



**Environmental Management Plan (EMP) For:**  
**The Proposed Construction and Operation of a Wastewater Treatment Plant and Oxidation Ponds in Opuwo, Kunene Region.**

**ECC Application Reference: APP- 006189**

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## Table Contents

<b>LIST OF FIGURES AND TABLES</b> .....	i
<b>1. INTRODUCTION</b> .....	1
1.1 Project Background.....	1
1.2 Aim of the Draft Environmental Management (EMP) .....	4
1.3 Appointed Environmental Assessment Practitioner.....	6
<b>2. LEGAL OBLIGATIONS GOVERNING THE PROPOSED ACTIVITIES</b> .....	7
2.1 EMP Limitations.....	9
<b>3. EMP IMPLEMENTATION, ROLES AND RESPONSIBILITIES</b> .....	10
<b>4. ENVIRONMENTAL MANAGEMENT &amp; MITIGATION MEASURES</b> .....	13
4.1 Management of Key Potential Adverse Environmental Impacts .....	13
4.2 Aim of the Environmental Management Plan Actions.....	14
4.3 Planning and Construction Phase Management Action Plans (Mitigation Plan).....	15
4.4 Monitoring Action Plans (Monitoring Plan) .....	18
4.5 Monitoring Action Plans (Monitoring Plan) .....	21
4.6 Decommissioning and Rehabilitation .....	24
<b>5. CLOSURE MEASURES FOR THE EFFLUENT TREATMENT PLANT AND OXIDATION PONDS</b> .....	28
<b>6. ENVIRONMENTAL MONITORING</b> .....	30
6.1 Purpose of Environmental Monitoring .....	30
6.2 Monitoring Approach.....	31
6.3 Monitoring Plan .....	31

## LIST OF FIGURES AND TABLES

### LIST OF FIGURES

Figure 1: Locality map .....	2
Figure 2: Land Use Map.....	3

### LIST OF TABLES

Table 1: Applicable legal requirements and permits to the activities of the proposed project .....	7
Table 2: <i>Environmental management and mitigation measures for the Planning and Design Phase (Opuwo Effluent Treatment</i> .....	16
Table 3: <i>Environmental management and mitigation measures for the Construction, Operational, and Maintenance Phases (Opuwo Effluent Treatment Plant)</i> .....	18

Table 4: Monitoring Action Plan (Effluent Treatment Plant & Oxidation Ponds) ..... 21  
Table 5: *Environmental Management and Mitigation Measures for the Decommissioning Phase (Opuwo Effluent Treatment Plant and Oxidation Ponds)* ..... 24  
Table 6: Closure phase management and mitigation measures ..... 29  
Table 7: Environmental Monitoring Plan ..... 32

# 1. INTRODUCTION

## 1.1 Project Background

The Opuwo Town Council (hereinafter referred to as the Proponent) is planning to construct and operate a new Wastewater Treatment Plant (WWTP) and two Oxidation Ponds in Opuwo, Kunene Region. This initiative arises from the deteriorated state of the existing oxidation ponds, which no longer meet the town's wastewater management needs. The proposed plant is designed to treat approximately 2,284 m<sup>3</sup> of wastewater per day on a site measuring about 30 hectares. Wastewater inflows originate mainly from residential households, with additional contributions from commercial and institutional activities.

Treated effluent will primarily be reused for irrigation of public spaces, including the soccer stadium and Opuwo Park, therefore contributing to local water reuse strategies. The site is located within the Ombombo Communal Conservancy, which requires that all infrastructure development be managed in an environmentally responsible manner to avoid ecological degradation (Opuwo Town Council, 2024). The proposed location for the wastewater treatment plant is shown in **Figure 1**. The project is located ( -18.010670442 13.854668234) north east of Opuwo Town, in Kunene Region. The proposed project lies within the Ombombo communal conservancy as shown in **Figure 2**.

