Environmental Management Plan

PROPOSED ESTABLISHMENT OF AN ORGANIC FERTILISER PLANT ON PORTION 59 (A PORTION OF PORTION 8) OF THE CONSOLIDATED FARM OKAHANDJA TOWNLANDS NO. 277, OKAHANDJA, OTJOZONDJUPA REGION

PROJECT DETAILS

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TABLE OF CONTENTS

LIST OF TABLES

ABBREVIATIONS

AIDS	Acquired Immuno-Deficiency Syndrome
DR	Developer's Representative
EA	Environmental Assessment
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
GG	Government Gazette
GIS	Geographic Information System
GN	Government Notice
GPS	Global Positioning System
HIV	Human Immuno-deficiency Virus
I&APs	Interested and Affected Parties

NHC	National Heritage Council
Reg.	Regulation
S	Section
TB	Tuberculosis

1 INTRODUCTION

Namibia is heavily reliant on imports of fertiliser for agricultural purposes. This leads to increased prices of fertilisers for local farmers, given the high costs of imported blended fertilisers. The lead time of fertiliser transportation and delivery to end consumers is another challenge.

HAFA PEAK INVESTMENTS CC has identified an opportunity to establish a fertiliser factory that will enable the reduction in price and lead time for this critical product, it also opens up the market for supplying the rest of the SADC regional countries such as Angola, Zambia, Zimbabwe, DRC, Botswana etc. with more a more affordable product in a shorter time. Feedstock for this activity will be obtained from Namibia Poultry Industry (NPI).

The project site is located north of Okahandja Town Proper, south of the C31 Road to Hochfeld. It is approximately 9 km from the Okahandja Shopping Centre. The above activity is discussed in more detail in Chapter 4. The proponent appointed Environam Consultants Trading cc (ECT) to undertake the Environmental Assessment (EA) in order to obtain an Environmental Clearance Certificate (ECC) for the activity from the Office of the Environmental Commissioner in the Ministry of Environment, Forestry and Tourism (MEFT).

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The process will be undertaken in terms of the gazetted Namibian Government Notice No. 30 Environmental Impact Assessment Regulations (herein referred to as EIA Regulations) of the Environmental Management Act (No 7 of 2007) (herein referred to as the EMA). The EA process will investigate if there are any potential significant bio-physical and socio-economic impacts associated with the proposed development and related infrastructure and services.

The EIA process also provides an opportunity for the public and key stakeholders to submit comments and participate in the process, it will also serve the purpose of informing the proponent's decision-making as well as that of the Ministry of Environment, Forestry and Tourism.

An EMP is one of the most important outputs of the EIA process as it synthesises all of the proposed mitigation and monitoring actions, set to a timeline and with specific assigned responsibilities. This EMP details the mitigation and monitoring actions to be implemented during the following phases of this development:

- Planning and Design – the period, prior to construction, during which preliminary legislative and administrative arrangements, necessary for the preparation of the land, are made and engineering designs are carried out. The preparation of construction tender documents forms part of this phase;
- Construction – the period during which the proponent, having dealt with the necessary legislative and administrative arrangements, appoints a contractor for the construction of services infrastructure, buildings as well as any other construction process(s) within the development areas;
- Operation and Maintenance – the period during which the development will be fully functional, operational and maintained.

2 ROLES AND RESPONSIBILITIES

HAFA PEAK INVESTMENTS CC, (the Developer) is ultimately responsible for the implementation of the EMP, from the planning and design phase to the decommissioning phase of this development, if the development is in future decommissioned. The developer will delegate this responsibility as the project progresses through its life cycle. The delegated responsibility for the effective implementation of this EMP will rest on the following key individuals:

- Developer's Representative;
- Environmental Control Officer; and
- Contractor (Construction and Operations and Maintenance).

