exceeding 110 db during the period. It is recommended that any complaints regarding noise be registered.	if appropriate, acted upon.	
Dust Pollution from construction activities	Dust may be generated during excavations and due to increased traffic to and from the site for deliveries and removals. The area do experience windy conditions due to its close proximity to the coast and occasionally east wind conditions worsens dust emissions in the area. This occurs regularly in Walvis Bay during the winter months when east winds occur. The nature of soil in Walvis Bay is such that it is moist due to frequent fog and mist rain and as a result of a very shallow water table. The dust impact would thus be limited to periods of strong winds when larger sand particles can be	Vehicles and machinery will be maintained in good working order Avoid new access route development where possible. Speed limits on roads will be limited to a maximum speed consistent with the minimisation of dust generation. Nominal speed limit of 40 km/h applies. Complaints regarding dust to be registered in the complaints register and to be investigated and managed in accordance with an incident reporting procedure. Personnel are to be issued with dust masks for health reasons if required.	Complaints regarding dust to be registered in the complaints register and to be investigated and managed in accordance with an incident reporting procedure	Contractor

Criteria	Nature	Mitigation	Monitoring	Responsible Body
	transported. However, the limited nature of the construction activities will not result in significant dust generation. Moreover, the neighbouring properties are currently undeveloped, as no construction activities have taken place to date; therefore, dust is not expected to be a significant nuisance to surrounding properties.			
Waste Production and Ablution facilities	The proposed construction of access roads and service amenities will generate waste, primarily from used construction materials. However, appropriate mitigation measures should be implemented to minimise the environmental impact of this waste. The ability of products and building rubble to act as a waste which must be cleaned up or removed off-site. Ablution facilities must be made available to construction personnel.	The contractor must ensure that adequate temporary disposal facilities are available at the construction site. Products that can be re-used or re-cycled should be kept separate. Waste should be disposed of regularly and at appropriate disposal facilities. Due to the nature of some hazardous materials they should be disposed of in an appropriate way at an appropriately classified waste disposal facility. Make use of the Material Safety Data Sheets available from suppliers if the user is not sure how to dispose of the substance. Manually concrete mixing is to be undertaken on a hard surface covered in plastic sheeting so that concrete waste and runoff can be contained A mobile chemical ablution facility should be	Regular visual inspection. Waste from this mentioned ablution facility needs to be appropriately disposed of at such a dedicated local authority facility regularly. Hazardous waste disposal receipts should be kept on file.	Contractor and Proponent

Criteria	Nature	Mitigation	Monitoring	Responsible Body
		made available to anybody working at the site. The ratio of the number of these ablution facilities to the number of employee's onsite should be discussed and agreed upon with the Local Authority in terms of the Labour Act as well as Environmental Health Act.		
Soil and groundwater contamination	Porous surface substrate can allow unwanted hazardous and ecologically Detrimental substances to seep down to the water table either at the site of spill or after being washed away by surface flow. Leakages from construction vehicles, accidental spills of fuel, paints and other chemicals might occur. Groundwater might spread pollutants to neighbouring receptors and may create an impact on underground infrastructure. However, due to the small scale of the project and the scarcity of surface water and groundwater in the area, the risk of hazardous spills can be effectively managed.	Appointing qualified and reputable contractors is essential. Proper training of construction personnel would reduce the possibility of the impact occurring. All vehicles and machinery to be used on site should be inspected regularly for oil leaks. Under no circumstances should any hydrocarbon product in access of 30 cubic meters be kept on site. Any such advancement should be done with a review of this Scoping Report and Environmental Management Plan. Manually concrete mixing is to be undertaken on a hard surface covered in plastic sheeting so that concrete waste and runoff can be contained.	Mitigation measures for handling and storage of hydrocarbon and hazardous materials onsite and offsite. Should any spills occur, contaminated soil is to be removed and rehabilitated or replaced with uncontaminated soil and a spill report form must be completed by the contractor. The spill report form must include the nature, extent and location of the hazardous spill and the actions taken to contain it.	Contractor
Heritage Impact	Sites with archaeologically or culturally important	Construction personnel must be informed of the possibility of finding historical artefacts and be	Report any irregularities to the	Contractor, Proponent

