



GEOKEY cc

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27 January 2023

The Environmental Commissioner
Ministry of Environment Forestry and Tourism
c/o Robert Mugabe and Uhland Streets
Windhoek

Dear Sir



RE: Renewal of Environmental Clearance Certificate (ECC-00261) for the development, construction and operations of the proposed Nonidas Industria Township, Erongo Region.

1. This is an application made in terms of Section 32 of the Environmental Management Act, 7 of 2007 ("the Act") for the renewal of an ECC in respect of the above project which was previously issued to the applicant on the 23.10.2019 (see attachment).
2. In support of the previous ECC application, an Environmental Impact Assessment and Environmental Management Plan for the proposed project was submitted by GeoPollution Technologies in October 2016. No activities were carried out within the project area and no amendments were done to the project during the year 2019 to date.
3. In the light thereof the EIA and EMP previously submitted will not be superseded, taking into consideration that no work was conducted and therefore no new impacts are expected at all stages of the project apart from those which have been previously identified in the documents submitted.
4. In terms of Section 57 of the Act, the current approval granted for the area expired on the 23rd of October 2022. In the light thereof, we attach hereto the duly completed Form-1 (Annexure A), duly stamped in the amount of N\$300.00, representing the prescribed fee.
5. Annexure A provides a copy of the expired ECC for the proposed township development.
6. Annexure B provides the renewal Application form 1.
7. Annexure C provides the previously submitted and approved EMP.
8. Annexure D renders the resolution taken by the Swakopmund Municipality with regard to the need and desirability of the envisaged township development.

9. We kindly request that the office of the Environmental Commissioner shall:
10. Register the Applications in the prescribed assessment register as provided for in subsection 33(1)(a) of the Act towards a renewal of the existing environmental clearance.
11. I confirm that a decision taken by the Environmental Commissioner under subsection 33(1) of the Act, does not exempt the company from complying with other requirements prescribed in respect of the proposed activity under any other law.

Yours faithfully

P.P. 

Oliver Krappmann
Geokey Consult CC

Acknowledge receipt.

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REPUBLIC OF NAMIBIA

MINISTRY OF ENVIRONMENT AND TOURISM

OFFICE OF THE ENVIRONMENTAL COMMISSIONER

ENVIRONMENTAL CLEARANCE CERTIFICATE

ISSUED

In accordance with Section 37(2) of the Environmental Management Act (Act No. 7 of 2007)

TO

Nonidas Industria
Box 8912 Swakopmund, Erf 3980 Einstein Street Swakopmund

TO UNDERTAKE THE FOLLOWING LISTED ACTIVITY

Proposed Nonidas Industria Township Development, Swakopmund District, Erongo Region

MINISTRY OF ENVIRONMENT, FORESTRY AND TOURISM
DIRECTORATE OF ENVIRONMENTAL AFFAIRS
31 JAN 2023
Tel: 001 281 2111
RECEIVED 2
Signature: <i>[Handwritten Signature]</i>



DEPUTY ENVIRONMENTAL COMMISSIONER

Issued on the date: 2019-10-23

Expires on this date: 2022-10-23

(See conditions printed over leaf)

This certificate is printed without erasures or alterations



CONDITIONS OF APPROVAL

1. This environmental clearance is valid for a period of 3 (three) years, from the date of issue unless withdrawn by this office
2. This certificate does not in any way hold the Ministry of Environment and Tourism accountable for misleading information, nor any adverse effects that may arise from these activities. Instead, full accountability rests with the proponent and its consultants
3. This Ministry reserves the right to attach further legislative and regulatory conditions during the operational phase of the project

4.

1. This environmental clearance is valid for a period of 3 (three) years, from the date of issue unless withdrawn by this office

This certificate does not in any way hold the Ministry of Environment and Tourism accountable for misleading information, nor any adverse effects that may arise from these activities. Instead, full accountability rests with the proponent and its consultants



MUNICIPALITY OF SWAKOPMUND

Ref No: G 2 (23)

Enquiries: J Batley

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11 July 2019

winplan@winplan.com.na



Dear Sir/Madam,

ESTABLISHMENT OF THE NONIDAS INDUSTRIAL TOWNSHIP ON PORTION 23 OF FARM NUMBER 163 SWAKOPMUND AND APPROVAL OF THE LAYOUT (C/M 2019/05/23 - G 2 (23))

Please be informed that the Municipal Council of Swakopmund has on 23 May 2019 resolved as follows:

RESOLVED:

- (a) That the Need and Desirability for the Township Establishment on Portion 23 of Farm 163 Swakopmund be approved.
- (b) That the layout as indicated on Plan Number SWB_SUB25-re2 for the township establishment on Portion 23 of Farm 163 Swakopmund be approved.
- (c) That the future proposal that falls outside of Portion 23 of Farm 163 Swakopmund be turned down and the applicant revise the layout plan to be confined to Portion 23 of Farm 163 Swakopmund only before submission to the Namibia Planning Advisory Board (NAMBAP).
- (d) That approval be granted for application to be made in terms of Section 5 of the Township and Division of Land Ordinance No. 11 of 1963 for the establishment of a new township on Portion 23 of Farm 163 as shown on the subdivisional plan.
- (e) That a fifty (50) meters wide servitude to be registered over the Remainder of Farm 163, Swakopmund be approved.
- (f) That the Engineering Services Department be authorized to consent for minor amendments to the plans in order to accommodate land surveyor requirement, those of the Townships Board and infrastructure accommodation.