2.1 DEVELOPER'S REPRESENTATIVE

The Developer should assign the responsibility of managing all aspects of this development for all development phases (including all contracts for work outsourced) to a designated member of staff, referred to in this EMP as the Developer's Representative (DR). The Developer may decide to assign this role to one person for the full duration of the development, or may assign a different DR to each of the development phases – i.e., one for the planning and design phase, one for the construction phase and one for the operation and maintenance phase. The DR's responsibilities are depicted in **Table 2-1** as follows:

Table 2-1: DR's responsibilities

Responsibility	Project Phase
Making sure that the necessary approvals and permissions laid out in **Table 4-1** are obtained/adhered to.	Throughout the lifecycle of this development
Making sure that the relevant provisions detailed in **Table 5-1** are addressed during planning and design phase.	Planning and design phase
Suspending/evicting individuals and/or equipment not complying with the EMP	• Construction • Operation and maintenance
Issuing fines for contravening EMP provisions	• Construction • Operation and maintenance

2.2 ENVIRONMENTAL CONTROL OFFICER

The DR should assign the responsibility of overseeing the implementation of the whole EMP on the ground during the construction and operation and maintenance phases to a designated member of staff, referred to in this EMP as the Environmental Control Officer (ECO). The DR/Developer may decide to assign this role to one person for both phases, or may assign a different ECO for each phase. During the operation phase the Developer may outsource the monitoring and evaluation of the EMP to an independent Environmental Consultancy. The ECO will have the following responsibilities during the construction and operation and maintenance phases of this development:

- Management and facilitation of communication between the Developer, DR, the contractors, and Interested and Affected Parties (I&APs) with regard to this EMP;
- Conducting site inspections (recommended minimum frequency is bi-monthly) of all construction and/or infrastructure maintenance areas with respect to the implementation of this EMP (monitor and audit the implementation of the EMP);
- Assisting the Contractor in finding solutions with respect to matters pertaining to the implementation of this EMP;
- Advising the DR on the removal of person(s) and/or equipment not complying with the provisions of this EMP;
- Making recommendations to the DR with respect to the issuing of fines for contraventions of the EMP; and

- Undertaking an annual review of the EMP and recommending additions and/or changes to this document.

2.3 CONTRACTOR

Contractors appointed by the Developer are automatically responsible for implementing all provisions contained within the relevant chapters of this EMP. Contractors will be responsible for the implementation of this EMP applicable to any work outsourced to subcontractors. **Table 5-2** applies to contractors appointed during the construction phase and **Table 5-3** to those appointed during the operation and maintenance phase. In order to ensure effective environmental management, the aforementioned chapters should be included in the applicable contracts for outsourced construction, operation and maintenance work.

The tables in **Chapter 5** detail the management measures associated with the roles and responsibilities that have been laid out in this chapter.

3 ASSUMPTIONS AND LIMITATIONS

This EMP has been drafted based on the scoping-level Environmental Assessment (EA) conducted for the proposed organic fertiliser plant as represented by the developer. ECT will not be held responsible for the potential consequences that may result from any alterations to the initial layout.

It is assumed that construction labourers will be sourced mostly from the Okahandja Constituency area and that migrant labourers (if applicable) will be housed within the Okahandja Constituency area.

4 APPLICABLE LEGISLATION

Legal provisions that have relevance to various aspects of this development are listed in **Table 4-1** below. The legal instrument and applicable corresponding provisions are provided.

Table 4-1: Legal provisions relevant to this development

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
The Constitution of the Republic of Namibia as Amended	Article 91 (c) provides for duty to guard against "the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia." Article 95(l) deals with the "maintenance of ecosystems, essential ecological processes and biological diversity" and sustainable use of the country's natural resources.	Sustainable development should be at the forefront of this development.