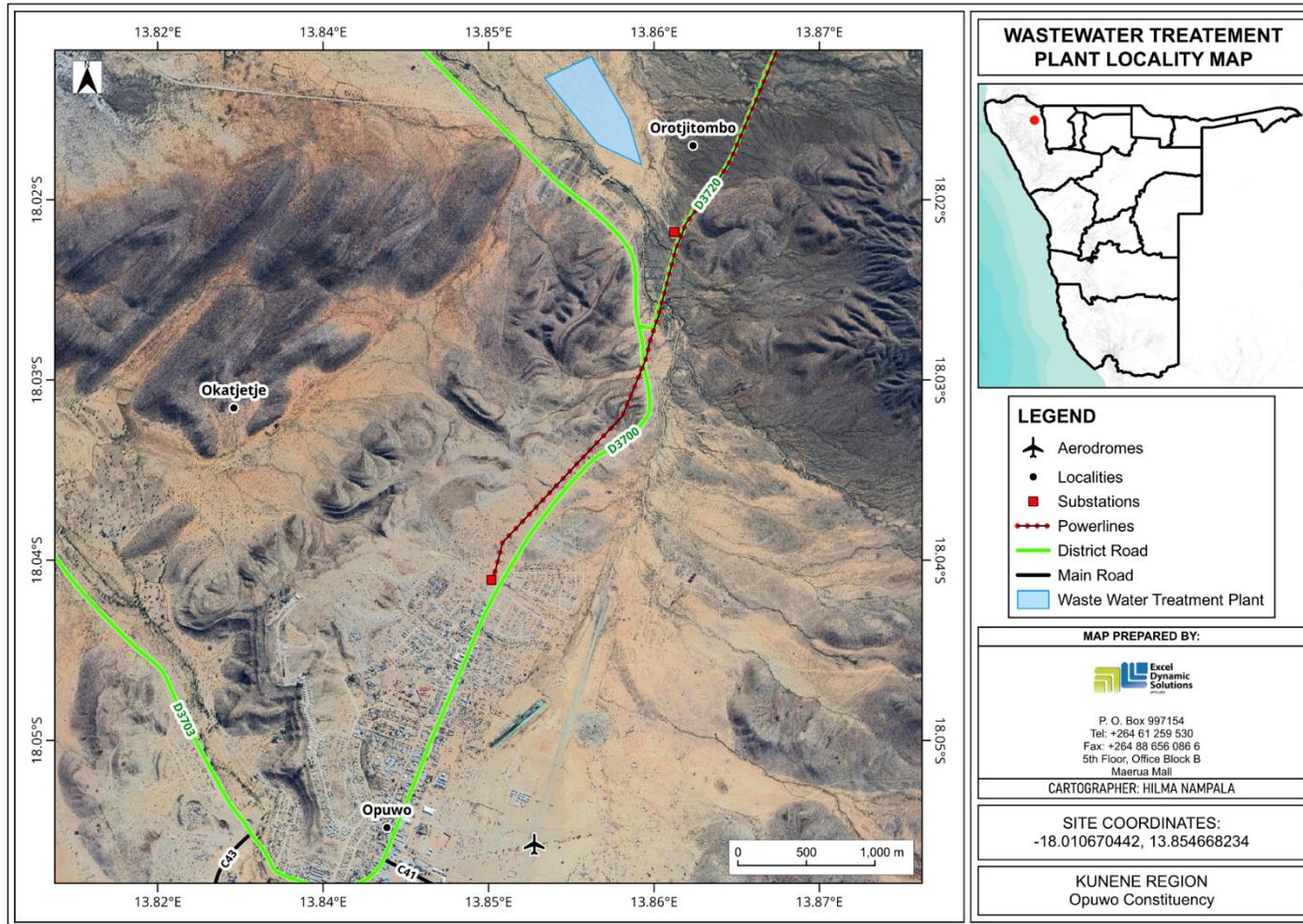


Figure 1: Locality map

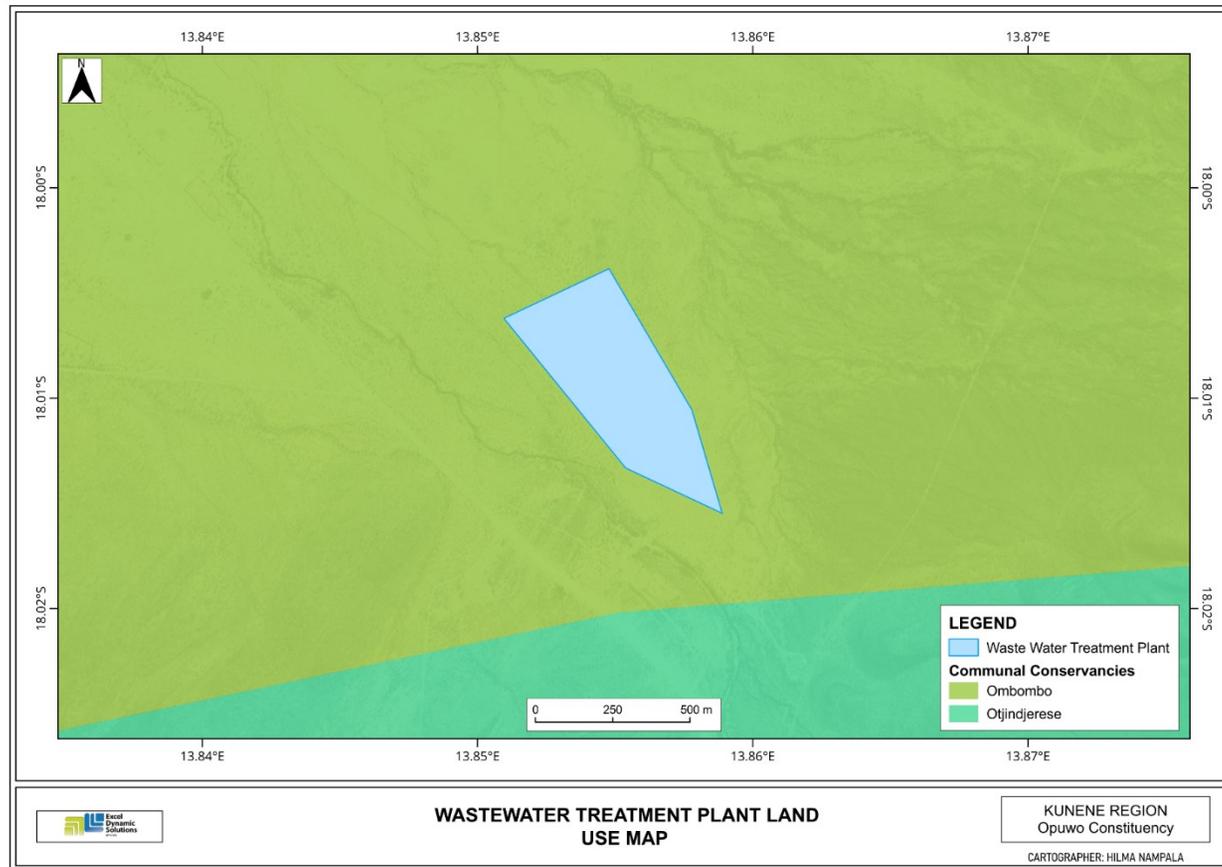


Figure 2: Land Use Map

The Environmental Management Act (Act No. 7 of 2007) (EMA) and its 2012 EIA Regulations, lists activities that need an Environmental Clearance Certificate (ECC). Waste management facilities are one of the listed activities that requires an EIA study and or for existing facilities, an Environmental Management Plan (EMP) should be developed. The relevant listed activities to the Town's waste management site are as follows:

#### WASTE MANAGEMENT, TREATMENT, HANDLING AND DISPOSAL ACTIVITIES

- *Listed Activity 2.1 The construction of facilities for waste sites, treatment of waste and disposal of waste.*
- *Listed Activity 8.6 The construction of industrial and domestic wastewater treatment plants and related pipeline systems.*

#### 8. WATER RESOURCE DEVELOPMENTS

- *Listed Activity 8.6 The construction of industrial and domestic wastewater treatment plants and related pipeline systems.”*

This document has been prepared as a legal requirement of Section 8 of the EMA (Act No. 7 of 2007). The compilation of this EMP is one of the outputs required of the Environmental Consultant by The Proponent. It is required of the Environmental Consultant to comply with the EMA and provide for the following:

- Prepare a detailed Environmental Management Plan to be used as a guideline to monitor compliance to the recommendations stipulated in the EIA, and to assist in managing and monitoring activities throughout the proposed Waste Water Treatment Plant project on the site.
- The Environmental Consultant must clarify in the EMP, the roles and responsibilities of the Proponent, the contractors, and any other identified stakeholders.

## **1.2 Aim of the Draft Environmental Management (EMP)**

Regulation 8(j) of the EIA Regulations (2012) requires that a draft Environmental Management Plan (EMP) shall be included as part of the Environmental Assessment (EA). A '**Management Plan**' is defined as:

*“...a plan that describes how activities that may have significant environments effects on the environment are to be mitigated, controlled and monitored.”*

An EMP is one of the most important outputs of the EA process. It synthesizes all the proposed management & mitigation and monitoring actions, set to a timeline and with specific assigned responsibilities. Additionally, it provides a link between the impacts identified in the EA process and the required mitigation measures. It is important to note that an EMP is a statutory document and a person who contravenes the provisions of this EMP may face imprisonment and/or a fine. This EMP is a living document and can be amended to adapt to addressing project changes and/or environmental conditions and feedback from compliance monitoring.

The purpose of this document is, therefore, to guide environmental management throughout the different phases of the proposed activities, namely: planning, construction, and decommissioning & rehabilitation.

- **Planning phase** - This is the stage during which the Proponent prepare all the administrative and technical requirements needed for construction of the Treatment Plant and site upgrading. This planning will include the procurement of services such site construction and upgrading contractor.
- **Construction phase** - This is the phase during which the Treatment Plant and associated infrastructures (oxidation ponds) are constructed and the site is revamped through appointed contractor(s). This will entail the earthworks for the erection of the Plant structures and installation of necessary services, infrastructures, etc., as well as upgrading of the site fencing.
- **Closure (Decommissioning)** - This is the stage at which the Proponent will stop using the site for wastewater (effluent) management, leading to the decommissioning and closure of the facilities. However, this is unlikely that the site operations will cease as there will always be the needed for wastewater management in the Town.

**Environmental Monitoring Requirements:** To support and ensure that the proposed mitigation measures are achieving the desired results, a monitoring plan must be implemented alongside the mitigation plan.

This EMP is for use by The Proponent, employees and/or contractors, to provide management measures to be undertaken during construction and operation, to address the environmental impacts identified in the scoping report and ensure that the impacts on the environment are avoided, or limited if they cannot be avoided completely.

### **1.3 Appointed Environmental Assessment Practitioner**

To fulfill the requirements of the EMA and its 2012 EIA Regulations, The Proponent appointed Excel Dynamic Solutions (Pty) Ltd (EDS), an independent environmental consultant to conduct the required EA process on their (Proponent's) behalf. This draft EMP will be submitted as part of an application for the proposed wastewater treatment plant and additional oxidation ponds method on the proposed site to the Environmental Commissioner at the Department of Environmental Affairs and Forestry (DEAF), Ministry of Environment, Forestry and Tourism (MEFT).

