

# ENVIRONMENTAL MANAGEMENT PLAN (EMP) FOR THE OPERATION AND MAINTENANCE OF THE EXISTING SWAKOPMUND MUNICIPAL SEWAGE TREATMENT PLANT, ERONGO REGION



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The logo for Green Gain Consultants, featuring a green leaf icon above the text 'Green Gain' in a bold, green font, with 'Consultants' in a smaller, grey font below it.

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November 2022

## DOCUMENT INFORMATION

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**PROJECT:** Operation, maintenance, and decommissioning of the existing Swakopmund Municipal Sewage Treatment Plant, Erongo region.

**Location:** Swakopmund, Erongo region

**Client:** Municipality of Swakopmund  
P. O. Box 53  
Swakopmund

**EAP:** Green Gain Environmental Consultants cc  
Joseph Kondja Amushila

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## LIST OF ACRONYMS

DEA:	Directorate of Environmental Affairs
DWA:	Directorate of Water Affairs
EAP:	Environmental Assessment Practitioner
ECC:	Environmental Clearance Certificate
ECO:	Environmental Control Officer
EIA:	Environmental Impact Assessments
EMP:	Environmental Management Plan
ERP:	Emergency Response Procedures
GMS:	Galvanised Mild Steel
GN:	Government Notice
HDPE:	High-Density Polyethylene
I&APs:	Interested and Affected Parties
MEFT:	Ministry of Environment, Forestry, and Tourism
MoHSS:	Ministry of Health and Social Services
MSDS:	Material Storage Data Sheet
NamPower:	Namibia Power Corporation
NamWater:	Namibia Water Corporation
PHE:	Public Health and Environmental Act
PM:	Project Manager
PPE:	Personal Protective Equipment
uPVC:	Unplasticized Polyvinyl Chloride
DRP:	Decommissioning and Rehabilitation Plant
STP:	Sewage Treatment Plant

# 1. INTRODUCTION AND BACKGROUND

## 1.1 Introduction

The existing Swakopmund municipal sewage treatment plant (STP) was constructed and commissioned in 2012 and replaced the old sewage treatment plant located in Tamariskia. The STP receives and treats sewage generated from the town. The Municipality of Swakopmund obtained a Wastewater and Effluent Disposal Exemption permit for the operation of the STP which is valid until 2025. The STP does not have the required Environmental Clearance Certificate (ECC) since there was no environmental impact assessment (EIA) done at the time of its commissioning. The Municipality of Swakopmund has appointed Green Gain Consultants cc to conduct an EIA, prepare the Environmental Management Plan (EMP), and apply for an Environmental Clearance Certificate (ECC) for the operation and maintenance of the existing Swakopmund municipal STP.

This Environmental Management Plan (EMP) was prepared in line with Section 8 (j) of the EIA Regulations (GN 30 of February 2012), and the proponent's terms of reference. The EMP contains aspects of the proposed management and mitigation measures to be taken to address the negative environmental impacts and enhancement measures for the positive environmental impacts identified in the environmental scoping report. It also addresses the need for compliance monitoring of identified significant environmental impacts.

The EMP is therefore important in ensuring that the management actions arising from the EIA processes are clearly defined and implemented through all phases of the project life cycle. The EMP is not a standalone document; thus, it must be read in conjunction with the Scoping report. All personnel taking part in the operation and maintenance of the existing STP should be made aware of the contents of this EMP. The EMP is also a dynamic document that allows for the evaluation of the success or failure of management actions and to carry out reorientation of the relevant actions if deemed necessary. It should be noted that the EIA and EMP is a legally binding document between the proponent and Ministry of Environment, Forestry and Tourism (MEFT) and implementation of the recommended management actions is mandatory.

The draft EMP was shared with the registered I&APs and relevant stakeholders, after which the final amendment report will be submitted to the competent authority (Department of Water Affairs (DWA)) and to the regulatory authority, Ministry of Environment, Forestry and Tourism (MEFT) for record of decision.

## **1.2 Objectives of the EMP**

This EMP has been compiled for the management of potential environmental impacts during the operation, and maintenance phases of the existing sewage treatment plant. The EMP also includes best practices for the generic issues on the management during the operation of the plant.

The specific objectives of this EMP are:

- Present measures to avoid, lessen and mitigate adverse impacts on various environmental components, and enhance the value of environmental components where possible.
- Define the roles and responsibilities for the implementation of environmental management and mitigation measures.
- Explain the need for compliance with regulatory provisions and guidelines.
- Explain procedures for compliance monitoring and reporting to the relevant competent and regulatory authorities.



### 1.3 Project team

The implementation of the EMP requires various role players, each with specific responsibilities to ensure that the existing sewage treatment plant is operated and maintained in an environmentally sound manner.

**Table 1: Project team**

NO.	SPECIFIC PROJECT ROLE	ADDRESS AND CONTACTS
1.	Proponent	<b>Manager Water &amp; Sewage Division</b> <b>Mr Jacques Beukes</b> <a href="mailto:jrbeukes@swkmun.com.na">jrbeukes@swkmun.com.na</a>  <b>Environmental Officer</b> Ms. Paulina Engelbrecht Email: <a href="mailto:pengelbrecht@swkmun.com.na">pengelbrecht@swkmun.com.na</a>
2.	Environmental Assessment Practitioner	<b>Green Gain Consultants cc</b> Mr. Joseph Amushila Cell: +264811422927 Email: <a href="mailto:info@greengain.com.na">info@greengain.com.na</a>

## 1.4 EMP methodology

In line with the EIA Regulations, the preparation of the EMP followed a multidisciplinary procedure and subjected to a public participation process. The procedure that was followed is explained below.

### 1.4.1 Review of project information

The Environmental Assessment Practitioner (EAP) conducted a review of the project information on the plant layout and the updated report for the Swakopmund municipal sewage treatment plant (STP) that was commissioned in 2012. The EAP also conducted a site visit on the 04 October 2022 to refamiliarize with the project site. The EAP interviewed the STP Manager to obtain information on the additional proposed project components.

### 1.4.2 I&APs invitation and consultation

The public advertisements providing brief information about the existing project was advertised in two local newspapers namely, Namibian Newspaper for 08 and 15 November 2022 and Namib Times newspapers, 11 and 18 November 2022. Additionally, public notices were also displayed at project site and public notices around town.

**PUBLIC NOTIFICATION**  
Environmental Impact Assessment (EIA) for the operation and maintenance of the existing Municipal Sewage Treatment Plant, Swakopmund, Erongo region.

Notice is hereby given to all Interested and Affected Parties (I&APs), that an application for an Environmental Clearance Certificate will be submitted to the Environmental Commissioner for the following activities.

**Project title:** Operation and maintenance of the existing Municipal Sewage Treatment Plant  
**Project location:** Swakopmund, Erongo Region  
**Proponent:** Municipality of Swakopmund  
**Description:** Swakopmund town is served by a sewage treatment plant that receives and treats all liquid waste generated from the town. At the time of commissioning (2012), there was no EIA study done since it was not compulsory. In terms of the Environmental Management Act, No. 07 of 2007, all waste management, treatment, handling, and disposal activities cannot be undertaken without a valid environmental clearance certificate.

All I&APs are hereby invited to register, request the Background Information Document (BID), attend the public meeting, and submit comments/inputs to [eia@greengain.com.na](mailto:eia@greengain.com.na). The last day to submit input is **25 November 2022**.

**The need for a public meeting will be determined after the consultation and will be communicated to all registered I&APs.**

**Green Gain**  
Consultants  
For more information  
contact: +264811422927 or +264853013777

Figure 1: Example Public Notice

## 2. PROJECT DESCRIPTION

### 2.1 Locality

The existing sewage treatment plant is located about 2.5 km northeast of town, along the C34 road to Henties Bay, close to the Swakopmund landfill site. It can be located at the following coordinates -22.612181" S; 14.560445" E.