Criteria	Nature	Mitigation	Monitoring	Responsible Body
	significance might be uncovered during the construction phase. These can include graves, stone walls or cultural artefacts. However, the project area have been largely previously disturbed and there are no known sites of heritage significance.	instructed to report any such findings without delay. If such a site is found during the construction activities the construction process must be halted and the relevant authorities must be informed. Construction may only continue at that location once permission has been given. Firstly, the Namibian Police must be informed. Secondly, the National Monuments Council dealing with heritage should be informed.	authorities as stipulated.	
Employment	The construction of the proposed township development requires contractors who in turn provide employment. The magnitude of the construction of the proposed township development is on a small scale. A maximum of ±20 temporary job opportunities will be created to unskilled, semi-skilled and skilled workers during the construction phase.	Employ local residents of Walvis Bay as far reasonably possible.	A summary report of employment created during the project.	Contractor
Knowledge and skill transfer	The construction of service amenities and access roads presents a valuable opportunity for skills transfer	Enhanced skills, which will contribute to future employment prospects, self-reliance, and capacity-building within the community of Walvis Bay. Economic development (reducing	A summary report of knowledge and skill enhancement created during the project. The report should concisely highlight the key outcomes related to	Proponent

Criteria	Nature	Mitigation	Monitoring	Responsible Body
	to members of the Shack Dwellers Federation of Namibia (SDFN), who will undertake most of the work. While specialised tasks beyond their current capabilities will be handled by appointed contractors, SDFN members will still benefit through exposure to these activities. By working alongside experienced professionals and observing advanced construction techniques, members can gain practical knowledge and enhance their skills, which will contribute to future employment prospects, self-reliance, and capacity-building within their communities.	the inequality gap in society).	learning, training, and capacity building. The following items could be included in the report: - Brief description of formal and informal training provided. - Number of individuals trained (e.g., Shack Dwellers Federation of Namibia members, local workers). - Type of training: on-the-job learning, workshops, safety briefings, technical demonstrations. - List of practical skills gained (e.g., trenching, pipe laying, concrete mixing, safety protocols). - Exposure to tasks outside participants' original skill sets. - Use of equipment and tools (e.g., operating machinery, using surveying instruments).	
Cumulative Impacts	There are impacts on the environment, which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of who undertakes such other actions. Cumulative impacts can result from individually minor, but	The clustering of existing infrastructure in the area, including other power lines, the road, communication masts, as well as other developments would increase the cumulative effect of any impacts associated with the present development. With increased development and the cumulative effects associated with it, it becomes increasingly	Summary report based on all other impacts and monitoring must be created to give an overall assessment of the impact of this construction phase. This will assist in future applications for clearance certificates.	Proponent, Contractor

Criteria	Nature	Mitigation	Monitoring	Responsible Body
	collectively significant actions taking place over a period of time. In relation to an activity, it means the impact of an activity that in itself may not be significant, may become significant when added to the existing and potential impacts resulting from similar or diverse activities or undertakings in the area.	important to adhere to all mitigation measures as stipulated in the EMP.		

2.5 The Operational Phase

Table 2.2 provides the outline the management of the environmental elements that may be affected by the Operational activities.

Table 2.3 Operational Phase

Criteria	Nature	Mitigation	Monitoring	Responsible Body
Reducing rentals and backyard squatting	Reducing rentals and backyard squatting as well as the mean gross residential density in Kuisebmond. The Walvis Bay Municipal Council is committed to addressing the high population density in Kuisebmond by reducing backyard squatting, which is considered a pressing issue due to its adverse effects on housing conditions, strain on existing infrastructure, and related health and safety risks. To this end, the Council initiated a land development project aimed at relocating backyard dwellers to planned, higher-density residential areas. Portions 15–17 of Farm 37 have been designated for this purpose, specifically to accommodate members of the Shack Dwellers Federation of Namibia (SDFN). This initiative is expected to significantly enhance the quality of life for beneficiaries by alleviating overcrowding in Kuisebmond and formalising living arrangements through the reduction of backyard	In a positive sense, the project will improve the quality of life of the people benefiting directly (community) as they have reduced the residential gross density of Kuisebmond and reduced the backyard squatting in residential ervens.	Summary report of backyard squatting residents' migration to proposed site.	Proponent