## 2. LEGAL OBLIGATIONS GOVERNING THE PROPOSED ACTIVITIES

The content of the EMP must meet the requirements of Section 8 (j) of the EIA Regulations, and the EMP must address the potential environmental impacts of the proposed activities on the environment throughout the project life cycle. It must also include a system for assessment of the effectiveness of monitoring and management arrangements after project implementation.

The Proponent, therefore, has the responsibility to ensure that the proposed activities as well as the EA process conform to the principles of the EMA, and must ensure that employees act in accordance with such principles below lists the requirements of an EMP as stipulated by Section 8(e) of the EIA Regulations, primarily on specific approvals and permits that may be required for the activities required of the wastewater treatment plant.

**Table 1: Applicable legal requirements and permits to the activities of the proposed project**

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Environmental Management Act EMA (No 7 of 2007)	Requires that projects with significant environmental impacts are subject to an environmental assessment process (Section 27).  Details principles which are to guide all EIAs.	The EMA and its regulations should inform and guide this EA process.  Should the ECC be issued to the Proponent, it should be renewed every 3 years, counting from the date of issue.  Contact details at the Department of Environmental Affairs and Forestry (DEAF),
Environmental Impact Assessment (EIA) Regulations GN 28-30 (GG 4878)	Details requirements for public consultation within a given environmental assessment process (GN 30 S21).  Details the requirements for what should be included in a Scoping Report (GN 30 S8) and an Assessment Report (GN 30 S15).	Ministry of Environment, Forestry and Tourism (MEFT), Office of the Environmental Commissioner

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
<p>Water Act 54 of 1956: <b>Ministry of Agriculture, Water and Land Reform (MAWLR)</b></p>	<p>Prohibits the pollution of water and implements the principle that a person disposing of effluent or waste has a duty of care to prevent pollution (S3 (k)).</p> <p>Provides for control and protection of groundwater (S66 (1), (d (ii)).</p> <p>Liability of clean-up costs after closure/abandonment of an activity (S3 (l)). (l)).</p>	
<p>Water Resources Management Act (No 11 of 2013): <b>Ministry of Agriculture, Water and Land Reform (MAWLR)</b></p>	<p>Ensure that the water resources of Namibia are managed, developed, used, conserved and protected in a manner consistent with, or conducive to, the fundamental principles set out in Section 66 - protection of aquifers, Subsection 1 (d) (iii) provide for preventing the contamination of the aquifer and water pollution control (S68).</p>	<p>These permits include Borehole Drilling Permits, Groundwater Abstraction &amp; Use Permits, and when required, the Wastewater / Effluent Discharge Permits).</p> <p><b>Division: Water Policy and Water Law Administration Division</b></p> <p><b>Water and Environment Division</b></p>
<p>Petroleum Products and Energy Act (No. 13 of 1990) Regulations (2001)</p>	<p>Regulation 3(2)(b) states that “No person shall possess or store any fuel except under authority of a license or a certificate, excluding a person who possesses or stores such fuel in a quantity of 600 litres or less in any container kept at a place outside a local authority area”</p>	<p>The Proponent should obtain the necessary authorisation form the MME for the storage of fuel on-site.</p> <p><b>Ministry of Mines and Energy: Director – Petroleum Affairs</b></p>

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
<p>Forestry Act 12 of 2001, Amended Act 13 of 2005</p>	<p>Prohibits the removal of any vegetation within 100 m from a watercourse (Forestry Act S22 (1)). The Act prohibits the removal of and transport of various protected plant species.</p>	<p>Should there be protected plant species, which are known to occur within the project site, these are required to be removed and a permit should be obtained from the nearest Forestry office (Ministry of Environment, Forestry and Tourism (MEFT)) prior to removing them.</p> <p><b>Director of Forestry Division</b></p>
<p>National Heritage Act No. 76 of 1969</p>	<p>Calls for the protection and conservation of heritage resources and artefacts.</p>	<p>Should any archaeological material, such as bones, old weapons/equipment etc. be found on the site, work should stop immediately, and the National Heritage Council of Namibia must be informed as soon as possible. The Heritage Council will then decide to clear the area or decide to conserve the site or material.</p> <p>Contact Details at National Heritage Council of Namibia</p> <p><b>National Heritage Council of Namibia</b></p>

### 2.1 EMP Limitations

This EMP has been drafted with the acknowledgment of the following limitations:

- This EMP has been drafted based on the Environmental Assessment (EA) conducted for the Wastewater treatment plant and Oxidation Ponds in Opuwo, Kunene Region.
- The mitigation measures recommended in this EMP document are based on the risks/impacts identified in the ESA, based on the project description as provided by the Proponent, site investigation and public input. Should the scope of the proposed project change, the risks/impacts will have to be reassessed and mitigation measures provided accordingly.

### 3. EMP IMPLEMENTATION, ROLES AND RESPONSIBILITIES

The Proponent is ultimately responsible for the implementation of the EMP. However, the Proponent may delegate this responsibility at any time, as they deem necessary during the project phases. The roles and responsibilities of all delegates/parties involved in the effective implementation of this EMP are set out in **Table** below:

**Table 2: The persons and institutions responsible for the Implementation of the Draft EMP**

Role (Person/Institution)	Responsibilities
<b>Proponent (Opuwo Town Council)</b>	<ul style="list-style-type: none"> <li>-Overall responsibility for EMP implementation.</li> <li>-Ensure that adequate resources (financial, human, technical) are allocated for environmental management.</li> <li>-Oversee compliance with the Environmental Management Act (2007), Public and Environmental Health Act (2015), and other relevant legislation.</li> <li>- Approve and update the EMP annually or as required.</li> <li>-Enforce compliance by contractors and operators, including penalties for non-compliance.</li> </ul>
<b>Project/Operations Manager</b>	<ul style="list-style-type: none"> <li>-Coordinate day-to-day project implementation, including construction and operations.</li> <li>-Ensure that mitigation measures outlined in the EMP are implemented.</li> <li>-Maintain records of environmental incidents, inspections, and corrective actions.</li> <li>-Ensure that all staff and contractors receive environmental and safety induction training.</li> <li>-Liaise with the Environmental Control Officer (ECO) and ensure timely reporting.</li> </ul>
<b>Environmental Control Officer (ECO) / Safety, Health &amp; Environment (SHE) Officer</b>	<ul style="list-style-type: none"> <li>-Act as the designated authority for EMP compliance.</li> <li>-Conduct routine site inspections and audits to ensure adherence to EMP provisions.</li> </ul>

Role (Person/Institution)	Responsibilities
	<ul style="list-style-type: none"> <li>- Monitor environmental performance indicators (e.g., water quality, odour control, waste management).</li> <li>-Provide training and guidance to staff on environmental responsibilities.</li> <li>-Report non-compliance to the Proponent and recommend corrective measures.</li> <li>-Undertake periodic reviews of the EMP and recommend updates.</li> </ul>
<b>Public Relations Officer (PRO)</b>	<ul style="list-style-type: none"> <li>-Act as the liaison between the Proponent, affected communities, and stakeholders.</li> <li>-Ensure transparent communication with local communities, traditional authorities, conservancies, and the media where applicable.</li> <li>-Address community grievances in line with a formal grievance redress mechanism.</li> <li>-Facilitate stakeholder engagement meetings and prepare progress reports on community relations.</li> </ul>
<b>Contractors and Subcontractors</b>	<ul style="list-style-type: none"> <li>-Comply with all provisions of the EMP during construction.</li> <li>-Ensure that workers are trained in safety, health, and environmental (SHE) requirements.</li> <li>-Implement mitigation measures to minimize dust, noise, waste, and other environmental impacts.</li> <li>-Maintain safe storage and handling of hazardous substances.</li> <li>-Report incidents and near misses to the Project Manager and ECO.</li> </ul>
<b>Workers and Operators</b>	<ul style="list-style-type: none"> <li>-Comply with site rules, safety procedures, and EMP provisions.</li> <li>-Report environmental hazards or incidents immediately to supervisors.</li> </ul>