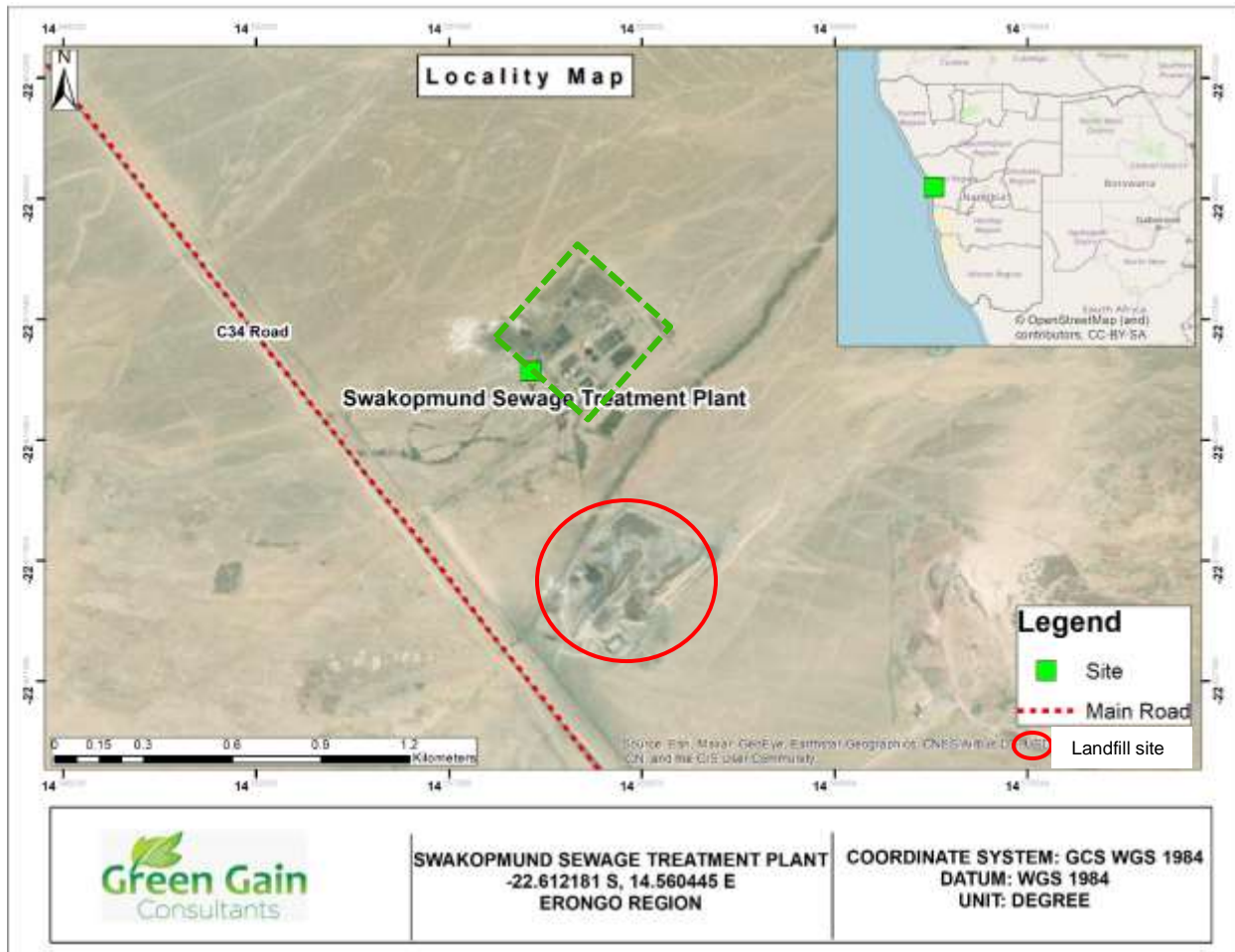


Figure 2; locality of the existing Swakopmund Municipal STP

## 2.2 Project Design

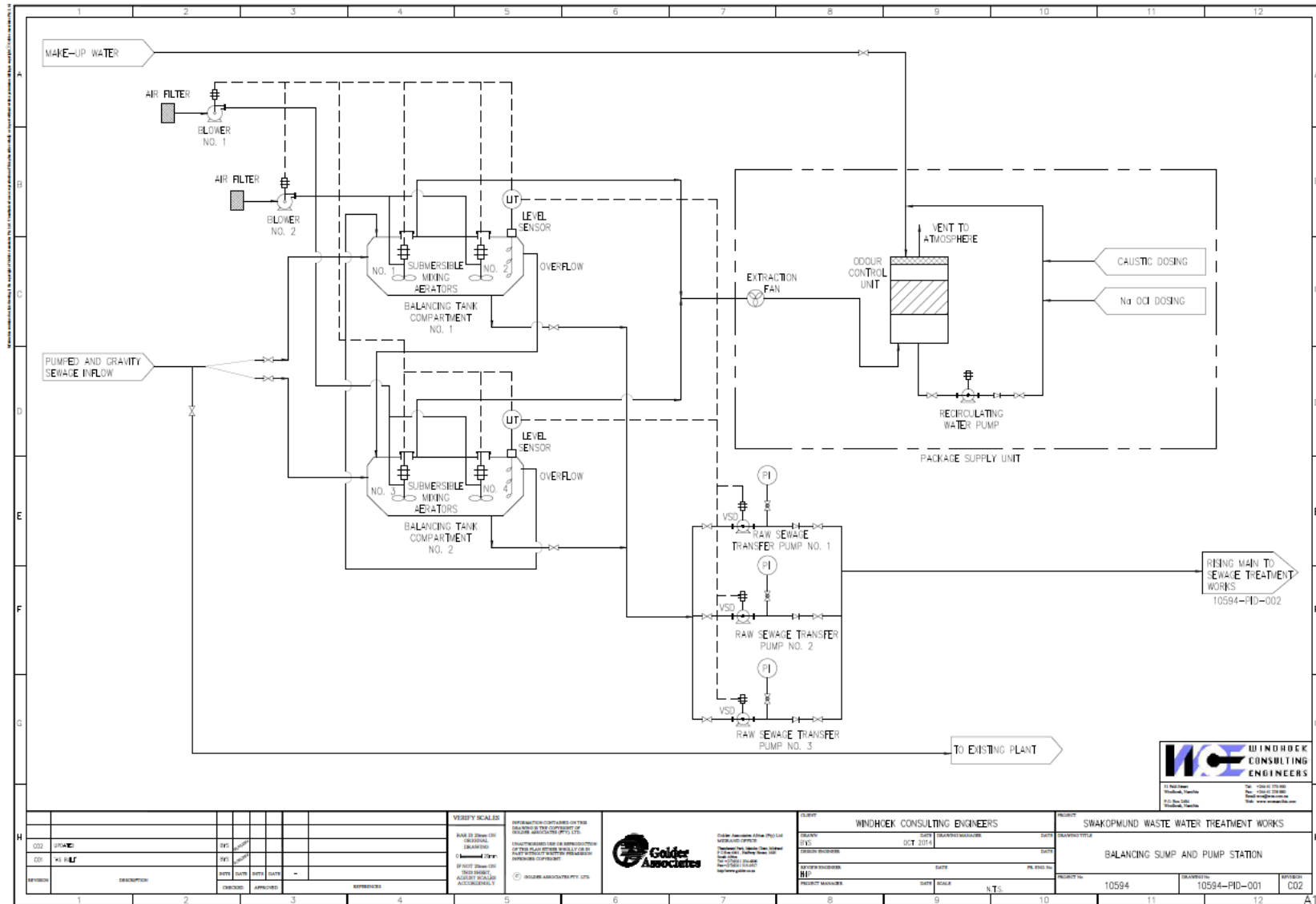


Figure 3: Swakopmund STP layout A

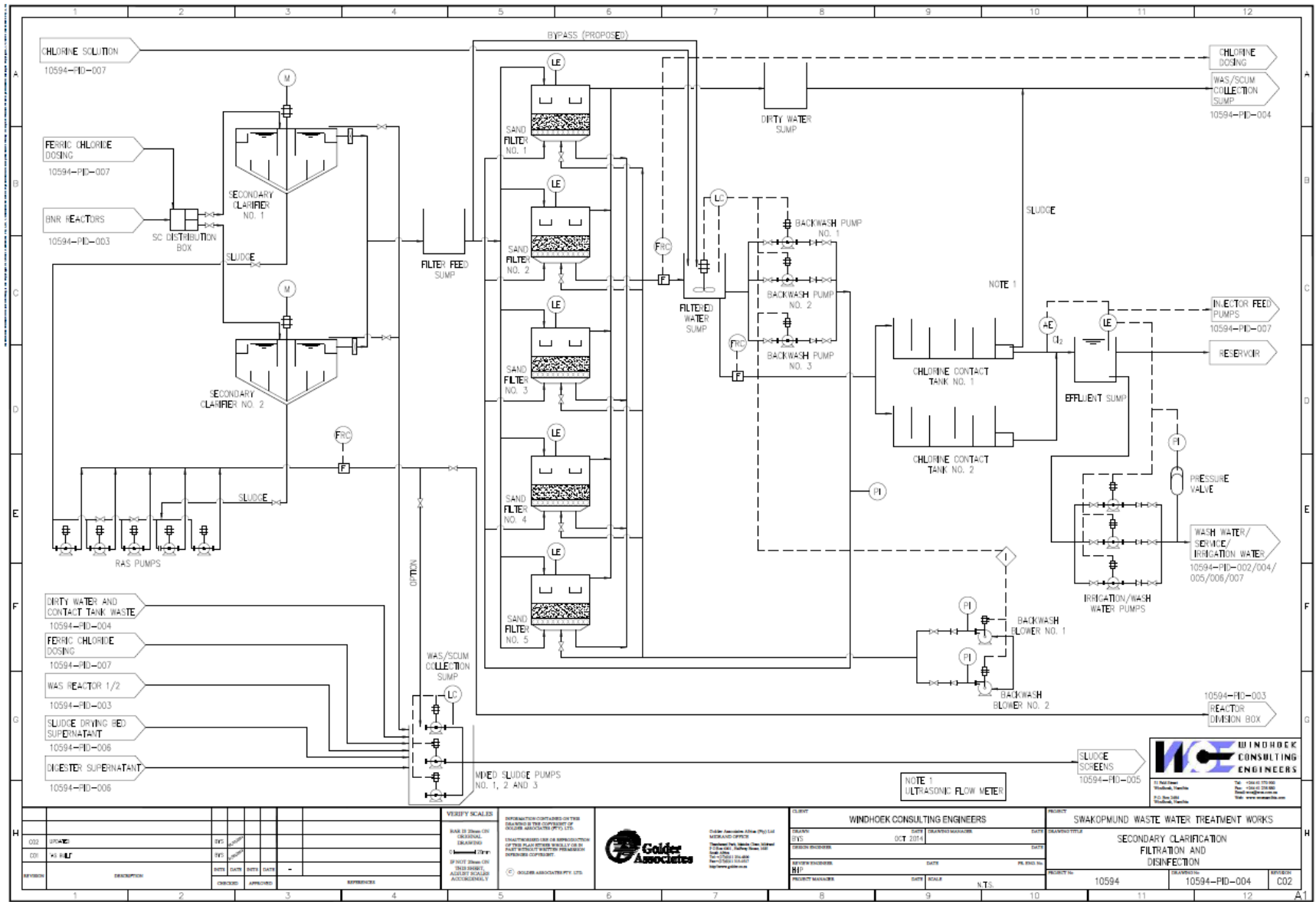


Figure 4: Swakopmund STP layout B

## 2.3 Treatment process

The sewage treatment plant receives most of its raw sewage effluent through the trunk sewer's main lines. The sewage goes through a treatment process by means of an activated sludge system. The figure below shows a general flow diagram with the typical components present in an activated sludge wastewater treatment plant. The sewage treatment passes through four main stages namely, **screening, de-gritter, bioreactor, and clarifier & disinfection**.

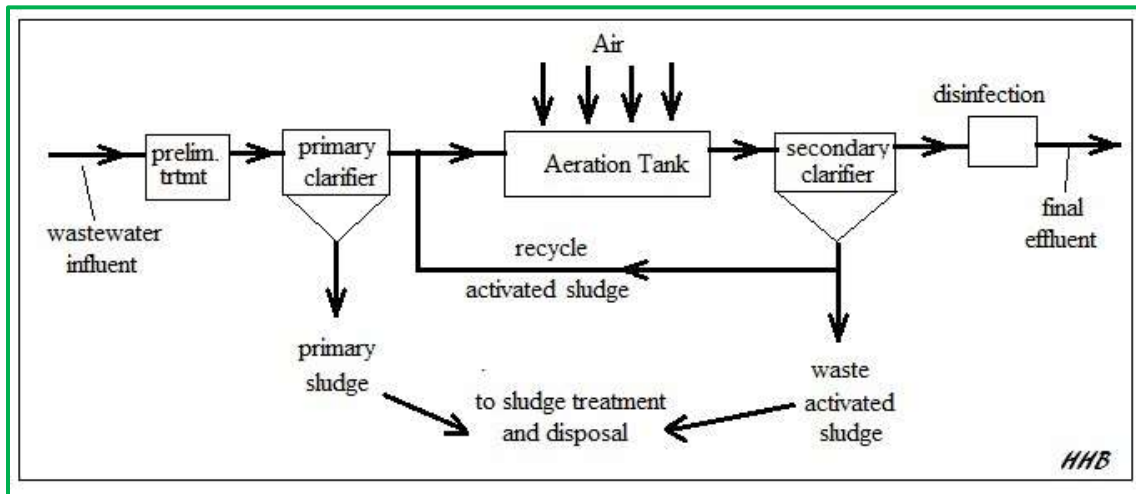


Figure 5: Example of STP process flow

Stage 1: The first component is preliminary treatment, typically consisting of screening, flow measurement, and perhaps grit removal. The grit traps are designed to remove granular solids from the wastewater like sand, gravel, and other heavy solids, which have significantly higher subsiding velocities and specific weights, than decomposing organic solid waste with the same parameters.



Figure 6: Screening process



Stage 2: The second component, is the primary clarifier, used to remove settleable suspended matter. The purpose of primary sedimentation is to remove unsolved organic material from wastewater, resulting in reduced pollution loads on the next biological treatment stages. Removed organic material, which is called the primary sludge, mainly contains biologically easily degradable compounds and is very well exposed to subsequent anaerobic decomposition with high methane yield.



Figure 7: Primary Clarifier