Criteria	Nature	Mitigation	Monitoring	Responsible Body
	squatting on residential plots.			
Inclusionary Housing and land delivery	The inclusionary housing initiative by the Walvis Bay Municipal Council aims to increase access to affordable housing within urban areas. This initiative is based on a public-private partnership model, where the Council enhances the value of land by granting additional development rights to private developers. In return, developers are incentivised to incorporate affordable housing units into their projects. These units must be priced lower than the majority of other units within the same development and made available for both rental and purchase.	In a positive sense, this initiative is expected to directly improve the quality of life for previously disadvantaged residents of Kuisebmond by increasing access to affordable, low-cost housing. Furthermore, it contributes to reducing social inequality in Namibia through inclusive urban development.	Summary report of housing provision and timeline, i.e. how many houses provided annually.	Proponent
Biodiversity loss due to illegal plant and wildlife harvesting	This impact is concerned about with illegal harvesting of !Naras Acanthosicyos horridus (Cucurbitaceae) melon plants in the Kuiseb Delta; unauthorized collection of firewood from the riverine ecosystem; potential incidences of wildlife poaching in the Dorob National Park and Namib Naukluft National Park.	• All bulk services, including sewage, solid waste management, electricity and water provision, should be operational before residents occupy the area. However, if the sewage system is not place by the time residents occupy the proposed area then the Proponent should make available suitable ablution facilities to residents. • Future residents should be introduced to environmental awareness programs to encourage responsible behaviour regarding waste disposal, natural resource use, and conservation. • Collaboration between the Municipality of Walvis Bay, MEFT, and other relevant authorities should be encouraged to ensure effective management of environmental risks.	A record should be kept of any extraordinary fauna sightings or encounters on site. Report on illegal harvesting of plants and wildlife should be noted in the monitoring report especially when it is the !Naras Acanthosicyos horridus (Cucurbitaceae) melon plants in the Kuiseb Delta; unauthorized collection of firewood from the riverine ecosystem; potential incidences of wildlife	Proponent

Criteria	Nature	Mitigation	Monitoring	Responsible Body
		• Provision should be made for long-term environmental monitoring and adaptive management to address any emerging environmental challenges associated with the township.	poaching in the Dorob National Park and Namib Naukluft National Park. Keep records of environmental training and awareness campaigns. Keep all communications / collaborations engagements with Municipality of Walvis Bay and Ministry of Environment All data to be compiled in a Monitoring report. It is recommended that the proponent actively participates in broader environmental stewardship by supporting the creation of a biodiversity conservation task force for the entire Farm 37 area. This task force could address pressing issues such as illegal harvesting of !Nara melons, firewood collection, and wildlife poaching, promoting sustainable practices and environmental awareness across all extensions of Farm 37.	
Damage to Infrastructure due to the Corrosive	Walvis Bay is well known for its extreme corrosive environment. Bird droppings do accelerate	All access roads and services amenities must adhere to industry specifications and cathodic protection is required.	Regular inspections and maintenance of the access roads and services amenities is required to detect and	Proponent

Criteria	Nature	Mitigation	Monitoring	Responsible Body
Environment	corrosion.		repair any possible damage. Keep a maintenance record.	
Waste Production and Sewage Management	Walvis Bay experiences strong winds and it carries domestic waste which must be cleaned up and disposed of regularly. The maintenance of the sewage pump station and rising main during the operational phase.	The Proponent should collaborate with the Municipality of Walvis Bay to ensure effective solid waste management and sewage management. Waste to be clean-up and disposed of regularly at the landfill site. Waste management should be practised at all times. Households are to adhere to the municipal regulations with regards to waste disposal. No waste may be buried or burned on site or anywhere else. Waste containers (bins) should be emptied during and after the construction and the waste removed from site to the municipal waste disposal site. Separate waste containers (bins) for hazardous and domestic / general waste must be provided on site. In the event that an agreement with the Municipality of Walvis Bay and other developers or residents of Farm 37 has not been reached by the operational phase, it is recommended that sewage be temporarily managed through the use of septic tanks, supported by a regular emptying program, while discussions continue regarding the long-term feasibility of a centralized sewage system.	Waste to be clean-up and disposed of regularly at the landfill site. Removal of waste should be at regular (monthly) intervals to maintain visual orderliness. Dry waste is at risk of increasing the dust /litter impact so should be removed regularly. Record septic tank usage and emptying schedule.	Proponent
Visual Impact	The proposed site is located opposite the C14 road leading to Dune 7, a notable tourist	The proposed site is located opposite the C14 road leading to Dune 7, a notable tourist destination. However, the site will not be visible from the C14 road and is intended for urban	The proposed township development should blend in with the existing infrastructure.	Proponent