Role (Person/Institution)	Responsibilities
	-Follow waste segregation and handling procedures. -Exercise caution during daily activities to prevent spills, damage to infrastructure, or unsafe practices.
<b>Archaeology: Chance Finds Procedure (CFP)</b>	<p><b>-Operator:</b> exercise caution if archaeological remains are encountered and immediately stop work.</p> <p><b>-Site Manager/ECO:</b> secure the site and notify management.</p> <p><b>-Archaeologist:</b> inspect the find, identify its significance, and provide recommendations for recovery or preservation in line with the National Heritage Act (2004).</p>

## **4. ENVIRONMENTAL MANAGEMENT & MITIGATION MEASURES**

### **4.1 Management of Key Potential Adverse Environmental Impacts**

The Environmental and Social Assessment (ESA) conducted for the proposed Opuwo Wastewater Treatment Plant (WWTP) and oxidation ponds identified several potential adverse impacts across the project's life cycle. These include disturbance of communal grazing land, physical soil disturbance during excavation and earthworks, and the alteration of local biodiversity through habitat modification and removal of vegetation. If not properly managed, construction activities and the creation of new access routes may also facilitate illegal resource use (e.g., firewood harvesting or wildlife hunting) in the surrounding communal areas.

Wastewater infrastructure developments inherently pose risks to water and soil quality, particularly through potential effluent leakage, seepage, or accidental discharges that could contaminate nearby water resources. The accumulation and mismanagement of sludge could further intensify these risks. Air quality may be negatively affected by dust emissions during construction, as well as odour from treatment ponds during operations. Occupational health and safety hazards are significant throughout the project, as workers may be exposed to untreated sewage, hazardous materials, heavy machinery, and construction activities.

Additional concerns include an increase in vehicular traffic, which could cause road safety issues and exert pressure on local infrastructure, and noise and vibrations generated by construction equipment, which may disturb nearby communities. Waste management risks, particularly improper disposal of construction and operational waste, could result in environmental pollution. There is a possibility of disturbing archaeological or cultural heritage resources during excavation, as well as risks of social nuisances or conflicts arising from stakeholder interactions if expectations are not well managed.

## 4.2 Aim of the Environmental Management Plan Actions

The central aim of the Environmental Management Plan (EMP) actions for Opuwo's WWTP and oxidation ponds is to avoid, minimize, and manage adverse environmental and social impacts, while simultaneously enhancing positive socio-economic benefits for the local community. Wherever possible, impacts should be entirely avoided through proactive design and planning. Where avoidance is not possible, mitigation measures will be applied to reduce the scale, intensity, or duration of impacts to acceptable levels, ensuring that the project aligns with Namibia's Environmental Management Act (2007), relevant sectoral regulations, and international best practice.

The EMP actions are of Opuwo, where climate variability, water scarcity, and fragile ecosystems require careful management of wastewater infrastructure. These actions aim to:

- Safeguard community health by ensuring proper treatment and safe handling of effluent and sludge.
- Protect soils, groundwater, and surface water resources from contamination.
- Maintain air quality by minimizing dust and odour emissions.
- Promote biodiversity conservation by avoiding unnecessary habitat disturbance and rehabilitating disturbed areas post-construction.
- Strengthen occupational and community health and safety systems.
- Ensure effective waste management and responsible use of natural resources.

The EMP measures are structured according to the planning and construction phase, the operations and monitoring phase, and the decommissioning and rehabilitation phase.

### 4.3 Planning and Construction Phase Management Action Plans (Mitigation Plan)

During the planning and construction phase of the Opuwo WWTP and oxidation ponds, management action plans are focused on minimizing land disturbance, preventing pollution, and ensuring that construction complies with environmental best practices.

- Clearly demarcate the project footprint to avoid unnecessary disturbance of communal grazing areas or sensitive habitats. Compensatory measures may be required if grazing land is permanently lost.
- Implement erosion control measures, line ponds to prevent seepage, and control runoff through stormwater management systems.
- Apply water spraying during earthworks and restrict vehicle speeds to minimize dust.
- Establish secure waste storage and disposal systems, including separate containers for hazardous, recyclable, and general waste. Any sludge generated during construction or early operations should be stored safely and transported to approved facilities.
- Provide workers with induction training, personal protective equipment (PPE), and enforce strict occupational safety standards. A site-specific Health and Safety Plan should be in place before construction begins.
- Develop and enforce a traffic management plan to regulate heavy vehicle movement, minimize congestion, and reduce road safety risks.
- Maintain open communication with local communities and authorities to address concerns promptly and prevent potential conflicts

The management action plans recommended for this phase are presented in **Table 2** below

**Table 2: Environmental management and mitigation measures for the Planning and Design Phase (Opuwo Effluent Treatment**

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
EMP implementation and training	Lack of EMP awareness and implications thereof	<ul style="list-style-type: none"> <li>- Compile a comprehensive Health, Safety and Environmental (HSE) plan covering all construction and operational risks.</li> <li>- Appoint a Safety, Health and Environmental (SHE) Officer to oversee EMP compliance.</li> <li>- Implement EMP induction and training for all staff and contractors.</li> <li>- Introduce an EMP non-compliance penalty system.</li> </ul>	<ul style="list-style-type: none"> <li>- HSE plan in place.</li> <li>- SHE Officer appointed.</li> <li>- Training and induction records kept.</li> <li>- Non-compliance penalties documented.</li> </ul>	Proponent; SHE Officer	Pre-construction
Effluent treatment technology	Mechanical and design failures	<ul style="list-style-type: none"> <li>- All manufactured materials must comply with SABS/SANS standards.</li> <li>- Plant design must include sufficient pond capacity, odour control covers, and energy-efficient equipment.</li> <li>- Ensure redundancy in treatment processes to avoid overflow or system collapse.</li> <li>- Technology must be suited to semi-arid conditions (high evaporation, limited dilution).</li> </ul>	<ul style="list-style-type: none"> <li>- Design approved according to international standards.</li> <li>- Plant systems adequately sized for Opuwo population projections.</li> <li>- Evidence of compliance with Ministry of Agriculture, Water and Land Reform (MAWLR) standards.</li> </ul>	Proponent (overall responsibility); Planning & Design Engineer	Design phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
Oxidation ponds and plant maintenance	Lack of provision for long-term operation	<ul style="list-style-type: none"> <li>- Include budgetary and technical provision for periodic pond desludging, reconditioning, and infrastructure maintenance.</li> <li>- Develop a scheduled maintenance plan for equipment and structures.</li> <li>- Ensure provision of spare parts and trained operators.</li> </ul>	<ul style="list-style-type: none"> <li>- Maintenance plan approved.</li> <li>- Maintenance funds secured.</li> <li>- Annual reports of pond desludging and repairs.</li> </ul>	Proponent; Design Engineer	Throughout project lifecycle
Stormwater and pond overflow management	Runoff of contaminated water into environment	<ul style="list-style-type: none"> <li>- Design and construct stormwater diversion drains around ponds.</li> <li>- Equip ponds with flow-monitoring systems and early-warning overflow alarms.</li> <li>- Line ponds to minimize seepage into groundwater.</li> </ul>	<ul style="list-style-type: none"> <li>- Stormwater discharge structures built.</li> <li>- Pond overflow detection system functional.</li> <li>- Seepage control verified.</li> </ul>	Proponent; Structural Engineer	Pre-construction
Employment opportunities	Unfair labour practices and conflict	<ul style="list-style-type: none"> <li>- Prioritize recruitment of Opuwo residents (skilled, semi-skilled, unskilled).</li> <li>- Ensure gender equality in hiring.</li> <li>- Transparent recruitment process.</li> </ul>	<ul style="list-style-type: none"> <li>- Local labour statistics.</li> <li>- Gender balance in recruitment.</li> <li>- No labour conflict incidents.</li> </ul>	Proponent (HR Department); Contractor	Construction and operations