All correspondence must be addressed to Chief Executive Officer

- (g) That an Environmental Clearance Certificate from the Environmental Commissioner for the proposed township establishment on Portion 23 of Farm 163, Swakopmund be obtained prior to the submission of the application to the Namibia Planning Advisory Board (NAMBAP) and Townships Board.
- (h) That the conditions of establishment be as follows:
- The following conditions shall be registered against the title deeds of all erven, except those reserved as "Public Open Space":*
- (i) *That the erven shall only be used or occupied for purposes which are in accordance with and the use or occupation of the erven shall at all times be subject to the provisions of the Swakopmund Town Planning Scheme prepared and approved in terms of the Town Planning Ordinance, 1954 (Ordinance 18 of 1954).*
- (ii) *The building value of the main building, excluding the outbuilding to be erected on the erf shall be at least four times the municipal valuation of the erf.*
- (j) That all services design and construction be done to the satisfaction of the General Manager: Engineering Services.
- (k) That all costs involved for the proposed development be for the applicant's account.

Yours faithfully,



C McClune
GENERAL MANAGER: ENGINEERING SERVICES

JB/jb/vrb

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**ENVIRONMENTAL ASSESSMENT FOR THE DEVELOPMENT,
CONSTRUCTION AND OPERATIONS OF THE PROPOSED
NONIDAS INDUSTRIA TOWNSHIP**

ENVIRONMENTAL MANAGEMENT PLAN



MINISTRY OF ENVIRONMENT, FORESTRY AND TOURISM
DIRECTORATE OF ENVIRONMENTAL AFFAIRS
31 JAN 2023
Tel: 061 284 2701
RECEIVED 2
Signature: <i>Meq</i>

Assessed by:



Assessed for:

Nonidas Industria (Pty0 Ltd

March 2016

**ENVIRONMENTAL ASSESSMENT FOR THE DEVELOPMENT,
CONSTRUCTION AND OPERATIONS OF THE PROPOSED
NONIDAS INDUSTRIA TOWNSHIP**

ENVIRONMENTAL MANAGEMENT PLAN



Assessed by:



Assessed for:

Nonidas Industria (Pty) Ltd

March 2016

Project:	ENVIRONMENTAL MANAGEMENT PLAN FOR THE DEVELOPMENT, CONSTRUCTION AND OPERATIONS OF THE PROPOSED NONIDAS INDUSTRIA TOWNSHIP
Report Version/Date	Draft for Public Review March 2016
Prepared for:	Nonidas Industria (Pty) Ltd P.O.Box 8912 Swakopmund Namibia
Lead Consultant	Geo Pollution Technologies (Pty) Ltd Tel.: (+264-61) 257411 PO Box 11073 Fax.: (+264) 88626368 Windhoek Namibia
Main Project Team	Quzette Bosman (BA. Geography/Sociology); (BA Environmental Management) André Faul (B.Sc. Zoology, Biochemistry); (B.Sc. (Hons) Zoology); (M.Sc. Conservation Ecology) Pierre Botha (B.Sc. Geology/Geography); (B.Sc. (Hons) Hydrology/Hydrogeology)
Cite this document as:	Faul A, Bosman Q, Botha P, 2016. Environmental Management for the Development, Construction and Operations of the Proposed Nonidas Industrial Township
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Table of Contents

1	OBJECTIVES OF THE EMP	1
2	THE EMP	2
2.1	LAND USE, PLANNING, DESIGN, OPERATIONS – IDENTIFIED IMPACTS	2
3	THE IMPLEMENTATION OF THE EMP	3
4	CONCLUSIONS	21

List of Tables

TABLE 1.	PLANNING FOR CONSTRUCTION, OPERATIONS AND FUTURE DECOMMISSIONING OF THE PROJECT	4
TABLE 2.	THE CONSTRUCTION PHASE	6
TABLE 3.	THE OPERATIONAL PHASE	11
TABLE 4.	DECOMMISSIONING PHASE	17

1 OBJECTIVES OF THE EMP

Nonidas Industria (Pty) Ltd (hereafter referred to as Nonidas Industria), a subsidiary of Gecko Namibia, is proposing the development of an industrial township 10 km east of Swakopmund in the Erongo Region (Figure 1), for which the company require an Environmental Clearance Certificate (ECC). In support to an application for such an ECC, an Environmental Scoping Assessment has been conducted. Mitigation measures as mentioned in the Scoping Report have been included in this related Environmental Management Plan (EMP) which will be submitted with the Scoping Report to the Department of Environmental Affairs (DEA) of the Ministry of Environmental Affairs and Tourism. Should the ECC application be successful, this EMP will become legally binding.



Figure 1: Location of Nonidas Industria

The (EMP) provides management options to ensure that impacts of construction and 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. The construction phase includes the establishment of all infrastructure components required for the industrial site, as well as the refurbishment of a siding and railway. Additional activities include the establishment of a waste water treatment plant and construction of a new intersection at the B2 which will facilitate a turnoff onto a new proposed access road to the site.

All contractors and sub-contractors taking part in the construction and operations 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 construction and operational personnel in applying such controls; and
- to ensure that appropriate environmental training is provided to responsible construction and operational personnel.