Criteria	Nature	Mitigation	Monitoring	Responsible Body
	destination	residential development. No specific measures need to be implemented to maintain a similar visual impact to other buildings.		
Cumulative Impacts	These are impacts on the environment, which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of who undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time. In relation to an activity, it means the impact of an activity that in itself may not be significant, may become significant when added to the existing and potential impacts resulting from similar or diverse activities or undertakings in the area.	Mitigation and monitoring of all impacts must be conducted and its effectiveness monitored. Results of such monitoring must be used to adapt or modify mitigation measures.	Annual summary report based on all other impacts must be created to give an overall assessment of the impact of the Operational Phase. This will assist in future applications for clearance certificates.	Proponent

2.6 The Decommissioning Phase

Table 2.4 provides the outline the management of the environmental elements that may be affected by the Construction activities.

Table 2.4 Decommissioning Phase

Criteria	Nature	Mitigation	Monitoring	Responsible Body
Waste Production and Ablution Facilities	Upon decommissioning, waste will be produced in the form of building rubble, obsolete equipment and structures, obsolete or residual products and equipment or structures that can be used elsewhere or sold as scrap. Ablution facilities must be made available to deconstruction personnel.	To reduce the amount of waste, all re-usable materials, and other equipment must be removed to another site or sold as scrap. Those items that cannot be used again must be scrapped in the appropriate manner. Rehabilitation, if necessary, is to be done using funds designated for the purpose.	Regular visual inspection. A register of waste produced and disposal methods should be maintained.	Proponent, Contractor
Ecological Impact	Operations spanning many years may create new habitat for fauna and flora. Upon decommissioning these habitats will be destroyed	SDFN would have to ensure that no new habitat is created for flora and fauna. Before decommissioning every structural facility must be inspected to ensure that the dismantling and removal of any structure would not affect any organism that has become dependent on those structures for survival, shelter or breeding. Where new habitats were created, that is now occupied by fauna or flora, SDFN must contact the Ministry of Environment and Tourism or other appropriate organizations to establish the conservation status of it. The possibility of relocating the fauna or flora	A report should be compiled of any fauna and flora that established itself on the premises. The report should include all actions taken to relocate or deal with the situation.	Proponent, Contractor

Criteria	Nature	Mitigation	Monitoring	Responsible Body
		must be investigated and executed. Should the species be listed as vulnerable to extinction, or worse, a meeting should be held with the Ministry of Environment and Tourism in order to determine the appropriate handling of the situation. The possibility of relocating the fauna or flora must be investigated and executed. Should the species be listed as vulnerable to extinction, a meeting should be held with MET in order to determine the appropriate handling of the situation.		
Dust	Dust will be generated during the Decommissioning Phase and might be aggravated during periods of strong winds.	It is recommended that regular dust suppression be included in the Decommissioning Phase, when dust becomes an issue. Personnel should be issued with dust masks for health and safety reasons. Accumulation of rubble should not be allowed and must be taken to the dumpsite within reasonable time.	Regular visual inspection. A complaints register must be maintained, in which any complaints from the community must be logged. Complaints must be investigated and, if appropriate, acted upon	Proponent, Contractor
Noise	Noise pollution will exist due to heavy vehicles accessing the site to collect rubble from demolished building materials.	The Walvis Bay Municipality does not have any guidelines with respect to noise levels but the World Health Organization (WHO) guideline on maximum noise levels (Guidelines for Community Noise, 1999) to prevent hearing impairment is followed. This limits noise levels in industrial areas to an average of 70 dB over a 24 hour period with maximum noise levels not exceeding 110 dB during the period. At the	A complaints register must be maintained, in which any complaints from the community must be logged. Complaints must be investigated and if appropriate, acted upon.	Proponent, Contractor