Stage 3: The third stage, the underflow goes to sludge treatment and disposal and the overflow goes to an aeration tank. After definite time biological solid compounds move from aerotanks to the settling tank, where certain portion of settled sludge is digested in bioreactor in order to maintain the desired concentration of microorganisms. The remained excess sludge is removed from the system.



**Figure 8: Aerotanks**

Stage 4: The last stage is the clarification and disinfection. There are two main products produced from the treatment plant namely the purified effluent (PE) and manure. The effluent and manure produced are used in ornamental garden maintenance by the Municipal parks department and some local landscapers and gardeners.



**Figure 10: Purified Effluent in a settling tank**



**Figure 9: Sludge in the dry pond**



## 2.4 Operational and maintenance procedures

The existing Swakopmund STP is currently operated by a private operator contracted by Swakopmund Municipality for a period of five years. The STP is manned by a workforce of 11 maintenance staff consisting of a Plant manager, 6 Operators, 2 fitters, 1 Laboratory technician, and 1 Cleaner. The STP is designed to be always manned, thus Operators works in two shifts (day and night). There is a maintenance workshop which is operated and maintained by the Municipality.



Figure 11: Maintenance workshop

### 3. THE AFFECTED ENVIRONMENT

#### 3.1 Biophysical environment

##### 3.1.1 Land use context

The surrounding area is still vacant, but planning is at advance stage to allocate the surrounding land for agriculture purposes.



Figure 12: STP surrounding

### 3.1.2 Geohydrological setting of the area

The geology mainly consists of the “Swakop Group” with Damara Granites intrusions. Soils in the area are gypsum-rich with the surface being covered with small stones and grit to larger rocks and boulders.