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
Goods and services procurement	Conflict over procurement of goods and services	<ul style="list-style-type: none"> <li>- Adopt a transparent procurement process.</li> <li>- Prioritize local and Namibian suppliers, especially for cleaning, maintenance, and logistics.</li> <li>- Publish opportunities for local SMEs.</li> </ul>	<ul style="list-style-type: none"> <li>- Contracts awarded to Opuwo/ Kunene suppliers.</li> <li>- Public record of procurement process.</li> </ul>	Proponent (Procurement Unit)	Throughout project

#### 4.4 Monitoring Action Plans (Monitoring Plan)

**Table 3: Environmental management and mitigation measures for the Construction, Operational, and Maintenance Phases (Opuwo Effluent Treatment Plant)**

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility
EMP implementation and training	Lack of awareness	<ul style="list-style-type: none"> <li>- Provide EMP refresher training for all site staff bi-annually.</li> <li>- Conduct compliance audits every 6 months.</li> <li>- Maintain ECC and renew every 3 years.</li> </ul>	<ul style="list-style-type: none"> <li>- Training attendance records.</li> <li>- Bi-annual audit reports.</li> <li>- ECC valid.</li> </ul>	SHE Officer / Site Manager
Plant and pond maintenance	Deterioration of infrastructure	<ul style="list-style-type: none"> <li>- Conduct routine inspections and scheduled reconditioning.</li> <li>- Maintain logbook of all repairs.</li> <li>- Budget for long-term maintenance.</li> </ul>	<ul style="list-style-type: none"> <li>- Records of inspections.</li> <li>- Annual maintenance reports.</li> </ul>	Site Manager; Proponent

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility
Authorizations	Lack of permits	<ul style="list-style-type: none"> <li>- Secure and maintain valid permits (effluent discharge permit, hazardous storage permits, waste disposal authorization).</li> <li>- Keep copies on site for inspection.</li> </ul>	<ul style="list-style-type: none"> <li>- All permits up to date and available.</li> </ul>	Site Manager
Wastewater discharge	Pollution risks	<ul style="list-style-type: none"> <li>- Effluent must meet WHO and Namibian reuse standards before release.</li> <li>- Test effluent quality monthly.</li> <li>- Promote beneficial reuse (urban agriculture, landscaping).</li> </ul>	<ul style="list-style-type: none"> <li>- Monthly effluent quality reports.</li> <li>- Records of reuse projects.</li> </ul>	Site Manager; MAWLR (oversight)
Soil and groundwater	Contamination	<ul style="list-style-type: none"> <li>- Install liners in ponds.</li> <li>- Monitor groundwater boreholes quarterly.</li> <li>- Collect and safely dispose of contaminated soils at licensed facilities.</li> </ul>	<ul style="list-style-type: none"> <li>- Borehole monitoring results.</li> <li>- No visible contamination.</li> </ul>	SHE Officer; Soil Scientist
Health and safety	Occupational and public risks	<ul style="list-style-type: none"> <li>- Provide PPE to all workers.</li> <li>- Maintain site fencing and clear warning signs in English and Otjhimba/Otjiherero.</li> <li>- Conduct annual safety audits.</li> <li>- Maintain fire extinguishers and train workers in fire response.</li> </ul>	<ul style="list-style-type: none"> <li>-PPE distribution logs.</li> <li>- Fence intact, signage visible.</li> <li>- Fire extinguishers serviced.</li> <li>- Safety audit reports.</li> </ul>	SHE Officer; Site Manager
Air quality	Odour and dust	<ul style="list-style-type: none"> <li>- Install odour control covers.</li> <li>- Restrict vehicle speeds to 30–40 km/h.</li> <li>- Prohibit unnecessary idling of machinery.</li> <li>- Provide dust masks when needed.</li> </ul>	<ul style="list-style-type: none"> <li>- Reduction in odour complaints.</li> <li>- Dust suppression records.</li> </ul>	Site Manager

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility
Biodiversity	Loss of fauna and flora	<ul style="list-style-type: none"> <li>- Restrict clearing to designated footprint.</li> <li>- Prohibit hunting or harming animals.</li> <li>- Train workers on biodiversity conservation.</li> </ul>	<ul style="list-style-type: none"> <li>- No biodiversity disturbance reported.</li> <li>- Training records.</li> </ul>	SHE Officer; Site Manager
Archaeology and heritage	Damage to cultural resources	<ul style="list-style-type: none"> <li>- Implement Chance Finds Procedure.</li> <li>- Halt work immediately if artefacts are discovered and notify National Heritage Council.</li> </ul>	<ul style="list-style-type: none"> <li>- Heritage finds preserved.</li> <li>- Reports to Heritage Council.</li> </ul>	Site Manager; ECO
Noise	Nuisance to community	<ul style="list-style-type: none"> <li>- Restrict construction to daytime (08:00–17:00).</li> <li>- Provide earplugs for workers.</li> <li>- Maintain equipment to reduce vibration.</li> </ul>	<ul style="list-style-type: none"> <li>- Noise complaints minimized.</li> <li>- PPE usage recorded.</li> </ul>	Site Manager
Waste management	Environmental pollution	<ul style="list-style-type: none"> <li>- Provide adequate bins for hazardous and general waste.</li> <li>- Weekly waste transport to Opuwo dumpsite.</li> <li>- Prohibit burning/burying waste on site.</li> <li>- Register all waste volumes.</li> </ul>	<ul style="list-style-type: none"> <li>- Waste log maintained.</li> <li>- Weekly disposal records.</li> <li>- No waste scattered on site.</li> </ul>	Site Manager; Proponent Solid Waste Division
Vehicular traffic	Safety risks	<ul style="list-style-type: none"> <li>- Limit deliveries to weekdays, daytime hours.</li> <li>- Enforce speed limits.</li> <li>- Ensure drivers have valid licenses.</li> <li>- Maintain vehicles regularly.</li> </ul>	<ul style="list-style-type: none"> <li>- No major traffic incidents.</li> <li>- Vehicle inspection records.</li> </ul>	Site Manager
Fire risk	Accidental outbreaks	<ul style="list-style-type: none"> <li>- Post “No Smoking/No Fires” signage.</li> <li>- Maintain fire extinguishers and hydrants.</li> <li>- Conduct fire safety drills.</li> </ul>	<ul style="list-style-type: none"> <li>- Fire equipment serviced.</li> <li>- Fire drills documented.</li> <li>- No uncontrolled fires.</li> </ul>	SHE Officer; Site Operator

### 4.5 Monitoring Action Plans (Monitoring Plan)

To support and ensure that the proposed mitigation measures are achieving the desired results, a monitoring plan must be implemented. The monitoring action plan recommended for proposed construction works are presented in **Table 4** below.