Nonidas Industria may choose to implement an environmental management system. At the heart of an EMS is the concept of continual improvement of environmental performance with resulting increases in operational efficiency, financial savings and reduction in environmental, health and safety risks. An effective EMS would need to include the following elements:

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

2 THE EMP

The following general guidance for the EMP is based on the findings of the EA and risk assessment carried out by Geo Pollution Technologies.

2.1 Land Use, Planning, Design, Operations – Identified Impacts

- Noise Impacts: Noise pollution will exist due to heavy vehicles accessing and operating on the site. Other noise impacts will be a result from the railway siding.
- Traffic Impacts: The site will be accessed via the B2 which is the main road running between Swakopmund and Windhoek. The road is already frequented by a large amount of trucks travelling to and from the harbour in Walvis Bay, as well as by other vehicles travelling the roads. This area has a high accident rating due to the large amount of traffic. The increase in trucks due to the new industrial development and operations may have an even greater negative effect on traffic. It is of utmost importance that mitigation measures are followed accordingly to reduce these negative impacts as much as possible.
- Dust and Air Quality: Windy conditions are a common occurrence in the area. During site excavation activities of the operation phase, dust may become a nuisance and health risk to construction personnel and neighbours. Special care must be taken during periods of strong winds. The roads leading to the site are also unpaved and this may result in an increase of dust levels.
- Socio-Economic Impacts: Both construction and operations of the industrial township will provide employment opportunities to residents of Swakopmund and Nonidas. The operational phase will make use of employees from the region in order to create permanent employment opportunities. The proposed development has further impacts on the nearby residents' expectation and aspirations for the future.
- Fauna / Birds: In relation to the greater area's proposed development the fauna impact will not be significant. However, should the municipalities proposed structure plan be fully developed, this proposed development will have a definite contribution to cumulative effect on especially the bird habitat in the area.

3 THE IMPLEMENTATION OF THE EMP

Tables 1 to 4 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

As per the Environmental Scoping Report which had been completed for the proposed development, no decommissioning phase is planned for as it is foreseen that the proposed development will become a permanent feature in the greater urban development of the Swakopmund area. However, decommissioning activities have been included, should such an eventuality occur for whatever reason.

Furthermore, all **reporting** as referred to in the tables 1 – 4 of this report, is suggested to be combined in a **single report annually** which should be submitted to the **Department of Environmental Affairs (DEA)** of the Ministry of Environmental Affairs and Tourism. The purpose of the report will not only serve as an indication on the compliance of this EMP, but will also serve to report on all monitoring requirements and grievances received.

In addition to the reporting requirements as mentioned above, an additional report should be compiled once the construction phase has been completed. This report should be submitted to the DEA.

Table 1. Planning for Construction, Operations and Future Decommissioning of the Project

Activity	Objective	Action	Timing	Proof of Compliance	Responsible Body
Compliance	To comply with all legal requirements for the construction and operations of the development in Namibia.	Apply for the necessary permits from the various ministries, local authorities and any other bodies that governs the construction and operations of the proposed development. These include Hazardous Waste storage and transportation permits as well as permits from the department of health to analyse hazardous materials.	Prior to commencement of construction	All contracts, permits, certificates and other legal documents on file.	Proponent
Baseline	Determine baseline pollution conditions.	Collect soil and water samples where required and analyse for chemicals of concern.	Prior to commencement of construction	Analysis results on file	Independent Specialist Consultant
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, sub-contractors, employees and all personnel who will be present on site.	Prior to commencement of construction and 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	Prior to commencement of and during construction and operations	Documentation on file Personal Protection Equipment (PPE) on site Signage related to restricted areas, dangerous areas, and PPE requirements on site Emergency response material on site	Proponent; Contractor

Activity	Objective	Action	Timing	Proof of Compliance	Responsible Body
		Adequate protection and indemnity insurance cover for incidents; Comply with the provisions of all relevant safety standards; Procedures, equipment and materials required for emergencies.			
Restoration Fund/Insurance	To set aside funds for future environmental restoration or pollution remediation if ever required.	To set aside funds for future ecological restoration of the project site should project activities cease and the site is decommissioned and environmental restoration or pollution remediation is required.	Prior to commencement of and during construction and operations	Shareholders directive to the financial manager to budget for these eventualities.	Proponent
Reporting	To establish a reporting system to report on monitoring aspects of construction, 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 construction and operations as well as possible future decommissioning of the development	Monitoring Reports	Proponent; Contractor
Grievance Mechanism	To establish a grievance mechanism through which community members can voice their complaints as managed by a community liaison officer.	Identify a community liaison officer Establish a grievance mechanism	Prior to the construction phase	Complaints register	Proponent
Environmental Clearance Renewal	To renew the Environmental Clearance Certificate every Three years.	Appoint an environmental consultant to update the EIA and 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