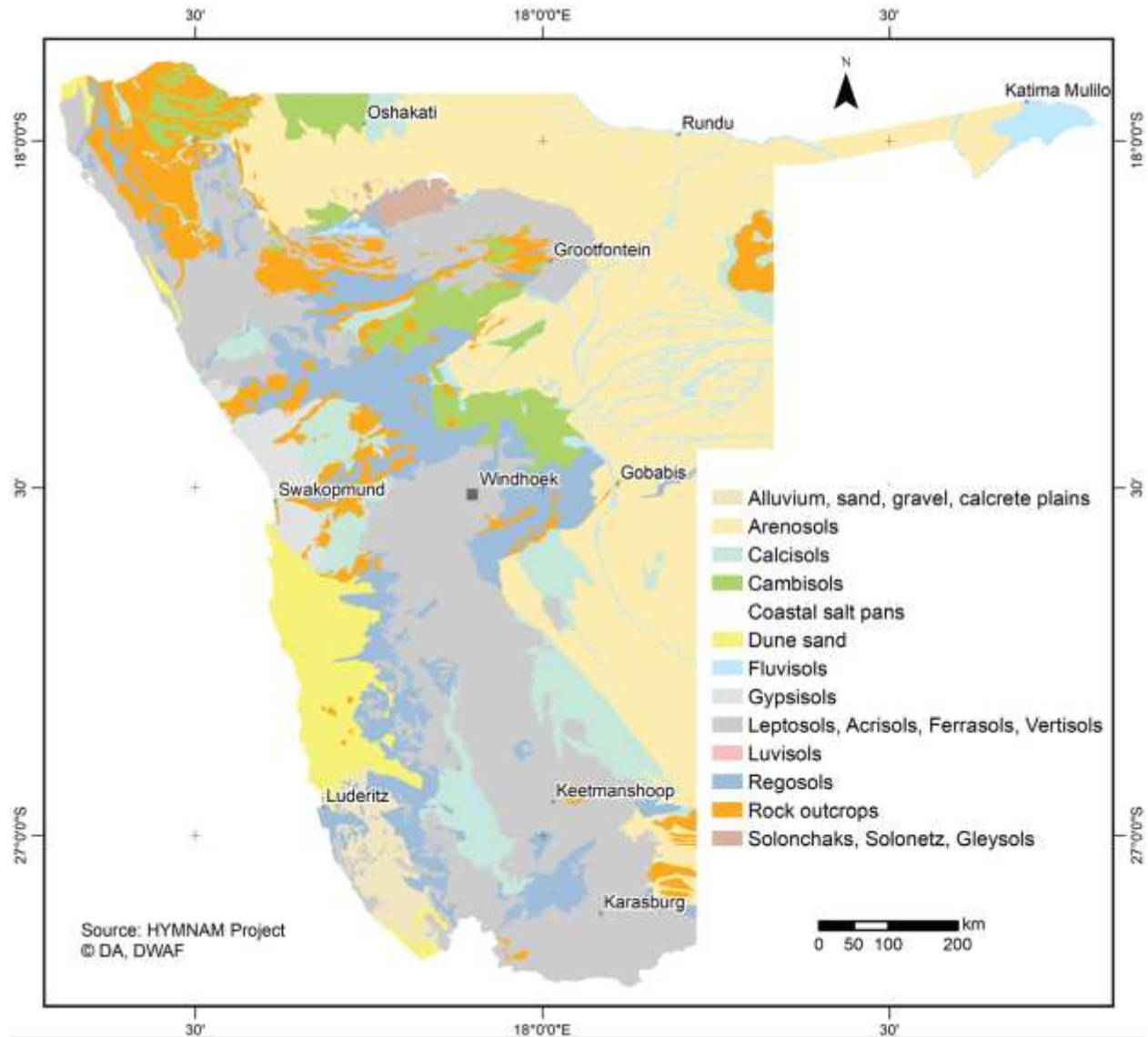


Figure 13: Groundwater map of Namibia

The underlying rock consist of a Damara sequence of the Swakop Group and of the quaternary age which dates back 137-132 million years. The groundwater potential for the area surrounding the STP ranges from little to very low.

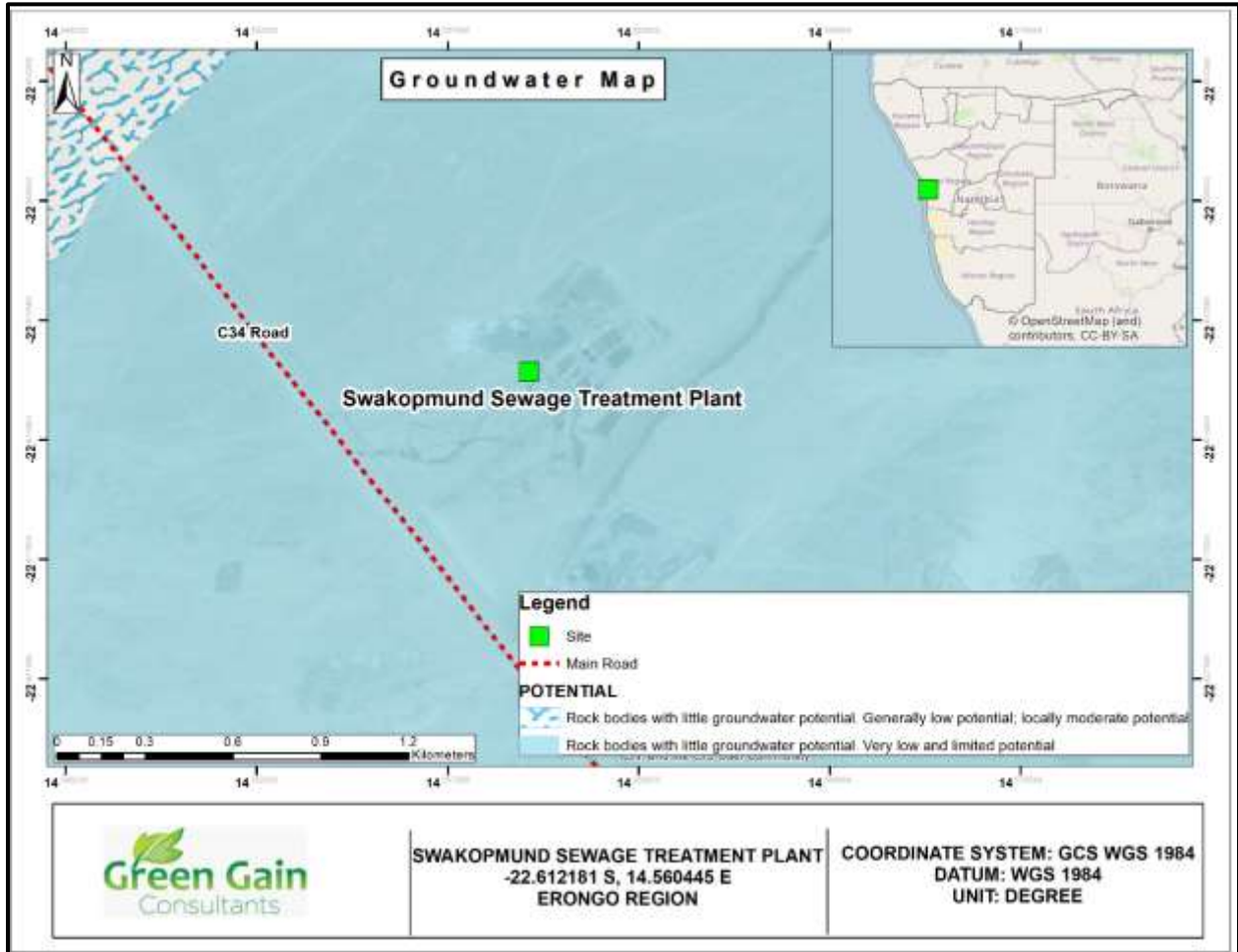


Figure 14:Groundwater potential of the area

### **3.2 Socio-economic profile**

Swakopmund is a town on the coast of western Namibia, 352 km west of the Namibian capital Windhoek via the B2 main road. It is the capital of the Erongo administrative district. The city is situated in the Namib Desert and is the fourth largest population centre in Namibia. Swakopmund is a beach resort and an example of German colonial architecture. It was founded in 1892 as the main harbour for German Southwest Africa, and a small part of its population is still German speaking today.

Buildings in the city include the Altes Gefängnis prison, designed by Heinrich Bause in 1909. The Woermannhaus, built in 1906 with a prominent tower, is now a public library. Attractions in Swakopmund include a Swakopmund Museum, the National Marine Aquarium, a crystal gallery, and spectacular sand dunes near Langstrand south of the Swakop River. The town has 44,725 inhabitants and covers 196 square kilometres (76m<sup>2</sup>) of land. The town is divided into seven formal township districts and one informal settlement of the Democratic Resettlement Community (DRC). Most inhabitants of the town live in the suburbs of Vineta, Tamariskia, Mondesa and Vogelstrand. DRC as the main informal settlement was founded in 2001 as temporary housing for people waiting for subsidized housing in the city.

Swakopmund lies on the B2 road and the Trans-Namib Railway from Windhoek to Walvis Bay. It is served by Swakopmund Airport and Swakopmund Railway Station. Outside the city, the Rossmund Desert Golf Course is one of only five all-grass desert golf courses in the world. Nearby is a farm that offers camel rides to tourists and the Martin Luther steam locomotive, dating from 1896 and abandoned in the desert. The town is served with more than twenty educational facilities which includes, primary schools, secondary school, and vocational and tertiary centres. The main healthcare provider in the town is the State hospital and the private hospital (Cottage Medi-Clinic). The city has scattered coffee shops, night clubs, bars, and hotels. There are balloon rides, skydiving, quad biking, as well as small marine cruises. The discovery of uranium at Rössing, 70km outside the town, led to the development of the world's largest opencast uranium mine. This had an enormous impact on all facets of life in Swakopmund which necessitated expansion of the infrastructure of the town to make it into one of the most modern in Namibia.