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
Environmental Management Act No. 7 of 2007 (EMA)	Section 2 outlines the objective of the Act and the means to achieve that. Section 3 details the principle of Environmental Management	The development should be informed by the EMA.
EIA Regulations GN 28, 29, and 30 of EMA (2012)	GN 29 Identifies and lists certain activities that cannot be undertaken without an environmental clearance certificate. GN 30 provides the regulations governing the environmental assessment (EA) process.	**Activity 9.2** Any process or activity which requires a permit, license or other form of authorisation, or the modification of or changes to existing facilities for any process or activity which requires an amendment of an existing permit, licence or authorisation or which requires a new permit, licence or authorisation in terms of a law governing the generation or release of emissions, pollution, effluent or waste.
Convention on Biological Diversity (1992)	Article 1 lists the conservation of biological diversity amongst the objectives of the convention.	The project should consider the impact it will have on the biodiversity of the area.
Draft Procedures and Guidelines for conducting EIAs and compiling EMPs (2008)	Part 1, Stage 8 of the guidelines states that if a proposal is likely to affect people, certain guidelines should be considered by the proponent in the scoping process.	The EA process should incorporate the aspects outlined in the guidelines.
Namibia Vision 2030	Vision 2030 states that the solitude, silence and natural beauty that many areas in Namibia provide are becoming sought after commodities and must be regarded as valuable natural assets.	Care should be taken that the development does not lead to the degradation of the natural beauty of the area.
Water Act No. 54 of 1956	Section 23(1) deals with the prohibition of pollution of underground and surface water bodies.	The pollution of water resources should be avoided during construction and operation of the development.
The Ministry of Environment, Forestry and Tourism (MEFT) Policy on HIV & AIDS	MEFT has developed a policy on HIV and AIDS. In addition, it has also initiated a programme aimed at mainstreaming HIV and gender issues into environmental impact assessments.	The proponent and its contractor/s have to adhere to the guidelines provided to manage the aspects of HIV/AIDS. Experience with construction projects has shown that a significant risk is created when construction workers interact with local communities.

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
Urban and Regional Planning Act (Act of 2018).	Urban and Regional Planning Act (Act of 2018) regulates subdivisions of portions of land falling within a proclaimed Local Authority area.	Section 16 of Chapter 3 deals with the Ministers' declaration of authorised planning authorities and establishment of joint committees.
Local Authorities Act No. 23 of 1992	The Local Authorities Act prescribes the manner in which a town or municipality should be managed by the Town or Municipal Council. Sections 34-47 make provision for the aspects of water and sewerage.	The development has to be comply with the provisions of the Local Authorities Act
Labour Act no 11 of 2007	Chapter 2 details the fundamental rights and protections. Chapter 3 deals with the basic conditions of employment.	Given the employment opportunities presented by the development, compliance with the labour law is essential.
Public Health Act no 36 of 1919	Section 119 prohibits persons from causing nuisance.	The developer and contractors are to comply with these legal requirements.
Nature Conservation Ordinance no 4 of 1975	Chapter 6 provides for legislation regarding the protection of indigenous plants	Indigenous and protected plants have to be managed within the legal confines.
Atmospheric Pollution Prevention Ordinance (No. 11 of 1976).	The Ordinance objective is to provide for the prevention of the pollution of the atmosphere, and for matters incidental thereto.	All activities on the site will have to take due consideration of the provisions of this legislation.
Roads Ordinance 17 of 1972	This Ordinance consolidates the laws relating to roads.	The provisions of this legislation have to be taken into consideration in as far as access to the development site is concerned.
Roads Authority Act, 1999	Section 16(5) of this Act places a duty on the Roads Authority to ensure a safe road system.	Some functions of the Roads Ordinance 17 of 1972 have been assigned to the Roads Authority.
Okahandja Town Planning Scheme.	The town planning scheme has as its general purpose the co-ordinated and harmonious development of the local authority area, or the area or areas situate therein.	Portion 59 is zoned as "Special" in terms of the Okahandja Town Planning Scheme.