Table 2. The Construction Phase

Criteria	Nature	Mitigation	Monitoring	Responsible Body
Enhanced skills and technology transfer to Swakopmund & Nonidas and subsequent promotion of economic development	People need skills to perform their jobs. The technology to do something is often not found locally. Development of people and technology are key to economic development.	Local Namibians must be employed. Deviations should be justified.	Proof of appointment of local contractors on file.	Proponent; Directors & Public Relations personnel.
Increased spread of HIV/AIDS; Increased influx to Nonidas; Increased informal settlement and associated problems; Reduced property values	New and existing developments attract people who seek work. This in turn can increase the extent of informal settlements and its associated problems. The increased trucking and distribution of goods to and from Nonidas could contribute to the spread of HIV / AIDS. It is possible that these can affect property prices in the area depending on the proximity to a residential site.	Appointing reputable contractors who implement educational program on HIV/AIDS for all staff, in particular the truck drivers, is imperative. 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 area and thereby reduce growth in the informal settlement and maintain property prices.	Proof of appointment of local contractors on file.	Proponent; Directors & Public Relations Personnel.
Employment	Construction as well as operation of a new development requires the employment of contractors as well as employment and training of staff for the development.	Where skills exist local Namibian contractors must be employed. Deviations from this must be justified.	Proof of appointment of local contractors on file.	Proponent; Directors & Public Relations Personnel.
Traffic	Construction activities are expected to have some impact on the movement of traffic when construction material and equipment are transported to the site. Construction of the new intersection and turning lane may	Regulation of traffic during deliveries for construction. Diversion or management of traffic if needed. Appropriate signage and warnings. Proper planning prior to construction.	Receive a planning sheet from Contractor to know when and if traffic authorities and the general public need to be informed of possible obstructions Any complaints received	Contractor; Proponent

Criteria	Nature	Mitigation	Monitoring	Responsible Body
	prove disruptive to traffic flow.		<p>regarding traffic issues should be recorded together with steps taken to mitigate the impacts.</p> <p>All information and reporting to be included in the final environmental report once construction finishes.</p>	
Fire	Construction activities near flammable materials may result in fires that may spread.	<p>All equipment and tools must comply with standards which allow certain tools and equipment near flammable sources. Safety distances must be adhered to as well as safe work procedures. Safety talks and job hazard analysis to be done before work starts.</p> <p>Fire fighting measures as per the Material Safety Data Sheets of the product should be adhered to.</p> <p>In addition to this, all personnel have to be sensitised about responsible fire protection measures and good housekeeping such as the removal of flammable materials including rubbish, dry vegetation, and hydrocarbon-soaked soil from the vicinity of the construction. Regular inspections should be carried out to check for these materials at the site.</p> <p>It must be assured that sufficient fire fighting resources are available. A holistic fire protection and prevention plan is needed. This holistic plan must include an emergency response plan and fire fighting plan. Regular surveys of the fire-fighting equipment and water supply should be carried out.</p>	<p>Supervision of work is required and reports of safe and unsafe practice to be brought to the attention of the HSE department.</p> <p>Any incidents reported must be recorded together with steps taken to mitigate the impacts.</p> <p>All information and reporting to be included in the final environmental report once construction finishes.</p>	Contractor; Proponent
Health, Safety and Security	During the construction phase, construction personnel will access the site. Different excavation, earthmoving and transport equipment will be onsite. This increases the possibility of	<p>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.</p> <p>The Contractor should be obliged to adhere to the</p>	<p>A register of all incidents must be maintained. This should include measures taken to ensure that such incidents do not repeat itself.</p> <p>All information and reporting to be included in the final</p>	Contractor; Proponent

Criteria	Nature	Mitigation	Monitoring	Responsible Body
	injuries. A risk to site security and personnel health and safety exists during this period.	<p>following:</p> <ul style="list-style-type: none"> ◆ Adhere to Health and Safety Regulations pertaining to personal protective clothing, first aid kits, warning signs, etc.; ◆ Ensure that adequate emergency facilities, including first aid kits, are available on site; ◆ In consultation with the Traffic Department devise and submit a traffic management programme for sections of the roads to be closed or traffic diverted if necessary during the delivery of equipment or infrastructure construction; ◆ Equipment that must be locked away on site and must be placed in a way that does not encourage criminal activities; ◆ Induction training for all who enter the site is required; and ◆ Security personnel to prevent unauthorised entry of the construction site. <p>Refer to the Emergency Response Plan (ERP) and or the ERP Guidebook 2008 and associated SANS document, Material Safety Data Sheets (MSDS) and management system manuals.</p>	environmental report once construction finishes.	
Dust	Dust may be generated during the construction if it involves the exposure of soil before new concrete surfaces are laid and due to increased traffic to and from the site for deliveries and removals. This might be aggravated during periods of strong winds which occurs regularly in Namibia during the winter months.	<p>It is recommended that regular dust suppression be included during construction, when dust becomes an issue. Personnel are to be issued with dust masks for health reasons when needed.</p> <p>Excavations during strong north-easterly wind conditions should be avoided to prevent dust from being a nuisance if dust suppression is not adequate.</p>	<p>Regular visual inspection.</p> <p>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.</p> <p>All information and reporting to be included in the final environmental report.</p>	Contractor; Proponent
Noise	Noise pollution will exist due to heavy vehicles accessing the site	The Municipality has no regulations with regard to noise levels. The World Health Organization (WHO)	A complaints register must be maintained in which any	Contractor; Proponent