## **4. EMP implementation**

### **4.1 Roles and Responsibilities**

#### **4.1.1 Proponent (Swakopmund Municipality)**

The Proponent will play a pivotal role to ensure the successful implementation of this EMP. This can be achieved by designating an Environmental Control Officer (ECO) who should ensure the implementation of this EMP. The ECO in collaboration with the responsible municipal Resident Engineer shall ensure that:

- a) The objectives of the EMP are met.
- b) Take disciplinary actions in cases of transgressions and non-compliance.
- c) That all environmental impacts are managed according to the environmental principles of avoiding, minimizing, mitigating, and rehabilitation as contained in this EMP.
- d) Appropriate compliance monitoring is executed as outlined in Section 7 (7.1).
- e) Handle grievances in the prescribed manners as outlined in Section 9.
- f) Notify the Department of Water Affairs (DWA) and MEFT of any proposed changes to the scope of project and potential environmental impacts.

Given the fact that the Municipality has appointed an Operator to manage the sewage treatment plant on its behalf, the Operator must ensure that.

- That a copy of this EMP is always kept on site.
- That all employees involved in the operation and maintenance of the STP are aware of this EMP and provide brief training, where necessary.
- Review of the on-site environmental management and implementation of the EMP by the employees.
- Conduct compliance monitoring as outlined in section 7 (7.2) of this EMP.
- Keep a record of emergencies and take corrective actions as per Section 8.
- All operation and maintenance activities are in line with Municipal Environmental Policy
- Handle grievances in the prescribed manners as outlined in Section 9.
- Take appropriate disciplinary action against any employee in case of a transgression.

#### **4.1.2 Environmental Assessment Practitioner (EAP)**

The EAP in collaboration with the NamWater Environmental team, is responsible for the compilation of an Environmental Scoping Report and EMP and submission of such reports to the competent authority (DWA) as well as the regulatory authority (MEFT). In addition, the EAP will apply for the ECC on behalf of the proponent.

#### **4.1.3 The contractor and sub-contractors**

It is expected that various contractors and sub-contractors will be appointed at various stages and for various tasks during the phases of this project. All appointed contractors and sub-contractors involved in the project shall ensure compliance with the EMP and its conditions, thus the RE and ECO must ensure that a copy of the EMP is given to all contractors involved. The contractor upon receiving this EMP, should ensure compliance to this EMP by:

- Undertaking their activities in an environmentally sensitive manner and within the context of this EMP.
- Undertaking good housekeeping practices during the duration of their activities.
- Ensuring that adequate environmental awareness training takes place in the language best understood by the employees.
- Making provision for induction of the Municipal Environmental Policy.
- Keeping a record of emergencies and taking corrective actions as per Section 8.
- Taking appropriate disciplinary actions against their employees in case of transgression.

## **5. ENVIRONMENTAL MANAGEMENT REQUIREMENTS**

The successful implementation of this EMP will depend on various factors such as training and awareness, enforcement, good record keeping, and reporting.

### **5.1 Environmental awareness training**

It is important to ensure that contractors, sub-contractors, and all employees have the appropriate level of environmental awareness and competence to ensure continued environmental due diligence and minimization of environmental harm.

To achieve this, all parties involved during the operation and maintenance phases should be briefed on their obligation towards environmental protection in terms of the EMP before any work commences. The training should also cover the actions outlined in the emergency response plan.

#### **5.1.1 Construction phase**

As part of tender requirements, contractors are obliged to educate their employees on the implementation of the EMP. Every contractor should provide training to their employees regarding environmental issues related to construction. Training can be conducted via an onsite session before the commencement of any work. Employee information posters, outlining the environmental “do’s” and “don’ts” (as per the environmental awareness training course) should be placed at prominent locations onsite. Records of such trainings should be kept by the contractor and submitted to the RE.

#### **5.1.2 Operation and maintenance phase**

The Operator should ensure that all sewage plant employees have receive appropriate training on environmental issues pertaining to the operation and maintenance of the proposed upgrade and extension and to carry out their works in accordance with this EMP.

### **5.2 Recordkeeping**

There should be an updated filing system for the STP, where method statements, environmental incidents reports, training records, audit reports, and public complaints register are kept. It is advised that photographs of the site should be taken as a visual reference.



## **5.3 Enforcements**

This EMP upon approval by MEFT shall be a legally binding document, thus, the commitment and co-operation of the identified responsible person(s) will ensure effective implementation of the EMP. Adherence to this EMP will ensure that the environmental impacts associated with the project will be mitigated to a greater extent thus promoting sustainable development. The EMP will be enforced in accordance with the provisions of Section 8 (j) of the Environmental Management Act 07 of 2007 through a contract between the Municipality of Swakopmund and the Operator.

### **5.3.1 Method statements**

The method statements are required especially during the construction phase to describe the scope of work intended by the contractor. This should be provided in a step-by-step description for the RE and/or PM or ECO to understand the contractor's intentions. This will enable them to assist in devising any mitigation measures, which would minimize environmental impact during these tasks. The method statements should also clearly stipulate mitigation methods of the intended works, against which the contractor's performance will be measured. In this case, the following method statements will be necessary during the operation phase:

- Materials and equipment to be used.
- How and where materials will be stored.
- The containment of accidental leaks or spills as prescribed by this EMP (Section 8.3.2: Emergency Response Procedures).
- Timeline and location of activities; and
- Any other information deemed necessary by the ECO/RE

The contractor must submit the method statement two weeks before the commencement of any operation. Work may not commence until the method statement has been accepted by the RE and ECO and communicated to the workforce. The contractor shall, except in the case of emergency activities, allow 14 days for consideration and approval of the method statement. The RE or ECO may require changes to the method statement if the proposal does not comply with the specifications or if, the proposal may result in damage to the environment more than that permitted by the specifications. Approved method statements shall be communicated to all relevant personnel.

### **5.3.2 Non-compliance and disciplinary actions**

In cases of transgressions and non-compliance to the EMP, the following actions may be taken against the transgressor.

- Disciplinary actions
- Legal actions
- Termination of contract

The RE and PM in collaboration with the designated ECO will ensure that the EMP is fully complied with by the appointed contractor and employees during the operation and maintenance phases. The RE and ECO shall issue disciplinary actions based on the severity of the environmental damages and the nature and extent of the transgression/non-compliance. In addition, the proponent may also institute legal actions against the transgressor i.e., withholding of the contract retention money from the contractor until the transgression is rectified or terminate the entire contract for non-compliance, in line with the Public Procurement Act 15 of 2015.

The Operator will ensure compliance during the operation and maintenance phase. Non-compliance or transgression shall result in disciplinary actions being taken against the transgressor. Transgressions should be recorded in a dedicated register and filed accordingly.

## **5.4 Environmental reports**

The proponent shall ensure regular monitoring of project activities during all project phases and keep records. These records may be required by the competent authority when deemed necessary during the life span of the project. The records will be required when applying for renewal of the ECC and the proponent will also have to indicate how the EMP was adjusted to make provision for improved mitigation measures and action plans.

## 5.5 Legal requirements

The EMP implementation shall be guided by the legislative framework as outlined in the scoping report and briefly presented in the table below.

**Table 2: Applicable National Laws**

LEGISLATION	PROVISION AND REQUIREMENTS
Constitution of the Republic of Namibia (1990)	<p>Articles 91 (c) commands the state to actively promote and sustain the environmental welfare of the nation by formulating and institutionalizing policies to accomplish the sustainable objectives which include:</p> <ul style="list-style-type: none"> <li>• Guarding against overutilization of biological natural resources,</li> <li>• Limiting over-exploitation of non-renewable resources,</li> <li>• Ensuring ecosystem functionality,</li> <li>• Protecting Namibia's sense of place and character.</li> <li>• Maintain biological diversity.</li> <li>• Pursuing sustainable natural resource use.</li> </ul> <p>Article 95(i) recites: "The State shall actively promote... maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilization of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future".</p>
Pollution Control and Waste Management Bill, 2003	<p>This Bill serves to regulate and prevent the discharge of pollutants to air and water as well as provide for general waste management.</p> <p>The bill provides a framework for a multitude of administrations on pollution control and waste management in the country.</p>
Environmental Management Act No. 07 of 2007	<p>Ensuring that the significant effects of activities on the environment are considered carefully and in time. To promote the sustainable management of the environment and the use of natural resources by establishing principles for decision-making on matters affecting the environment.</p> <p><b>Of relevance to this project are the following listed activities, as provided in Section 27 of the Environmental Impact Assessment Regulations of 2012, which includes:</b> No. 8.5 Construction of dams, reservoirs, levees, and weirs.</p>