**Table 4: Monitoring Action Plan (Effluent Treatment Plant & Oxidation Ponds)**

Environmental Feature	Impact	Monitoring Actions	Implementation Responsibility	Frequency	Threshold	Action if Threshold is Exceeded
Effluent Quality	Discharge of untreated or poorly treated wastewater into the environment	<ul style="list-style-type: none"> <li>- Regular sampling and testing of effluent against MAWLR and WHO standards.</li> <li>- Keep laboratory records of results.</li> <li>- Immediate corrective measures if standards not met.</li> </ul>	ECO; Site Manager; MAWLR (oversight)	Weekly (testing); Quarterly (external audit)	Effluent quality below legal standards	Cease discharge, investigate treatment failure, repair system, and re-treat effluent before release
Sludge Management	Accumulation of sludge in ponds leading to odour and contamination	<ul style="list-style-type: none"> <li>- Monitor sludge levels in ponds.</li> <li>- Inspect sludge drying beds.</li> <li>- Ensure safe removal and disposal at licensed facilities.</li> </ul>	ECO; Site Manager	Monthly	Sludge exceeds recommended capacity or causes odour complaints	Immediate desludging and safe disposal; report to authorities

Environmental Feature	Impact	Monitoring Actions	Implementation Responsibility	Frequency	Threshold	Action if Threshold is Exceeded
Solid Waste	Pollution from litter, hazardous waste, or mismanaged construction/operational waste	<ul style="list-style-type: none"> <li>- Daily inspection of site for litter and waste.</li> <li>- Ensure separate bins for hazardous, recyclable, and domestic waste.</li> <li>- Records of disposal receipts kept.</li> </ul>	ECO; All workers	Daily	Visible litter, improper disposal, or complaint logged	Clean-up of site, retraining of workers, enforcement of penalty system
Soils & Groundwater	Contamination from leaks, spills, or seepage from ponds	<ul style="list-style-type: none"> <li>- Regular inspection of pond liners and embankments.</li> <li>- Borehole monitoring (if groundwater risk exists).</li> <li>- Spill control checks on fuel and chemical storage.</li> </ul>	ECO; Site Manager	Monthly (visual); Quarterly (sampling)	Signs of seepage, visible spills, or contaminated samples	Immediate containment, soil remediation, and reporting to MAWLR
Air Quality	Odour from ponds and treatment plant	<ul style="list-style-type: none"> <li>- Monitor odour levels through public complaints register.</li> <li>- Inspect odour control systems (caps, aeration).</li> </ul>	ECO; Site Manager	Weekly	Two or more complaints logged per month	Investigate cause, apply odour control measures, desludge ponds

Environmental Feature	Impact	Monitoring Actions	Implementation Responsibility	Frequency	Threshold	Action if Threshold is Exceeded
Biodiversity	Disturbance to surrounding vegetation and fauna	<ul style="list-style-type: none"> <li>- Ensure only designated areas are cleared.</li> <li>- Monitor for illegal harvesting or killing of fauna.</li> <li>- Keep record of rehabilitation measures.</li> </ul>	ECO	Monthly	Vegetation clearance outside designated footprint	Rehabilitate affected areas, retrain staff, enforce penalties
Health & Safety	Worker and public safety risks	<ul style="list-style-type: none"> <li>- Ensure PPE is provided and used.</li> <li>- Daily toolbox talks.</li> <li>- Inspect signage and fencing.</li> <li>- Maintain first aid and firefighting equipment.</li> </ul>	ECO; SHE Officer	Daily/Weekly	Incident or accident reported	Immediate corrective action, medical assistance, retraining, update H&S plan
Traffic & Transport	Increased risk of accidents or road damage	<ul style="list-style-type: none"> <li>- Inspect vehicles for roadworthiness.</li> <li>- Verify driver licensing.</li> <li>- Enforce site speed limits (40 km/h).</li> <li>- Monitor traffic patterns.</li> </ul>	ECO; Site Manager	Weekly	Complaint about unsafe driving or road damage	Retrain drivers, service vehicles, rehabilitate damaged roads, enforce traffic rules

### 4.6 Decommissioning and Rehabilitation

Successful rehabilitation requires careful consideration of the local ecological context, in combination with the rehabilitation goals. The most important steps in undertaking a successful rehabilitation are planning and environmental awareness (environmental education) on the importance of progressive rehabilitation (or post-activity rehabilitation,) and its importance to the environment. Furthermore, successful implementation of the planned rehabilitation will depend on a few factors - the rehabilitation program, characteristics of the site, nature of disturbance, rehabilitation methods, as well as resource availability.

**Table 5: Environmental Management and Mitigation Measures for the Decommissioning Phase (Opuwo Effluent Treatment Plant and Oxidation Ponds)**

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
Site infrastructure	Abandoned structures leading to hazards	<ul style="list-style-type: none"> <li>- Dismantle and remove all redundant infrastructure, including pumps, pipes, tanks, and fencing.</li> <li>- Materials in reusable condition should be salvaged for other municipal projects.</li> <li>- Non-reusable materials must be transported to licensed disposal facilities.</li> </ul>	<ul style="list-style-type: none"> <li>- Decommissioning records kept.</li> <li>- No abandoned structures on site.</li> <li>- Waste transfer receipts available.</li> </ul>	Proponent; Site Manager	Immediately upon closure
Soils	Soil contamination from residual sludge and chemicals	<ul style="list-style-type: none"> <li>- Remove all sludge and residual waste from ponds and dispose of at approved hazardous waste facilities.</li> <li>- Undertake a soil contamination assessment by a soil scientist.</li> <li>- Implement remediation methods (bioremediation, excavation, or</li> </ul>	<ul style="list-style-type: none"> <li>- Soil assessment reports filed.</li> <li>- Remediation actions documented.</li> <li>- No visible contamination.</li> </ul>	Proponent; Soil Scientist	During closure