Criteria	Nature	Mitigation	Monitoring	Responsible Body
	with building materials, as well as the audible warning noises from trucks and heavy equipment. Compaction, cement mixing, drilling and excavating will be some additional noise producing activities.	<p>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 a survey of the noise levels be carried out if complaints are received.</p> <p>Construction workers to be issued with hearing protection where needed.</p>	<p>complaints from the community must be logged. Complaints must be investigated and, if appropriate, acted upon.</p> <p>All information and reporting to be included in the final environmental report.</p>	
Waste Production	<p>The ability of products and building rubble to act as a waste which must be cleaned up or removed off-site.</p> <p>The construction at the facility will produce waste in the form of domestic waste, building rubble or any other waste as a result of spillage or leakage from cleaning and painting materials.</p> <p>Any soil polluted by hydrocarbons that may be encountered during the construction phase should be treated as hazardous waste. Chemical toilets present a risk of contamination.</p>	<p>Due to the nature of some hazardous materials they should be disposed of in an appropriate way at an appropriately classified waste disposal facility. See the MSDS available from suppliers if the user is not sure how to dispose of the substance.</p> <p>Liaise with the Municipality regarding waste and appropriate handling of hazardous waste.</p> <p>Temporary waste disposal facilities should be present on site. This should include separate containers for products that can be re-used or recycled.</p> <p>Removal of waste should be at regular (weekly) intervals to maintain visual orderliness, but more so to not give time for liquid waste to enter the soil substrate. Dry waste is at risk of increasing the dust / litter impact so should be removed regularly.</p> <p>Securely fasten or place all chemical toilets.</p> <p>This includes any asbestos waste that may be produced on site.</p>	<p>Regular visual inspection.</p> <p>A register of waste produced and disposal methods should be maintained.</p> <p>All information and reporting to be included in the final environmental report.</p>	Contractor; Proponent
Groundwater, Surface Water 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	<p>All precautions are to be taken to prevent contamination of the soil as this could enter the ecosystem.</p> <p>Appointing qualified and reputable contractors is</p>	Report form for all spills or leaks during construction is to be completed by Contractor and submitted to the HSE	Contractor; Proponent; Independent Specialist Consultant

Criteria	Nature	Mitigation	Monitoring	Responsible Body
	<p>spill or after being washed away by surface flow.</p> <p>Leakages from construction vehicles, accidental spills of fuel, paints and other chemicals might occur. Groundwater might spread pollutants to neighbouring receptors.</p>	<p>essential. Proper training of construction personnel would reduce the possibility of the impact occurring.</p> <p>Any hydrocarbon spill of 200 l or more must be reported and remediation action taken.</p> <p>Polluted soil and building rubble must be transported away from the site to an approved, appropriately classified waste disposal site. Polluted soil can be remediated.</p> <p>Confirm MSDS information for any oils and other HFO products, lubricants or chemicals that must be discarded.</p>	<p>department.</p> <p>All information and reporting to be included in the final environmental report.</p>	
Heritage Impact	<p>Sites with archaeologically or culturally important significance might be uncovered during excavations. These can include graves or cultural artefacts.</p>	<p>If such a site is found during the construction phase 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. Chance-find procedures should be adopted.</p>	<p>Record of any discoveries and proof of notifications to authorities on file.</p> <p>All information and reporting to be included in the final environmental report.</p>	Contractor; Proponent
Cumulative Impact	<p>Possible cumulative impacts associated with the construction phase include increase in traffic frequenting the site. Wear and tear on the roads and increased risks of road traffic incidences could increase. Additional traffic and construction noise would further increase noise impacts in the area. Other quarry operators are using the roads to access the area.</p>	<p>All other preventative measures for the different impacts will help prevent this impact.</p>	<p>The final environmental report based on all other impacts must be created to give an overall assessment of the impact of the Construction Phase.</p>	Contractor; Proponent

Table 3. The Operational Phase

Criteria	Nature	Mitigation	Monitoring	Responsible Body
Enhanced skills transfer and technology transfer to Nonidas and subsequent promotion of economic development	People need skills to perform their jobs. The technology to do something is often not found locally. Development of people and technology are key to economic development.	Employ local Namibian residents. Any deviation should be well motivated.	Annual environmental report to provide a summary based on actual training and the enhancement of skills and transfer of technology should be compiled.	Proponent; Directors & Public Relations personnel.
Increased spread of HIV/AIDS; Increased influx to Nonidas; Increased informal settlement and associated problems; Reduced property values	New and existing developments attract people who seek work. This in turn can increase the extent of informal settlements and its associated problems. The increased trucking and distribution of goods to and from Nonidas could contribute to the spread of HIV / AIDS. It is possible that these can affect property prices in the area depending on the proximity to a residential site.	Preferential employment for Swakopmund / Nonidas dwellers 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.	Annual environmental report to provide a summary based on educational programmes and training conducted. Annual environmental report to provide a review of employee demographics.	Proponent; Directors & Public Relations Personnel.
Employment	The maintenance of the service infrastructure will create employment opportunities	None required	Annual environmental report to provide a summary based on employee records.	Proponent; Directors & Public Relations Personnel.
Traffic	Increased traffic leading to traffic congestion, accidents and increased deterioration of roads.	Maintenance of all signage of the established new intersection.	Any complaints received regarding traffic issues should be recorded in the Annual environmental report .	Proponent & Roads Authority
Security	Unauthorized entry leading to theft of equipment and/or product and/or fire hazard (not intentional arson).	Security procedures and proper security measures must be in place. Strict security that prevents unauthorised entry. Patrolling perimeter fence. Alarm systems and security personnel should be utilised. Strict security at the entry points must be adhered to.	Annual environmental report to provide a summary of all incidents reported.	Proponent; Security Supervisor.