	No.10.1 The Construction of oil, water, gas and petrochemical and other bulk supply pipelines.
Water Act 54 of 1956 and Water Resources Management Act 11 of 2013	<p>The Water Resources Management Act 11 of 2013 is present without regulations; therefore, the Water Act 54 is still in force. The Act provides for the management and protection of surface and groundwater resources in terms of utilization and pollution.</p> <p>This Act further provides provision for the control, conservation, and use of water for domestic, agricultural, urban, and industrial purposes. In addition, the Act gives provisions that pertain to license or permit that required abstracting and using water as well as for discharge of effluent.</p>
Soil conservation Act 76 of 1969	The objectives of the Soil Conservation Act 76, 1969 are to make provision for the combating and prevention of soil erosion, and the conservation, protection, and improvement of the soil, the vegetation, and the sources and resources of the water supplies.
Nature conservation Ordinance of 1975.	The Nature Conservation Ordinance Section 14 protects and preserves wild animal life, fisheries, wild plant life and objects of geological, archaeological, historical and other scientific interest and for the benefit and enjoyment of the inhabitants of Namibia.
Hazardous Substance Ordinance of 1974	<p>This Ordinance provides for the control of toxic substances and is thus also relevant for pollution control. It covers the manufacturing, sale, use, disposal, dumping, importing, and exporting of hazardous waste.</p> <p>Of relevance to the STP is the use of Chlorine for disinfection</p>
Labour Act (No 11 of 2007)	<p>The Objectives of the National Labour Act are:</p> <ul style="list-style-type: none"> <li>• To establish a comprehensive labour law for all employers and employees; to entrench fundamental labour rights and protections.</li> <li>• Regulate basic terms and conditions of employment.</li> <li>• To ensure the health, safety, and welfare of employees; to protect employees from unfair labour practices.</li> </ul>

	<ul style="list-style-type: none"> <li>• To regulate the registration of trade unions and employers' organizations; to regulate collective labour relations.</li> <li>• To provide systematic prevention and resolution of labour disputes.</li> </ul>
Public Health and Environmental Act, 2015	<p>The objectives of the PHE Act are to.</p> <ul style="list-style-type: none"> <li>• Promote public health and wellbeing.</li> <li>• Prevent injuries, diseases, and disabilities.</li> <li>• Protect individuals and communities from public health risks.</li> <li>• Encourage community participation to create a healthy environment.</li> </ul> <p>Provide for early detection of diseases and public health risks.</p>
Employment Service Act 8 of 2011	To provide for the establishment of the National Employment Service; to impose reporting and other obligations on certain employers and institutions; to provide for the licensure and regulation of private employment agencies, and to deal with matters incidental thereto.
Atmospheric Pollution Prevention Ordinance 11 of 1976	To provide for the prevention of the pollution of the atmosphere and matters incidental thereto. The Ordinance deals with administrative appointments and their functions; the control of noxious or offensive gases; atmospheric pollution by smoke, dust control, motor vehicle emissions; and general provisions.
Pollution Control and Waste Management Policy, 2003	The bill provides a framework for a multitude of administrations on pollution control and waste management in the country. Each authority identified by the bill shall play its respective role.
Basel and Rotterdam Convention, Framework Convention on Climate Change	Agreed to ensure environmentally sound management of hazardous waste and other wastes through the reduction of their movements, to reduce their impacts on human health and the environment.
Stockholm Convention on Persistent Organic Pollutants	Emphasizes the restriction and elimination of persistent organic pollutants especially the disposal of industrial and medical chemicals. It also provides information for future establishments to re-use, reduce and recycle waste with environmentally friendly technologies e.g., autoclaving. It was adopted in 2001 and entered into force on May 17, 2004.

MEFT Policy on HIV & AIDS	MEFT has recently developed a policy on HIV and AIDS. In addition, it has also initiated a program aimed at mainstreaming HIV and gender issues into environmental impact assessments.
National Heritage Act No. 27 of 2004	The Act is aimed at protecting, conserving, and registering places and objects of heritage significance.
Local Authorities Act No. 23 of 1992	The Local Authorities Act prescribes how a town or municipality should be managed by the Town or Municipal Council.
Roads Ordinance 17 of 1972 and its amendments	<ul style="list-style-type: none"> <li>• Section 36.1 regulates rails, tracks, bridges, wires, cables, subways, or culverts across or under proclaimed roads</li> <li>• Section 37.1 deals with Infringements and obstructions on and interference with proclaimed roads.</li> </ul>

## **6. MANAGEMENT OF IDENTIFIED IMPACTS**

This section outlines the proposed mitigation measures to avoid, prevent and mitigate and/or enhance the identified potential impacts associated with the operation and maintenance of the Swakopmund sewage treatment plant. It also outlines the responsibilities of each party involved in the project implementation during every phase. The project activities are classified according to the different operational processes and stages (operational, maintenance phase).

### 6.1.1 Proposed mitigation measures

**Table 3: Proposed mitigation measures during the operation and maintenance phase**

ISSUE	OBJECTIVE	RECOMMENDED MITIGATION MEASURES	RESPONSIBILITY
<b>1. Effluent Management</b>			
1.1 Potential leakage or seepage of untreated wastewater from the STP or sewer lines.	To maintain a closed system to prevent leakage or spillage	<ul style="list-style-type: none"> <li>• Ensure systematic control over the technical maintenance of equipment and technological pipelines of the treatment plant. If necessary, appropriate corrective measures should be taken.</li> <li>• Insulating layer (clayey compacted soil) will be arranged within the territory of the treatment plant.</li> </ul>	Plant Manager
1.2 Exposure of people to untreated or semi-treated wastewater may could put people at risk of number of waterborne diseases i.e., <i>gastro-enteritis, diarrhoea, skin discoloration etc.</i>	Prevent pollution of environment from overflows	<ul style="list-style-type: none"> <li>• Maintenance of the STP embankment to control and prevent overflows</li> <li>• A standby power source (e.g., generator) should be available to power the pumps during power failures</li> <li>• The raw effluent should be screened of floating debris and sludge regularly</li> <li>• It is also expected that the proposed agricultural activities will use up most of the</li> <li>• Maintain existing signage</li> </ul>	Plant Manager
1.3 No intractable or toxic waste shall be allowed to find its way into the STP system	Treated wastewater to be used for irrigation must comply with MAWLR standards	<ul style="list-style-type: none"> <li>• Treatment of wastewater must take place strictly according to the engineers' prescriptions to meet wastewater quality standards as set by MAWLR</li> <li>• Purified effluent must be monitored on a regular basis to verify water quality</li> </ul>	Plant Manager
<b>2. Public Health and Safety Risk</b>			
2.1 Odour/Smell: Release of unpleasant odours associated with raw sewage and sludge, caused by methane and hydrogen sulphide	Minimize generation of unpleasant odours Avoid or reduce public health risks associated with the wastewater treatment plant	<ul style="list-style-type: none"> <li>• Purified effluent must be kept clean of grits, debris to avoid scum formation</li> <li>• The final effluent should be analysed twice per year for quality of which results are to be submitted to MAWLR; DWA</li> </ul>	Plant Manager



<p>2.2 Risk of drowning (accidental or suicidal)</p> <p>2.3 The STP can provide breeding sites for mosquitoes, flies or rodents if not properly maintained.</p>	<p>Ensure public safety</p>	<ul style="list-style-type: none"> <li>• The fence around the plant must be kept in good shape at all times.</li> <li>• Weatherproof warning notices indicating that the site is out of bounds and human consumption</li> <li>• Ensure gates are locked every time</li> <li>• No unauthorized persons must be allowed</li> <li>• Security services must be ensured (24hrs)</li> <li>• The area should be disinfected in case of suspected diseases outbreaks or rodents/pest infestation</li> <li>• The plant should be kept clean of Vegetation (reeds, trees)</li> </ul>	
<p>2.4 Occupational health hazard associated with the operation of the STP</p>	<p>Reduce occupational health risks</p>	<ul style="list-style-type: none"> <li>• All chemicals should be handling according to the Material Safety Data Sheet (MSDS)</li> <li>• All employees responsible or involved in the chemical applications must be provided with protective clothing.</li> <li>• Workers must be trained in proper, safe procedures in relation to activities involving sewage or sludge so that they do not unwittingly engage in hazardous practices.</li> </ul>	