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		stabilization) where contamination is detected.			
Water resources	Risk of groundwater contamination from pond seepage	<ul style="list-style-type: none"> <li>- Drain ponds of all effluent and sludge.</li> <li>- Test groundwater boreholes quarterly during closure process.</li> <li>- Backfill ponds with clean soil or inert material.</li> <li>- Ensure pond liners/clay bases are removed or sealed to prevent seepage.</li> </ul>	<ul style="list-style-type: none"> <li>- Borehole monitoring reports.</li> <li>- No evidence of contamination post-closure.</li> </ul>	Proponent; SHE Officer; MAWLR (oversight)	Closure period
Public safety	Hazards from abandoned ponds	<ul style="list-style-type: none"> <li>- Secure site until fully rehabilitated.</li> <li>- Backfill and compact all excavated areas and ponds.</li> <li>- Maintain fencing until final rehabilitation is complete.</li> <li>- Post signage warning public not to enter site until safe.</li> </ul>	<ul style="list-style-type: none"> <li>- Ponds rehabilitated and backfilled.</li> <li>- Fence maintained during closure.</li> <li>- No public access until safe.</li> </ul>	Proponent; Site Manager	Closure phase
Air quality	Odour and dust from decommissioning works	<ul style="list-style-type: none"> <li>- Remove sludge promptly to avoid odour emissions.</li> <li>- Wet exposed soils during backfilling to control dust.</li> <li>- Cover trucks transporting sludge to prevent spillage and odour.</li> </ul>	<ul style="list-style-type: none"> <li>- Reduced dust emissions.</li> <li>- No odour complaints.</li> <li>- Covered transport verified.</li> </ul>	Site Manager; Contractor	Closure phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
Biodiversity	Loss of potential habitat	<ul style="list-style-type: none"> <li>- Rehabilitate site with indigenous vegetation after pond backfilling.</li> <li>- Avoid introduction of alien species.</li> <li>- Monitor regrowth for 3 years post-closure.</li> </ul>	<ul style="list-style-type: none"> <li>- Rehabilitation plan implemented.</li> <li>- Vegetation monitoring reports available.</li> <li>- Increase in indigenous regrowth.</li> </ul>	Proponent; SHE Officer; Forestry Dept. (advisory)	Closure + 3 years post-closure
Archaeology and heritage	Accidental finds during backfilling	<ul style="list-style-type: none"> <li>- Continue to apply Chance Finds Procedure during closure.</li> <li>- Halt work if artefacts are uncovered and notify National Heritage Council.</li> </ul>	<ul style="list-style-type: none"> <li>- Heritage finds preserved.</li> <li>- Reporting compliance.</li> </ul>	Site Manager; ECO	During closure works
Waste management	Pollution from demolition waste	<ul style="list-style-type: none"> <li>- Segregate waste (scrap metal, concrete, plastics, sludge residues).</li> <li>- Recycle where possible.</li> <li>- Dispose non-recyclables at licensed Opuwo/Kunene sites.</li> <li>- Hazardous waste sent to approved national facilities.</li> </ul>	<ul style="list-style-type: none"> <li>- Waste register maintained.</li> <li>- Recycling records available.</li> <li>- Disposal receipts kept.</li> </ul>	Proponent; Site Manager	Throughout closure
Health and safety	Worker and community risks during closure	<ul style="list-style-type: none"> <li>- Provide PPE to all workers (gloves, boots, dust masks).</li> <li>- Conduct safety induction before decommissioning begins.</li> <li>- Maintain fire-fighting equipment on site.</li> <li>- First-aid kits available and accessible.</li> </ul>	<ul style="list-style-type: none"> <li>- No recorded accidents.</li> <li>- Training logs available.</li> <li>- PPE use verified.</li> </ul>	SHE Officer; Contractor	Closure period

### Site Specific Rehabilitation Plan

To ensure that disturbed areas are rehabilitated and environmental risks minimized after the closure of the effluent treatment plant and oxidation ponds, the Proponent should implement the following measures:

- Utilize stockpiled topsoil and suitable subsoil material to backfill and level the oxidation ponds and any disturbed areas, ensuring they are stabilized against erosion.
- Make adequate financial provision to fund the full post-closure rehabilitation programme, including soil remediation, vegetation restoration, and long-term monitoring.
- Dismantle and remove all treatment plant structures (pumps, tanks, pipes, storage containers, ablution facilities, and other support structures). Transport waste from demolition to approved disposal facilities.
- Safely remove all accumulated sludge and effluent from ponds, and transport them to designated hazardous waste or sludge management facilities licensed by MAWLR.
- Remove all accumulated solid, hazardous, and general waste from the site before final closure, and dispose of at approved municipal or regional waste management facilities.
- Rehabilitate the site by planting indigenous vegetation consistent with surrounding ecosystems, to prevent erosion and restore ecological integrity.
- Withdraw all vehicles, machinery, and construction equipment from the site and relocate them to approved off-site storage facilities.
- Ensure that the site is restored to a safe, stable, and environmentally acceptable condition, free from waste, pollutants, or abandoned infrastructure, leaving the land in a condition suitable for alternative uses.

## 5. CLOSURE MEASURES FOR THE EFFLUENT TREATMENT PLANT AND OXIDATION PONDS

The closure phase of the Opuwo Wastewater Treatment Plant (WWTP) and associated oxidation ponds will require systematic decommissioning to ensure that no environmental or social hazards remain after operations have ceased. If closure is not properly managed, residual structures, sludge, and ponds can pose risks such as groundwater pollution, mosquito breeding, and unsafe public access, as seen with many abandoned ponds elsewhere in Namibia (Spellman, 2014; Dunamis Consulting Engineers, 2020).

The objectives of the closure plan are therefore to:

- Restore the site to a safe and environmentally stable condition.
- Ensure that infrastructure and materials are either reused, recycled, or disposed of responsibly.
- Return the land to a productive use where possible (e.g., agriculture, landscaping).
- Prevent long-term contamination of soil and groundwater.

The key closure measures are outlined in **Table 6** below.

Table 6: Closure phase management and mitigation measures

Aspect	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
<b>Site and Fencing</b>	<ul style="list-style-type: none"> <li>- Maintain fencing to secure the site until all decommissioning activities are complete.</li> <li>-Once decommissioning is finished, dismantle fencing or repurpose it for alternative community/agricultural projects if the land is reassigned.</li> <li>- Ensure site access is controlled to prevent illegal dumping or unsafe entry during closure.</li> </ul>	<ul style="list-style-type: none"> <li>-Site secured until closure is complete.</li> <li>-Fencing dismantled or repurposed appropriately.</li> <li>-No evidence of illegal access or dumping.</li> </ul>	Proponent (Opuwo Town Council)	Upon cessation of effluent treatment activities
<b>Infrastructure and Structures</b>	<ul style="list-style-type: none"> <li>- Dismantle and remove infrastructure (offices, storage facilities, equipment) that are no longer required.</li> <li>- Reuse salvageable materials within the Town Council's operations where possible.</li> <li>- Dispose of non-reusable materials at the Opuwo Town Council landfill.</li> <li>- Transport all equipment to designated offsite storage facilities.</li> </ul>	<ul style="list-style-type: none"> <li>-Structures reused where possible.</li> <li>-Waste materials transported to an approved dumpsite.</li> <li>-Equipment accounted for and relocated.</li> </ul>	Proponent SHE Officer / EHO	At the end of site operations

<b>Waste Management</b>	<ul style="list-style-type: none"> <li>- Collect and transport all remaining solid and hazardous waste to approved facilities.</li> <li>- Remove and dispose of residual sludge from ponds at designated safe disposal sites in line with Public and Environmental Health Act requirements.</li> <li>- Ensure no waste is left unattended on site.</li> </ul>	<ul style="list-style-type: none"> <li>-Waste properly segregated and disposed of.</li> <li>-Sludge safely removed and documented.</li> </ul>	Proponent SHE Officer / EHO	End of operations and decommissioning
<b>Access Roads</b>	<ul style="list-style-type: none"> <li>- Close and rehabilitate temporary access roads created for construction or operations that are no longer required.</li> <li>- Re-vegetate disturbed surfaces using indigenous species where feasible.</li> </ul>	<ul style="list-style-type: none"> <li>-Access roads decommissioned and blocked off.</li> <li>-Disturbed land stabilized and rehabilitated.</li> </ul>	Proponent Contractor (during closure)	After cessation of activities
<b>Ponds and Treatment Units</b>	<ul style="list-style-type: none"> <li>- Drain oxidation ponds safely and remove residual sludge.</li> <li>- Backfill and re-contour ponds to prevent water stagnation.</li> <li>- Rehabilitate the area for future land use (agriculture, open space, or other approved development).</li> </ul>	<ul style="list-style-type: none"> <li>-Ponds safely decommissioned.</li> <li>-No open water bodies left to breed mosquitoes.</li> <li>- Site rehabilitated for new use.</li> </ul>	Proponent SHE Officer / ECO	During decommissioning phase

## 6. ENVIRONMENTAL MONITORING

### 6.1 Purpose of Environmental Monitoring

Environmental monitoring is a critical component of the Environmental Management Plan (EMP), ensuring that mitigation measures are effectively implemented and that potential environmental and social impacts are detected early. Monitoring provides the data required to evaluate compliance with Namibian legislation, including the Environmental Management Act (No. 7 of

2007), the Public and Environmental Health Act (2015), and applicable water quality standards. It also helps assess whether project activities align with international guidelines such as the World Health Organization's standards for wastewater reuse (WHO, 2006).