Criteria	Nature	Mitigation	Monitoring	Responsible Body
		<p>Fitness for work certificates for every security officer to be issued on a monthly basis. Daily alcohol testing should be carried out by an authorised person at the start and at the end of a shift.</p>		
<p>Fire and Explosion Hazard</p>	<p>Outbreak of an uncontrolled fire. Oil and diesel are not as flammable as the more volatile hydrocarbons like petrol. Compromise of explosives storage.</p>	<p>The following controls are typical measures for mitigating the threat of spillage of hazardous chemicals and possible fire outbreak:-</p> <ul style="list-style-type: none"> ◆ Storage according to Material Safety Data Sheet and SANS instructions ◆ Site inspection and maintenance ◆ Operational procedures and training ◆ Mechanical and electrical inspections ◆ Fire extinguishers ◆ Trained personnel ◆ Good housekeeping ◆ Reporting of leaks/spills <p>All conditions to be adhered to as prescribed by the Chief Inspector regarding the storage of explosives (as per conditions of the permit).</p> <p><i>Fire Fighting and Fire Prevention:</i></p> <p>All fire precautions and fire control at the site must be in accordance with relevant SANS regulations or better. Firefighting measures as per the Material Safety Data Sheets of the products should be adhered to.</p> <p>In addition to this, all personnel have to be sensitised about responsible fire protection measures and good housekeeping such as the removal of flammable materials including rubbish. Regular inspections should be carried out to check for these materials at the site.</p> <p>A holistic fire protection and prevention plan is needed. This plan must include an emergency response plan, firefighting plan and spill recovery plan.</p>	<p>Annual environmental report to provide a summary of all incidents reported. The annual environmental report should contain dates when fire drills were conducted and when fire equipment was tested.</p> <p>Explosives storage approval kept on file and on site with required additional documentation.</p>	<p>Proponent</p>

Criteria	Nature	Mitigation	Monitoring	Responsible Body
Health & Safety	<p>During operational times maintenance and operational procedures are subject to risks to human beings. These risks are assessed in terms of the predicted impact if realised. Typical examples are:-</p> <ul style="list-style-type: none"> ◆ Breathing in excessive chemical fumes ◆ Slipping on wet surfaces ◆ Chemical product contact with eyes and skin ◆ Staff not wearing protective clothing 	<p>Typical mitigating measures within the health and safety management systems are:-</p> <ul style="list-style-type: none"> ◆ Operational and procedural manuals ◆ Health and Safety Training ◆ Housekeeping rules ◆ Colour coding areas, pipes, equipment and substances ◆ Signage for Personal Protective Equipment (e.g. protective clothing like safety boots and hard hats) ◆ Safe work procedures and permits to work ◆ Clearance certificates for confined spaces ◆ Emergency response plans ◆ Material Safety Data Sheets (MSDS) ◆ First aid treatment and training ◆ Medical procedures and emergency services ◆ Daily safety moments and/or drills <p>The MSDS give health related medical responses for personnel assisting staff who are exposed to the hydrocarbons.</p>	<p>Inventory of necessary information and administrative documentation to be kept on a weekly basis</p> <p>Annual environmental report to provide a summary of all incidents reported. The annual environmental report should contain dates when training was conducted and when safety equipment and structures were inspected and maintained.</p>	Proponent
Noise	Noise pollution will exist due to heavy vehicles accessing the site as well as siding operation.	<p>The Development is situated in an industrial area so there is no restriction on the times of operation. The World Health Organization (WHO) guideline on maximum noise levels (Guidelines for Community Noise, 1999) to prevent hearing impairment for workers on site can be followed. 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.</p> <p>Public address systems may not be used on site without prior arrangement with the Municipality.</p>	<p>Any complaints received regarding excessive noise should be recorded with notes on action taken.</p> <p>All complaints and additional data, if available, to be compiled in an annual environmental report.</p>	Proponent; Independent Specialist Consultant
Waste Production	The ability of a product to act as a waste which must be cleaned up. These can be soils that become contaminated with oil and/or other diesel products. Domestic waste from bins, offices and ablution facilities.	<p>See the MSDS for handling hazardous substances. Contaminated oil and HFO products that can no longer be used in the market must be disposed of in the hazardous waste section of a municipal dump or where possible converted for beneficial use.</p> <p>All other domestic waste should be disposed of timorously</p>	A register of hazardous waste disposal should be kept. This should include type of waste, volume as well as disposal method/facility.	Proponent