<b>3. Soil contamination</b>			
3.1 Leakage or spillage may result in pollution of surrounding soil.	<ul style="list-style-type: none"> <li>• Ensure soil conservation</li> </ul>	<ul style="list-style-type: none"> <li>• Prevent or manage any leakage, seepage or overflows</li> <li>• Only effluent of the required standard may be discharged in the environment</li> </ul>	Plant Manager
3.2 Possible soil erosion Wastewater escape from the STP may carry soil with and form erosion gullies		<ul style="list-style-type: none"> <li>• Prevent soil erosion by installing erosion work in gullies formed by flowing wastewater</li> <li>• It must be ensured that storm water around the site does not reach excessive speeds.</li> </ul>	Plant Manager
3.3 Other soil contamination can result form <ul style="list-style-type: none"> <li>• Improper storage-usage of fuel and lubricants.</li> <li>• Improper management of municipal and other solid wastes (contaminated wipes used for equipment cleaning, dirty work gloves).</li> <li>• -Emergency situations (spillage of wastewater in case of damage of pipelines or other infrastructures).</li> </ul>		<ul style="list-style-type: none"> <li>• Control of the fuel/oil storage and usage rules</li> <li>• Waste management plan provides the systematic supervision of fulfilling the measures</li> <li>• In case of fuel/oil spill, cleaning of the territory and withdrawal of the contaminated soil and ground for further remediation</li> <li>• Training of the personnel on environmental and safety issues during recruitment and then once a year</li> <li>• In process of repair works, implementation of the mitigation measures considered for the construction phase.</li> </ul>	Plant Manager

<b>4. Waste Management</b>				
4.1	Improper disposal may cause pollution	Waste may cause	<p>Safely and proper solid waste management</p> <ul style="list-style-type: none"> <li>• Coarse material removed from the hand screen and grit channels must be disposed of at a municipal landfill site.</li> <li>• The small volume of general solid waste expected to be generated by the staff onsite (e.g., food packaging) must be kept in a closable refuse bin until such time as it is taken to the landfill site.</li> <li>• Littering (both on and around the site) must be strongly discouraged.</li> <li>• Special attention should be paid to the issues related to the management of the waste accumulated on the grille of the shield system, as well as to the removed sludge.</li> <li>• Sludge is currently milled and used as manure for garden maintenance purpose. Unused dry sludge/manure should be collected and disposed to the Municipal landfill site</li> </ul>	Plant Manager
<b>5. Operational Management and Maintenance</b>				
5.1	Inadequate management if site operator is ill / on leave or resigns	Ensure effective and efficient management of the plant	<ul style="list-style-type: none"> <li>• At least two site operators must be fully trained in the operation of the site, so that one can stand in for the other in case of illness, leave, etc.</li> </ul>	Plant Manager
5.2	Lack of skills on the part of the plant operator		<ul style="list-style-type: none"> <li>• The existing system requires only a moderate level of skill and technical expertise, which lowers the risk of malfunction due to lack of highly trained staff.</li> <li>• Plant operators must be appropriately skilled and experienced for the task at hand</li> <li>• Site operator/s must receive continuous training in all aspects of daily management of the plant (technical or administrative)</li> <li>• Technical support must be available to the sewage plant operator</li> </ul>	Plant Manager
5.3	Lack of proper and timely maintenance may compromise the functionality of the plant		<ul style="list-style-type: none"> <li>• The sewage plant must be maintained regularly by replacing key components</li> <li>• A maintenance plan must be in place to ensure that planning, such as budget allocation or procurement of</li> </ul>	Plant Manager

		service providers, can be put into motion sufficiently ahead of time.	
5.4 Document control and access to information	Readily available of records and information about the plant	<ul style="list-style-type: none"> <li>Plant manager must ensure that all reports are available onsite and easily accessible</li> </ul>	Plant Manager
5.5 Running the plant over its design lifetime could compromise functionality	The plant must not remain operational for longer than its design lifetime, unless relevant key components are replaced or upgraded, as approved by engineer.	<ul style="list-style-type: none"> <li>The engineer must advise on the operational or upgrading of the plant</li> </ul>	Manager Water & Sewage Division
<b>6. Legislative requirement</b>			
6.1 Lack of compliance with relevant legislations may cause transgression or conflicts with the law.	Operating within the requirements of the law	<p><b>The following compliance must be ensured</b></p> <ul style="list-style-type: none"> <li>Implement the conditions of the Wastewater Discharge Permit</li> <li>Ensure renewal once the permit has expired.</li> </ul>	Manager Water & Sewage Division
6.2 lack of enforcement would me the potential impact associated with the plant could still exist		<ul style="list-style-type: none"> <li>Provide a commitment plan for improvement and corrective actions to remedy the existing and future challenges that could lead to serious environmental and public health impacts</li> <li>Compile annual Environmental Performance Report which should be submitted to MEFT</li> <li>This EMP must be updated every three years, concurrent with the renewal of the ECC.</li> </ul>	Manager Water & Sewage Division

## **7. DECOMMISSIONING AND REHABILITATION**

### **7.1 Decommissioning of the old non-operational STP**

The Swakopmund Municipality has been requested to decommission the old STP located in Tamariskia. Although some of the STP infrastructure provide support to the sewage system, there is a need for a proper decommissioning of certain plant infrastructure as required by the MAWLR. This should be done by compiling a decommissioning and rehabilitation plan (DRP). The DRP should entail the following components:

- The nature of the envisaged decommissioning and rehabilitation process
- Types and nature of components to be decommissioned i.e., buildings, piping, etc.
- Types and quantity of waste to be produced.
- Proposed waste management strategy.
- Responsibilities of each party to be involved in the decommissioning process.
- Envisaged environmental rehabilitation procedures.

### **7.2 Decommissioning of the operational STP**

The decommissioning of the new STP is not foreseen in the immediate future. However, should the decommissioning of the STP or its components become pertinent at any stage, an EIA study should be undertaken, and a Decommissioning and Rehabilitation Plan (DRP) should be prepared before the commencement of any decommissioning works.

### 7.3 Rehabilitation

Rehabilitation is defined as the process of taking all the necessary actions to repair the damaged environment in-order to make the land suitable for other uses or to simply beautify the affected area. In this case, the rehabilitation will entail clean-up, treatment, or restoration of contaminated areas (e.g., contaminated soils by oil or fuel spills, concrete spills, etc.) and refilling of excavated pits with the overburden. Upon commencing of construction works, the ECO, RE and PM shall conduct a site inspection and instruct the responsible contractor to do the following:

- Removal of all waste produced to be disposed of appropriately.
- Rehabilitate the disturbed areas and refill of excavations.
- Clean up all spills and leave the area safe and tidy.

During the operation phase, the Plant Manager shall conduct a site inspection after every maintenance work and ensure rehabilitation of disturbed areas. Rehabilitation measures during the operation phase must include:

- Clean up all soil polluted during maintenance work and disposal to the municipal landfill site
- Remove all windblown litter once maintenance has ceased.
- Remove all potential hazards (i.e., the sewerage pit) and ensure the area is left safely and neatly.
- Any temporary work camps setup should be dismantled, and the area rehabilitated as far as practicable, to their original state.
- Driving vehicles on newly rehabilitated areas should be prohibited.
- Temporary access roads not required for long term maintenance access should be closed and rehabilitated to a condition compatible with the surrounding land use.
- Signage should be erected where access routes are to be retained but are not public access.

**Table 4: Rehabilitation management actions**

PARAMETER	REHABILITATION MANAGEMENT ACTION	RESPONSIBILITY
<b>Overall</b>	Progressive rehabilitation shall be undertaken to minimise the amount of disturbance time. The disturbed area will be re-profiled to original or stable contours, re-establishing surface drainage lines and other land features.	Contractor
<b>Infrastructure</b>	All temporary infrastructure, signage and other installations other than those required for environmental, or safety reasons shall be removed once backfilling and tie-ins are completed.	Contractor
<b>Waste</b>	All waste materials (e.g., bags, pegs, skids, pillows) shall be removed from the construction areas once backfilling and tie-ins are completed.	Contractor
<b>Soils</b>	Compaction relief shall be undertaken by scarifying or ripping as required along the contours, followed by raking and levelling.	Contractor
<b>Erosion</b>	The beds of watercourses to be restored to the original gradient and the bank to the natural contours post disturbance.	Contractor
<b>Erosion</b>	Backfill crown to be graded and shaped as closely as practicable to pre-existing contours and flow patterns of riverbed and riparian zone.	Contractor
<b>Erosion</b>	Banks to be reinstated in a manner that minimises erosion potential and does not alter natural streamflow - this may include the installation of rock gabions, rip rap, cement/s and hessian bags.	Contractor

## 8. ENVIRONMENTAL MONITORING

To ensure continual improvement in environmental performance and reduce adversity of potential negative impacts, it is advisable to keep monitoring the identified environmental receptors. The ECO must ensure that compliance monitoring is conducted at various intervals/frequencies throughout the operational life span of the STP as indicated in the table below.