5 MANAGEMENT ACTIONS

The aim of the management actions in this chapter of the EMP is to avoid potential impacts where possible. Where impacts cannot be avoided, measures are provided to reduce them.

The following tables provide the management actions recommended to manage the potential impacts rated in the scoping-level EA conducted for this development. These management actions have been organised temporally according to project phase:

- Planning and design phase management actions (**Table 5-1**);
- Construction phase management actions (**Table 5-2**);
- Operation and maintenance phase management actions (**Table 5-3**);

The responsible persons at the Developer's team have assessed these commitments in detail and have committed to the specific management actions where indicated in the tables below.

5.1 PLANNING AND DESIGN PHASE

The DR should ensure that the management actions detailed below in **Table 5-1** should be adhered to during the period before the construction of the infrastructure starts.

Table 5-1: Planning and design management actions

PLANNING AND DESIGN PHASE IMPACTS	
Impact	**Mitigation Measures**
Increased water extraction from subterranean sources	• Water saving mechanisms should be incorporated within the proposed development's design and plans in order to reduce water demands. • Re-use of treated waste water should be considered wherever possible to reduce the consumption of potable water. • Adhere to water quality guidelines in terms of The Water Act, 1956. • Only indigenous trees and shrubs are to be used for landscaping purposes. • Where possible, water reclamation systems shall be installed. • Regular monitoring of boreholes shall be carried out. • Water will only be used for the purposes of the project and its employees and will not be given or sold to any other party. • Limitations are to be placed on the size of gardens for growing plantations for other purposes. • The proponent shall ensure that, where required, he has a valid permit from MAWLR at all times and conform to the requirements thereof.
Pollution of subterranean and surface water sources	• Ensure that, where relevant, all facilities are constructed in line with the requirements stipulated in the permit from MAWRL. • Ensure that all facilities are regularly inspected and supervised by a suitably experienced person. • Ensure that all facilities are not within 50 metres of ground or surface water sources. • Fertiliser spillage should be recovered and recycled to the process. • Appoint professional engineers to develop a detailed storm water management design as part of the infrastructure service provision of the development. • No dumping of waste products of any kind in or in close proximity to any water bodies. • Ensure that surface water accumulating on-site are channelled and captured through a proper storm water management system to be treated in an appropriate manner before disposal into the environment.

PLANNING AND DESIGN PHASE IMPACTS	
Impact	**Mitigation Measures**
	• Wastewater should not be discharged directly into the environment. • Disposal of waste from the development should be properly managed. • Ensure consultation and compliance with relevant authorities responsible for services, such as the Municipality. • Risk of impact from this can be lowered through proper training of staff. • Storage and handling of potential contaminant sources to be restricted to designated areas. • Installation of suitable containment structures and installation of spill containment areas around the operational areas. • Use a closed-handling system that transfers chemicals directly from a storage container to the application equipment. • Staff must be provided with emergency response procedures which they should be familiar with. • Fuel storage tank(s) should be placed in suitable containment structures, such as bund walls and/or plastic liners to avoid the spread of spills. • Staff should at all times be aware of the precautions associated with the handling of petroleum / chemical products as described in the relevant Material Safety Data Sheets. • A spill management plan should be written to ensure effective response to spills. Ensure all staff is familiar with the plan and it is regularly updated. The general response to any spill should be: (i) Contain the spill. Use booms or a sand/soil dam to prevent the spill from entering stormwater drains. Use the absorbents in the spill kit to soak up as much fuel as possible; (ii) Notify the site manager and/or local authority: (iii) Keep the public away from the spill; (iv) Contract a licensed waste • Proper containment mechanisms installed should be able to contain any spillage / leakages that might occur during the operation of the development. • Proper monitoring of the product levels in all storage must take place to eliminate overfilling.