For the Opuwo Wastewater Treatment Plant (WWTP) and oxidation ponds, monitoring will be conducted throughout the construction, operational, and decommissioning phases. The objectives of monitoring are to:

- Ensure compliance with environmental clearance conditions.
- Track the effectiveness of mitigation measures.
- Safeguard public health and community well-being.
- Detect environmental changes (soil, water, air, and biodiversity) associated with project activities.
- Provide transparency and accountability to stakeholders.

## 6.2 Monitoring Approach

Monitoring will be both proactive (regular inspections and sampling) and reactive (response to incidents, complaints, or non-compliance reports). Data collected will be compiled into monitoring reports submitted to the Ministry of Environment, Forestry and Tourism (MEFT) and other relevant authorities.

The Environmental Control Officer (ECO) or Safety, Health and Environment (SHE) Officer will be responsible for day-to-day monitoring, supported by contractors, Town Council staff, and external specialists where laboratory testing is required. Results will be recorded in a centralized monitoring logbook and used to inform adaptive management strategies.

## 6.3 Monitoring Plan

The monitoring plan addresses potential impacts identified in the ESA and EMP. Key focus areas include:

- Soil and land disturbance (erosion, contamination).
- Water quality (treated effluent, groundwater, and sludge).
- Air quality and odour control.
- Biodiversity changes (vegetation, mosquito breeding).
- Health and safety performance (accidents, PPE compliance).
- Waste management (segregation, disposal, recycling).
- Community relations (complaints, conflicts, engagement).
- Cultural heritage protection (chance finds procedure).

The key monitoring plan measures are outlined in **Table 7** below.

Table 7: Environmental Monitoring Plan

Aspect	Monitoring Parameter(s)	Indicator / KPI	Frequency	Responsibility
<b>Soil and Land Disturbance</b>	<ul style="list-style-type: none"> <li>- Visual inspection of erosion, compaction, and disturbed areas.</li> <li>- Soil contamination (oil/fuel spills).</li> </ul>	<ul style="list-style-type: none"> <li>- No visible erosion beyond site boundaries.</li> <li>- Spillages cleaned up immediately.</li> <li>- Stabilized/rehabilitated embankments.</li> </ul>	<ul style="list-style-type: none"> <li>Monthly (construction &amp; operation).</li> <li>After heavy rains.</li> </ul>	ECO / Contractor
<b>Water Quality – Effluent</b>	<ul style="list-style-type: none"> <li>- pH, BOD, COD, TSS, nitrogen, phosphorus, E. coli levels.</li> </ul>	<ul style="list-style-type: none"> <li>- Effluent meets Namibian General Standards &amp; WHO guidelines for irrigation.</li> </ul>	<ul style="list-style-type: none"> <li>Monthly sampling &amp; lab analysis.</li> </ul>	ECO / Opuwo TC / Accredited lab
<b>Water Quality – Groundwater</b>	<ul style="list-style-type: none"> <li>- Groundwater level &amp; quality (nitrates, coliform bacteria).</li> </ul>	<ul style="list-style-type: none"> <li>- No contamination detected above baseline levels.</li> </ul>	<ul style="list-style-type: none"> <li>Quarterly (operation).</li> </ul>	ECO / DWAF / Accredited lab
<b>Air Quality and Odour</b>	<ul style="list-style-type: none"> <li>- Dust levels during construction.</li> <li>- Odour intensity near ponds.</li> </ul>	<ul style="list-style-type: none"> <li>- Dust suppressed (e.g., water spraying).</li> <li>- Odour complaints minimized.</li> </ul>	<ul style="list-style-type: none"> <li>Weekly (construction)</li> <li>. Monthly (operation).</li> </ul>	Contractor / ECO
<b>Noise and Vibration</b>	<ul style="list-style-type: none"> <li>- Noise levels at sensitive receptors (schools, clinics, houses).</li> </ul>	<ul style="list-style-type: none"> <li>- Noise levels &lt; 85 dB (workplace standard).</li> <li>- No sustained community complaints.</li> </ul>	<ul style="list-style-type: none"> <li>Weekly during construction.</li> </ul>	Contractor / ECO
<b>Biodiversity (Flora &amp; Fauna)</b>	<ul style="list-style-type: none"> <li>- Vegetation clearing extent.</li> <li>- Signs of poaching or disturbance.</li> </ul>	<ul style="list-style-type: none"> <li>- Vegetation clearance within approved footprint.</li> <li>- No evidence of</li> </ul>	<ul style="list-style-type: none"> <li>Quarterly (operation).</li> </ul>	ECO / Conservancy rep

	- Mosquito presence in ponds.	poaching. - Mosquito levels controlled.		
<b>Health &amp; Safety</b>	- PPE compliance. - Recordable incidents/accidents. - Worker health records.	- 100% PPE compliance. - Zero fatalities. - Incident log maintained.	Daily (site supervision). Monthly review.	SHE Officer / Contractor
<b>Waste Management</b>	- Segregation of waste streams. - Disposal records. - Hazardous waste handling.	- Waste disposed at approved sites. - Hazardous waste stored securely. - Records available.	Weekly inspections.	Contractor / ECO
<b>Community Relations</b>	- Stakeholder meetings. - Grievance redress records.	- Records of meetings held. - Complaints resolved within 30 days.	Quarterly (operation).	PRO / Town Council
<b>Cultural Heritage (Chance Finds)</b>	- Archaeological/heritage inspections if remains found.	- Chance finds procedure followed. - Finds reported to National Heritage Council.	As required.	Contractor / ECO / Archaeologist

## APPENDIX 1: CHANCE FINDS PROCEDURE (AFTER KINAHAN, 2020)

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

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

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

Manager/Supervisor must report the finding to the following competent authorities:

- National Heritage Council of Namibia (061 244 375 / Technical Office +264 61 301 903)
- National Museum (061 276800),
- National Forensic Laboratory (061 240461).

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

### Responsibility:

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

### Procedure:

#### Action by person identifying archaeological or heritage material:

- a) If operating machinery or equipment stop work
- b) Identify the site with flag tape
- c) Determine GPS position if possible
- d) Report findings to foreman

Action by foreman

- a) Report findings, site location and actions taken to superintendent
- b) Cease any works in immediate vicinity

Action by superintendent

- a) Visit site and determine whether work can proceed without damage to findings
- b) Determine and mark exclusion boundary
- c) Site location and details to be added to project GIS for field confirmation by archaeologist

Action by Archaeologist

- a) Inspect site and confirm addition to project GIS
- b) Advise NHC and request written permission to remove findings from work area
- c) Recovery, packaging and labelling of findings for transfer to National Museum

In the event of discovering human remains

- a) Actions as above
- b) Field inspection by archaeologist to confirm that remains are human
- c) Advise and liaise with NHC and Police
- d) Recovery of remains and removal to National Museum or National Forensic Laboratory, as directed.