Criteria	Nature	Mitigation	Monitoring	Responsible Body
		residential areas nearby the daytime noise levels must not exceed 55 dB while at night it should be less than 45 dB. During decommissioning noise levels might be higher. This will however be short lived. All personnel must be issued with hearing protectors and neighbours must be notified of the time and duration of decommissioning. Notice of the start of the decommissioning should be given to the local authorities with an invitation to give feedback at any time with regards the noise impact.		
Groundwater, and Soil Contamination	Porous surface substrate can allow unwanted hazardous and ecologically detrimental substances to seep down to the water table either at the site of spill or after being washed away by surface flow. Leakages from construction vehicles, accidental spills of fuel, paints and other chemicals might occur. Groundwater might spread pollutants to neighbouring receptors and may create an impact on underground infrastructure. However, due to the small scale of the project and the scarcity of	Appointing qualified and reputable contractors is essential. Proper training of construction personnel would reduce the possibility of the impact occurring. All vehicles and machinery to be used on site should be inspected regularly for oil leaks	Mitigation measures for handling and storage of hydrocarbon and hazardous materials onsite and offsite. Should any spills occur, contaminated soil is to be removed and rehabilitated or replaced with uncontaminated soil and a spill report form must be completed by the contractor. The spill report form must include the nature, extent and location of the hazardous spill and the actions taken to contain it.	Proponent, Contractor

Criteria	Nature	Mitigation	Monitoring	Responsible Body
	surface water and groundwater in the area, the risk of hazardous spills can be effectively managed.			
Health, Safety and Security	During decommissioning phase, construction workers and heavy equipment will be onsite. Heavy machinery, electricity and working at height, increases the risk of injuries. However, due to the relatively small scale of the project, the risk can be well managed.	All Health and Safety standards specified in the Labour Act should be complied with. The responsible contractor must ensure that all staff members are briefed about the potential risks of injuries on site. The Contractor should be obliged to adhere to the following: ➢ Adhere to Health and Safety Regulations pertaining to personal protective clothing, first aid kits being available on site, warning signs, etc. ➢ Equipment that will be locked away on site must be placed in a way that does not encourage criminal activities ➢ Ensure suitable personal protective equipment is in place for workers as well as permit to work systems	A register of all incidents must be maintained on a daily basis. This should include measures taken to ensure that such incidents do not repeat itself. The contractor must ensure that adequate emergency facilities, including first aid kits are available on site. Selected personnel should be trained in first aid. The numbers of all emergency services must be readily available.	Proponent, Contractor

3. CONCLUSION

The proposed township is motivated by the growing need and demand for detached housing in Walvis Bay and the desirability of the project to help meet this market demand. The proposed development includes the creation of predominantly residential erven, but also land for businesses, clinics, churches and open spaces, streets and installation of bulk services within the proposed township.

The impact assessment consequently demonstrated that the potential negative environmental impacts of the township establishment can all be mitigated to be within acceptable levels. The most significant potential impact identified in the construction phase is physical disturbance and general destruction of habitat/biodiversity during site clearance activities, waste pollution and sewage management. The most significant potential impacts during the operational phase are the biodiversity loss specifically illegal harvesting of !Nara Acanthosicyos horridus (Cucurbitaceae) melon plants in the Kuiseb Delta, unauthorized collection of firewood from the riverine ecosystem, potential incidences of wildlife poaching in the Dorob National Park, and waste and sewage management.

The Environmental Management Plan (EMP), which must be implemented during the construction, operation, and potential decommissioning phases, aims to minimise environmental impacts associated with the Development. The EMP should serve as an on-site reference guide throughout all project phases. Any parties violating the EMP must be held accountable for the necessary rehabilitation actions. In addition, developing a comprehensive Health, Safety, Security, and Environment (HSSE) Management System to complement the EMP will further demonstrate the Applicant's commitment to responsible operations. All operators and relevant personnel involved in the Development must be thoroughly familiar with the contents of these documents.

Furthermore, it is recommended that the proponent actively participates in broader environmental stewardship by supporting the creation of a biodiversity conservation task force for the entire Farm 37 area. This task force could address pressing issues such as illegal harvesting of !Nara melons, firewood collection, and wildlife poaching, promoting sustainable practices and environmental awareness across all extensions of Farm 37

Provided that the recommended mitigation measures are effectively implemented, there are no environmental grounds to withhold the issuance of an Environmental Clearance Certificate for the proposed township development on Portions 15, 16, and 17 of Farm 37 (Green Valley) in Walvis Bay.

Gea Source Investment cc
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