PLANNING AND DESIGN PHASE IMPACTS	
Impact	**Mitigation Measures**
	• Maintaining all project installations in good operating order is of paramount importance in preventing equipment failure. • Prevent discharge of any pollutants, such as cements, concrete, lime, chemicals, and hydrocarbons into nearby streams, stormwater systems and waterways. All hazardous wastes generated in the project area should be safely contained, transported and disposed of. • Where necessary, remove leaking vehicles, equipment and machinery from the project site immediately. • Equipment and materials to deal with spill cleanup must be readily available on site and staff must be trained as to how to use the equipment and briefed about reporting procedures. • Develop and implement a groundwater monitoring system and programme, with the aim of monitoring possible contamination to groundwater. • Groundwater should be monitored in designated boreholes installed, and should be sampled and analysed regularly. • Use drip trays, linings or concrete floors when evidence of leaks are observed on operational vehicles, equipment and machinery. • Any leaks from reticulation lines should be repaired immediately and affected areas rehabilitated as needed. • Any spillage of hazardous substances including wastewater, chemicals, fuel, oil, paint or cleaning solvent must be contained, cleaned up immediately and disposed of at a designated disposal facility. • Ensure all stormwater drains or channels are clear of litter or obstructing material. • Remove all excess sedimentation or any other waste material present in waterways and dispose of in a suitable manner to ensure good drainage runoff. • Ensure that stormwater management systems are regularly maintained and tested, and are in good working order. • Develop and implement a stormwater management plan.
Odour	• The developer must ensure that odour from the operation is kept to a minimum through the following measures: • Ensure feedstock and the end products are stored and handled in an enclosed containment environment that minimises or eliminates odour for the nearby communities.

PLANNING AND DESIGN PHASE IMPACTS	
Impact	**Mitigation Measures**
	• Locate manure storage facility away from sensitive receptors, they should be located in such a way that prevailing winds do not carry odours in the direction of the sensitive receptors. • Invest in a well-designed ventilation system in the factory and storage area, to maintain adequate supply of fresh air, remove access moisture and remove combustion gasses • Maintain good housekeeping practices in the storage and processing area at all times. • Focus at least an hour per day on housekeeping patrol, where stray and spillages are cleaned and picked up and put into a pile. • Ensure that the feedstock is quickly processed to avoid stockpiling which will lead to odour • Personnel should wear correct PPE whilst handling feedstock • Operation should keep a systematic record of odour complaints and must take actions on complaints received. • Provide natural or artificial barrier between facility and public eye. Planting several rows of fast growing trees or shrubs or high windbreak fence between manure storage and public roads and communities downwind can help filter and disperse odours from the facilities • Develop an odour control plan and train all staff to identify and mitigate odours • Park feedstock delivery vehicles away from sensitive receptors • Proponent should invest in the application of chemical or biological additives which will eliminate or reduce odours on the feedstock when stockpiled for processing. • It is recommended that HP should stablish meteorological stations at the site for it to be used for modelling purposes and to determine trends and prevailing meteorological data in the area. • It is also proposed that a personnel monitoring programme is set up in accordance with the guidelines of the currently accepted practice and the Labour Act of Namibia to determine the exposure of personnel involved in the handling of material. • It is also recommended that the Air Quality Management Plan be implemented during the operational phases. All personnel should be trained/ inducted to understand air quality impacts and their respective roles in managing air quality impacts and ensure that controls are effectively implemented. • HP should ensure that they conduct regular inspection and employ external audits, to confirm that the mitigation measures are implemented and effective.

PLANNING AND DESIGN PHASE IMPACTS	
Impact	**Mitigation Measures**
	• HP is recommended to run a clean, neat operation. To consider planting trees and shrubs to enhance appearance of the operation. To keep neighbours and public educated and informed about the processes and any plans for expansion and activities.
Traffic	• Ensure that road junctions have good sightlines. • Adhere to the speed limit. • Implement traffic control measures where necessary. • Ensure movement of heavy trucks are confined to daylight hours.