Criteria	Nature	Mitigation	Monitoring	Responsible Body
		<p>to maintain visual orderliness, but more so to not give time for liquid waste to enter the soil substrate.</p> <p>Contaminated soils can be remediated in accordance with accepted procedures at a site dedicated for this purpose.</p> <p>The oil water separators on site must be properly maintained.</p> <p>Liaise with the municipality regarding waste and handling of hazardous waste (especially from the chemical laboratory). All water disposed from the waste water treatment plant to be of an adequate quality for plant.</p> <p>Spilled hydrocarbons may not be washed off using surfactants like soap. Surfactants will cause the oil/water separator to malfunction leading to hydrocarbons entering the sewers.</p>	<p>Water quality samples from the waste water treatment plant to be taken weekly.</p> <p>Any complaints received regarding waste should be recorded with notes on action taken.</p> <p>All data to be compiled in a report and a summary included in the annual environmental report.</p>	
<p>Groundwater, Surface Water and Soil Contamination</p>	<p>Porous surface substrate can allow unwanted hazardous and ecologically detrimental substances to seep down to the water table.</p> <p>Groundwater is not utilized in the area for human consumption but should still be protected at all costs.</p> <p>Proper containment mechanisms installed should contain any release that might take place from spillages (at fuel storage facilities) during operation of the development.</p>	<p>The following measures must be employed to prevent Hydrocarbon spillage into surface water drainage channels and groundwater sources:-</p> <ul style="list-style-type: none"> ◆ Spill control structures and procedures must be in place according to SANS standards or better, including impounding around the loading areas by bunding with appropriate slopes of 1:100. ◆ All handling of oil and diesel should be conducted on surfaces provided for this purpose. E.g. Concrete slabs with regularly maintained seals between slabs. ◆ The procedures followed to prevent environmental damage during service and maintenance, and compliance with these procedures, including the correct use of sumps and regular reporting of spillages must be audited and corrections made where necessary (especially with regards to the waste Water Treatment plant). ◆ Proper training of operators must be conducted on a regular basis. ◆ Any spillage of more than 200 l must be reported to the relevant authorities and remediation instituted. 	<p>Bi-annual samples must be taken from monitoring holes and analysed for any hydrocarbon pollutants present.</p> <p>An annual environmental report should be compiled relating all spills or leakages reported. The annual environmental report should contain the following information:</p> <ul style="list-style-type: none"> ◆ date and duration of spill ◆ product spilled ◆ volume of spill ◆ remedial action taken ◆ Comparison of pre-exposure baseline data with post remediation 	<p>Proponent</p>

Criteria	Nature	Mitigation	Monitoring	Responsible Body
		<ul style="list-style-type: none"> ◆ Spill clean-up means must be available on site as per the relevant MSDS. 	<p>data (e.g. soil hydrocarbon concentrations)</p> <ul style="list-style-type: none"> ◆ Copy of documentation in which spill was reported to Ministry of Mines and Energy 	
Visual Impact	<p>This is an impact that affects the aesthetic appearance.</p> <p>Although there has been some quarrying activity conducted previously, no official industrial site has been established in the area. The proposed development will therefore be new to the landscape character.</p>	<p>No specific measures need to be implemented to maintain a similar visual impact. Routine maintenance on infrastructure will ensure that the longevity of structures is maximised. However, it is important that the real integrity of the structures is considered in the long term and not just appearances.</p>	<p>Annual environmental report to provide a summary of all complaints reported. Records should be kept of all maintenance conducted on the development infrastructure.</p>	Proponent
Cumulative Impact	<p>Possible cumulative impacts associated with the operational phase include increase in traffic frequenting the site. Wear and tear on the roads and increased risks of road traffic incidences could increase. Additional traffic and operational noise would further increase noise impacts in the area. Ecological impacts (once the surrounding area has been developed). The cumulative effect of lighting on birds due to urban developments may increase the risk of collisions and interference with bird flight paths at night.</p> <p>The cumulative effect of hydrocarbon pollution as well as residual pollutants in semi purified sewage effluents could also have a negative effect on the bird species that live on and near that site.</p>	<p>Addressing each of the individual impacts as discussed and recommended in the EMP would reduce the cumulative impact.</p> <p>Reviewing annual reports for any new or re-occurring impacts or problems would aid in identifying cumulative impacts and help in planning if the existing mitigations are insufficient.</p>	<p>The annual environmental report should summarise all other impacts. This will give an overall assessment of the compliance to the Operational Environmental Management System.</p>	Proponent

Table 4. Decommissioning Phase

Criteria	Nature	Mitigation	Monitoring	Responsible Body
Waste Production	<p>The ability of product to act as a waste which must be cleaned up.</p> <p>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.</p> <p>Soil polluted by hydrocarbons must be treated as hazardous waste.</p>	<p>To reduce the amount of waste all re-usable pipelines, pumps, tanks, valves and other equipment must be removed to another site owned by Gecko or sold.</p> <p>Those items that can not be used again must be scrapped in the appropriate manner.</p> <p>Upon demolition of the buildings and concrete the rubble must be removed from the property and taken to an approved dumpsite designated by the Walvis Bay Municipality.</p> <p>Rehabilitation if necessary are to be done using funds designated for the purpose.</p>	<p>Regular visual inspection.</p> <p>A register of waste produced and disposal methods should be maintained.</p>	Proponent; Contractor
Ecological Impact	<p>Operations spanning many years may create new habitat for fauna and flora. Upon decommissioning these habitats will be destroyed.</p>	<p>Nonidas Industria would have to ensure that no new habitat is created for flora and fauna. Before decommissioning the HSE would need to inspect every structural facility 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.</p> <p>Where new habitats were created, that is now occupied by fauna or flora, Nonidas Industria must contact MET or other appropriate organizations to establish the conservation status of it.</p> <p>The possibility of relocating the fauna or flora must be investigated and executed. Should the species be listed as vulnerable to extinction, or worse, a meeting should be held with MET in order to determine the appropriate handling of the situation.</p>	<p>A final environmental report will provide a summary of any fauna and flora that established itself on the premises. The final environmental report should include all actions taken to relocate or deal with the situation.</p>	Proponent; Contractor
Employment	<p>Decommissioning of The Development may lead to retrenchments or re-location of staff no longer required.</p>	<p>Plan in advance for meeting the Labour Acts requirements for retrenching of staff if required.</p> <p>Where possible staff can be relocated to another facility or town where business continues in the same way.</p>	<p>The final environmental report that must be compiled should include the appropriate plans for handling of employees should the facility be decommissioned. This report should include budgeting for</p>	Proponent; Directors & Public Relations personnel or Human Resource Department.

Criteria	Nature	Mitigation	Monitoring	Responsible Body
			retrenchments and possible alternative positions elsewhere.	
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.	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. Hammers, diggers and drills will be used.	The development will be situated in an industrial area so there is no restriction on the times of operation. 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. 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.	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; Public Relations Personnel; Contractor.
Visual Impact	This is an impact that affects the aesthetic appearance	Visual impact could pose one of the most significant impacts. Visual impacts could be limited through keeping all decommissioned areas clean and orderly at all times. Good housekeeping also reduces the risk of injuries. 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 visual impact.	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
Groundwater, Surface Water	Porous surface substrate can allow unwanted hazardous and ecologically	All precautions are to be taken to prevent contamination of the soil as this could enter the ecosystem. Leakages from	A site closure baseline report for all spills or leaks	Proponent; Contractor

Criteria	Nature	Mitigation	Monitoring	Responsible Body
and Soil Contamination	detrimental substances to seep down to the water table.	<p>vehicles might occur especially if they are serviced on site. Care must be taken to avoid contamination of soil and groundwater. Groundwater might spread pollutants to neighbouring receptors and may create an impact on underground utilities (i.e. fresh water supply to buildings, sewerage system). Pollutants in the soil and building rubble must be transported away from the site to an approved, appropriately classified waste disposal site.</p> <p>Confirm MSDS information for any remaining oils or HFO products that must be discarded.</p> <p>Regulations on sewage discharge and the chemicals that may and may not be put into the sewerage system must be followed.</p>	<p>is to be completed by Contractor and submitted to the Nonidas Industria.</p> <p>A baseline study must be carried out after the decommissioning. This is to assess the condition of soil substrate and any groundwater present. Comparisons with pre-construction baseline data is to be made and any discrepancies must be addressed before the site can be signed over.</p>	
Health, Safety and Security	During the Decommissioning Phase similar risks to human beings as with previous phases will be present. Once the tanks and pipelines have been emptied completely of their contents residual amounts of oil and other HFO products might exist. All other risks associated with demolitions must be considered.	<p>The decommissioning of a recycled oil and HFO products facility can cause serious health and safety risks to workers on site. Occupational exposures are normally related to dermal contact with hydrocarbons during handling of such products. For this reason adequate measures must be brought in place to ensure safety of staff on site, and includes: (Provide forms for all end users who monitor)</p> <ul style="list-style-type: none"> ◆ Proper training of operators; ◆ First aid treatment; ◆ Medical assistance; ◆ Emergency treatment; ◆ Protective clothing, footwear, gloves and belts; safety goggles and shields; ◆ Manuals and training regarding the correct handling of materials and packages should be in place and updated as new or updated MSDS' become available; Risks might be lower but still exist especially if tanks must be entered for inspections. Confined Space Training will be required. ◆ 24-hour security surveillance in case of opportunistic 	A register of all incidents must be maintained on basis. This should include measures taken to ensure that such incidents do not repeat it self.	Proponent; Contractor

Criteria	Nature	Mitigation	Monitoring	Responsible Body
		activities.		
Fire and Explosion Hazard	Residual hydrocarbons could be present and might pose a risk to the teams dismantling the various structures. Fire and/or explosion events are still possible.	Various international occupational health and safety performances should be consulted for specific regulations regarding the decommissioning of the facility to ensure all risks are mitigated. All relevant regulations and precautions should be in place as it was during the Operational Phase. In addition to this, all personnel have to be sensitised about responsible fire protection measures and good housekeeping such as the removal of flammable materials including rubbish, dry vegetation, and hydrocarbon-soaked soil from the vicinity of the fuel storage facility. Regular inspections should still be carried out to inspect and test fire fighting equipment and pollution control materials at the oil recycling facility. All fire precautions and fire control at the recycled oil facility must be in accordance with SANS, or better. The holistic fire protection and prevention plan should still be utilised...	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 it self.	Proponent; Contractor

4 CONCLUSIONS

The above Environmental Management Plan, if properly implemented will help minimise adverse impacts on the environment. Where impacts occur, immediate action must be taken to reduce the escalation of effects associated with these impacts. To ensure the relevance of this document to the specific stage of project, it needs to be reviewed throughout all phases.

The Environmental Management Plan should be used as an on-site reference document during all phases of the proposed project, and auditing should take place in order to determine compliance with the EMP for the proposed site, and Parties responsible for transgression of the EMP should be held responsible for any rehabilitation that may need to be undertaken.

Monitoring reports must be kept available for possible submission with future renewal applications for environmental clearance certificates.

Geo Pollution Technologies

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