5.2 CONSTRUCTION PHASE

The management actions listed in **Table 5-2** apply during the construction phase. This table may be used as a guide when developing EMPs for other construction activities within this development area.

Table 5-2: Construction phase management actions

CONSTRUCTION PHASE IMPACTS	
Impact	**Mitigation Measures**
Fauna and flora	• Prevent contractors from collecting wood, veld food, etc. during the construction phase. • Do not clear cut the entire development site, but rather keep the few individuals shrubs and trees not directly affecting the development as part of the landscaping. • Transplant removed vegetation where possible, or plant new trees in lieu of those that have been removed.
Pressure on existing infrastructure	• Educate workforce on water and energy saving measures. • Ensure all potable water points are metered and regularly read. • Ensure that the workforce is provided with temporary toilets during the construction phase. • Designs and building materials should be as such to reduce dependency on artificial heating and cooling in order to limit the overall energy demand.
Surface and Ground Water	

CONSTRUCTION PHASE IMPACTS	
Impact	**Mitigation Measures**
	• It is recommended that construction takes place outside of the rainy season in order to limit flooding on site and to limit the risk of ground and surface water pollution. • Stabilise cleared areas as soon as possible to prevent and control surface erosion. • No dumping of waste products of any kind in or in close proximity to water bodies. • Heavy construction vehicles should be kept out of any surface water bodies and the movement of construction vehicles should be limited where possible to the existing roads and tracks. • Ensure that oil, lubricant and fuel spillages from construction vehicles and machinery are minimised and that where these occur, that they are appropriately dealt with. • Drip trays must be placed underneath construction vehicles when not in use to contain all oil and spillages that might be leaking from these vehicles. • Contaminated runoff from the construction sites should be prevented from entering the surface and ground water bodies. • All materials on the construction site should be properly stored. • Disposal of waste from the site should be properly managed and taken to the Okahandja landfill site. • Construction workers should be given ablution facilities at the construction site that are located at least 50 m away from any surface water and these should be regularly serviced. Run-off from these toilets due to overflows should be avoided at all cost. • Washing of personnel or any equipment should not be allowed on site. Should it be necessary to wash construction equipment this should be done at an area properly suited and prepared to receive and contain contaminated waters. • All major servicing and maintenance of vehicles and/or equipment should be conducted designated areas with suitable containment structures. • Spillage control procedures must be in place according to relevant SANS standards or better. Waste water collection systems should be connected to these systems. • The contractor shall ensure that there is always a supply of absorbent material readily available to absorb/breakdown minor hydrocarbon spillage at the construction site. • Proper environmental awareness and remedial response training of operators must be conducted on a regular basis.
Health, Safety and Security	• Provide sufficient security personnel.

CONSTRUCTION PHASE IMPACTS	
Impact	**Mitigation Measures**
	• Construction personnel should not overnight at the site, except for security personnel. • Ensure that all construction personnel are properly trained depending on the nature of their work. • Provide for a first aid kit and properly trained personnel to apply first aid when necessary. • A wellness program should be initiated to raise awareness on health issues, especially the impact of sexually transmitted diseases and Covid-19. • Provide free condoms in the workplace throughout the construction phase. • Facilitate access to Antiretroviral medication for construction personnel. • Conform to the stipulated protocols related to Covid-19. • Restrict unauthorised access to the site and implement access control measures. • Clearly demarcate the construction site boundaries along with signage of no unauthorised access. • Clearly demarcate dangerous areas and no go areas on site. • Staff and visitors to the site must be fully aware of all health and safety measures and emergency procedures. • The contractor/s must comply with all applicable occupational health and safety requirements. The workforce should be provided with all necessary Personal Protective Equipment where appropriate.
Air quality	• All loose material should be kept on site for the shortest possible time. • It is recommended that dust suppressants such as Dustex be applied to all the construction clearing activities to minimise dust. • Construction vehicles to only use designated roads. • During high wind conditions the contractor must make the decision to cease works until the wind has calmed down. • Cover any stockpiles with plastic to minimise windblown dust. • Ensure construction vehicles are well maintained to prevent excessive emission of smoke. • Maintain roads. • Limit vehicles and adhere to off road speed limit. • Ensure personnel wears correct PPE to prevent exposure to particulate matters.
Noise	• No amplified music should be allowed on site.

CONSTRUCTION PHASE IMPACTS	
Impact	**Mitigation Measures**
	• Inform neighbouring communities of construction activities to commence and provide for continuous communication between them and contractor. The Developer must ensure that noise levels are kept to minimum by implementing the following measures: • Install technology such as silencers on construction machinery. • Do not allow the use of horns/hooters as a general communication tool, but use it only where necessary as a safety measure. • Provide protective equipment such as ear muffs and ear plugs to workers. • Limiting operation of heavy earthmoving equipment and construction activities to normal working hours, and to normal work days (i.e. Monday to Friday, between 08h00 and 17h00). • The developer must display an all-hours telephone number on the site for emergency calls or complaints. • Vehicles and equipment must be properly serviced to avoid noise pollution. • Limit number and movement of vehicles and adhere to off road speed limit.
Traffic	• Limit and control the number of access points to the site. • Ensure that road junctions have good sightlines. • Construction vehicles need to be in a road worthy condition and maintained throughout the construction phase. • Transport the materials in the least amount of trips as possible. • Adhere to the speed limit. • Implement traffic control measures where necessary. • Minimise the movement of heavy vehicles during peak time. • Minimise the movement of vehicles on or close to the B1 and C31 Main Road.
Waste Management	• It is recommended that waste from the temporary toilets be disposed of at the Okahandja Wastewater Treatment Works, on a regular basis. • A sufficient number of weather and vermin proof waste bins should be placed around the site for the soft refuse. • A sufficient number of skip containers for the heavy waste and rubble should be provided for around the site. • The waste containers should be able to be closed to prevent birds and other animals from scavenging. • Empty bins regularly as required.

CONSTRUCTION PHASE IMPACTS	
Impact	**Mitigation Measures**
	• Solid waste will be collected and disposed of at an appropriate local landfill in Okahandja, in consultation with the local authority. • No disposal of /or burying of waste on site should be conducted. • Solid and liquid hazardous waste shall be stored in separate containers. Hazardous waste should be disposed of at the approved hazardous waste disposal site. • The hazardous waste storage is to be clearly marked to indicate the presence of hazardous substances, and the protocols associated with handling of such hazardous wastes shall be known by all relevant staff members.
Hazardous Substances	• All chemicals and other hazardous substances must be stored and maintained in accordance with the Hazardous Substances Ordinance (No. 14 of 1974), with all relevant licences and permits to be obtained where applicable. • Given the potential harm to human health during handling and use of any of hazardous substances it is essential that all staff be trained with regards to the proper handling of these substances as well as First Aid in the case of spillage or intoxication. • Storage areas for all substances should be bunded and capable to hold 120% of the total volume of a given substance stored on site.
Social	• Ensure locals enjoy priority in terms of job opportunities, to the extent possible, for skills that are available locally. • Ensure local procurement where commodities are available locally.
Geology and Topographical Impacts	• Excavations deeper than 1.5m should be cut back to not more than 75° of horizontal and that the ingress of water in and around any excavations must be prevented. • Ensure that good quality general fill is available on site and care should be taken when specifying engineered fills, that the required strengths are attainable without the need to import fills, or addition of lime or cement. • Provide adequate storm water surface drainage as per the storm water management plan as part of the infrastructural development of the site. • All stockpiles must be restricted to designated areas and are not to exceed a height of 2m. • All stockpiles created during the construction phase must be removed before the operational phase.

CONSTRUCTION PHASE IMPACTS	
Impact	**Mitigation Measures**
	• The contractor must be limited to clearly defined access routes to ensure that sensitive and undisturbed areas are not disturbed. • Demolition of existing infrastructure on site and construction activities should preferably take place during dry months. • All surfaces that are susceptible to erosion should be covered with a suitable vegetation cover as soon as construction is completed. • All surface run-off must be managed in such a way so as to ensure erosion of soil does not occur.

5.3 OPERATION AND MAINTENANCE PHASE

The management actions included in **Table 5-3** below apply during the operation and maintenance phase of this development.

Table 5-3: Operation and maintenance management actions

OPERATIONAL PHASE IMPACTS	
Impact	**Mitigation Measures**
Environmental monitoring and Evaluation	• An Environmental Practitioner should monitor the implementation of the EMP, and recommend any changes to this document when necessary. • The Environmental Practitioner should inspect the site on a regular basis (preferably monthly or bi-monthly). • Biannual reports are to be submitted to the Environmental Commissioner.
Noise	• Limit the types of activities that generate excessive noise. • All areas where noise levels are above 85 dB should be managed and controlled in accordance with the relevant guidelines. • Continuous monitoring of noise levels should be conducted to make sure the noise levels do not exceed acceptable limits.

OPERATIONAL PHASE IMPACTS	
Impact	**Mitigation Measures**
	• Maintain equipment used during the operation and keep them in a good state such that they do not emit excessive noise. • No activity having a potential noise impact should be allowed after 18:00 if possible. • Conduct noise monitoring network around the boundary of the project and at the nearest farms to ensure that that noise is within acceptable limits. • Personnel should wear correct hearing PPE when working in noisy environment.
Waste management	• The area will be kept free of waste, except in designated waste storage areas. • Any wastes distributed by winds will be regularly cleaned up. • A sufficient number of waste bins should be placed around the site for the soft refuse. • A sufficient number of skip containers for the heavy waste and rubble should be provided for around the site. • Solid waste will be collected and disposed of at an appropriate local land fill. • Place priority on waste reduction, waste reuse and waste recycling, in that order. • All raw materials must be managed in accordance with the requirements for that specific raw material. • Wastewater generated from the fertilizer factory should be recycled, re-used, or collected for treatment to acceptable standards (as per MAWLF guidelines) and then released to the environment. • Any contaminated soil generated must be contained and disposed of accordingly.
Air Quality	• Implement dust suppression on unpaved roads by wetting with water, some chemical binders can be applied to the roads, e.g Spray with lignosulphonate or Dust-A-side. • Maintain roads. • Limit vehicles and adhere to off road speed limit. • Ensure personnel wears correct PPE to prevent exposure to particulate matters. • Building interiors and surfaces should be cleaned regularly. Strict adherence to housekeeping practices will help reduce dust levels. • Ensure proper and timely maintenance of feeders and handling equipment. • HP should undertake a gas monitoring exercise once a year to monitor the gases emitted during the operational process in order to ensure effectiveness of the technology and compliance.

OPERATIONAL PHASE IMPACTS	
Impact	**Mitigation Measures**
Social	• Provide sufficient security personnel. • Operation personnel should not reside on site. • Ensure locals enjoy priority, in terms of job opportunities, for skills that are available locally, to the extent possible. • Ensure local procurement where commodities are available locally.
Visual	• It is recommended that more 'green' technologies be implemented within the architectural designs and building materials of the development where possible in order to minimise the visual prominence of such a development within the more natural surrounding landscape. • Natural colours and building materials such as wood and stone should be incorporated. • Ensure that the infrastructure is designed and supervised by suitably qualified engineering professionals. • It is recommended that electricity demand for the operations be met with the same technology utilised in generation.

5.4 DECOMMISSIONING PHASE

The decommissioning of this development is not foreseen in the near future. However, a dedicated decommissioning plan has to be developed within 12 months after operations commence.

Appendix B – Water Quality Guidelines