**Table 5: Monitoring plan during the operation phase**

The issue to be monitored	Monitoring Objectives	What needs to be monitored	Frequency and means of Monitoring
<b>Production and distribution losses</b>	Prevent overflow of raw sewage.	-Overflows, leakages, pipe bursts, etc.	Daily/Weekly inspections and meter reading
<b>Occupational health risks</b>	Ensure health and safe working condition	Chemical exposure and presence of health hazards	Daily physical observations.
<b>Water quality</b>	Supply of safe and quality drinking water in line with the Water Quality Guidelines of the Water Act.	-Physical quality of raw, settled, and treated water ( <i>Chlorine level, N.T.U, pH, Conductivity, and Temperature</i> ). -Microbiological/ bacteriological quality ( <i>Free Chlorine, Heterotrophic Plate count, Total Chlorine, Coliforms &amp; Faecal Coliforms</i> ).	-Daily sampling and testing.  -Once a month sampling and laboratory testing
<b>Waste management</b>	Prevent environmental pollution and contamination.	Litter chemical storage & handling, cleanliness, Chemical composition of sludge.	-Daily inspections and physical observation. -Quarterly sludge testing for chemical composition checks.
<b>Implementation of the EMP</b>	Ensure compliance to this EMP and adherence to the regulative measures.	Implementation of specified measures and compliance to the EMP and other relevant legal requirements.	Biannual environmental report to MEFT.



## **9. EMERGENCY RESPONSE PLAN**

This section provides an emergency response plan which entails the types and effects of emergencies associated with the operation and maintenance of the STP as well as procedures and actions to be taken in case of emergency.

### **9.1 Types and effects of emergencies**

Emergencies can occur at any time or place during the operation and maintenance of the STP. These emergencies may affect the operations and disrupt the sewage treatment process. Some of the emergencies identified are as follows:

- Substance spillage i.e., oil, concrete, chemicals, etc.
- Construction accidents
- Fire outbreak
- Power failures
- Equipment failure

### **9.2 Sources of emergencies**

The above-mentioned emergencies may occur as a result of accidents, faulty maintenance, and/or negligent operation as described below:

#### **9.2.1 Accidents**

Accidents may occur during operation or maintenance works and can cause an unavoidable interruption to the STP works, personal injury, and/or property damage.

#### **9.2.2 Faulty maintenance**

Faulty maintenance may cause unexpected breakdowns on the STP which may have a direct bearing on its operation and the life span of the infrastructure. Good maintenance will result in the infrastructure performing throughout the design period; however, poor maintenance or faulty maintenance will shorten the expected life of the infrastructure. Although some breakdowns can be repaired during a regularly scheduled repair program and probably do not represent an emergency, the regular occurrence of such breakdowns will affect the continued satisfactory operation of the Swakopmund municipal STP.

### **9.2.3 Negligent operation**

Certain operational procedures need to be followed to ensure the satisfactory performance of the Swakopmund municipal STP. Not following procedures correctly, results in the established procedures constituting negligent operation. The negligent operation may also result from a lack of knowledge to operate the components. Although the negligent operation may not be as readily noticeable as faulty maintenance, the emergency condition resulting from it could be more severe because it could affect operations before being discovered.

## **9.3 Emergencies response procedures**

### **9.3.1 Response priorities**

Depending on the nature of the emergency, the following response plan must be implemented as an integral part of the STP routine operations to lessen the severity of the emergency. All response actions should be geared toward the following priorities in the order below.

- Safety of People (always First)
- Protection of the Environment
- Protection of Assets

### 9.3.2 Emergency response procedures

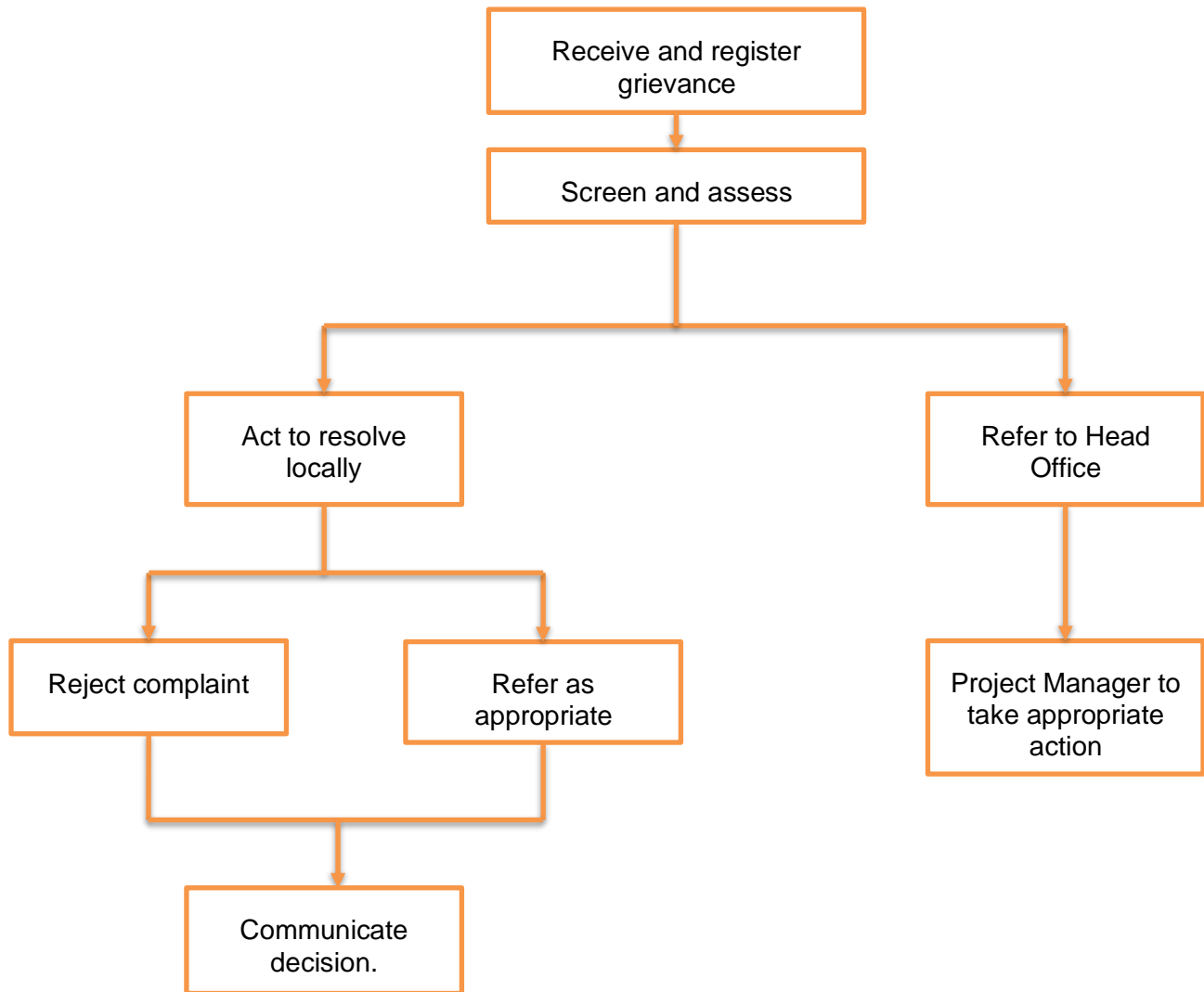
**Table 6: Emergency response procedures during operation and maintenance**

NO.	Type of Emergency	Response actions	Responsible
1.	<b>Substance spill</b> i.e., concrete, oil, chemicals, etc.	<ul style="list-style-type: none"> <li>- Cease operations and control the spill at the source first.</li> <li>- Contain the spillage/leakage with appropriate containers i.e., drip trays, sumps, etc., and in an approved manner to the satisfaction of the RE.</li> <li>- Clean the affected area with water or an approved cleaning product.</li> <li>- The contaminated soil should be removed and disposed of at the Keetmanshoop Landfill Site.</li> <li>- Repair vehicle or machinery with leakage.</li> <li>- If it cannot be repaired, such vehicle or machinery should not be used until it is safe to do so.</li> <li>- Report the incident to the RE and record it in the logbook.</li> <li>- A spill kit must be available at the STP. There must be at least one person with appropriate authority who is trained in hazmat response.</li> <li>- Refuelling vehicles should be equipped with specific vehicle spill kits</li> </ul>	<ul style="list-style-type: none"> <li>- Contractor</li> </ul>
2.	<b>Power failure</b>	<ul style="list-style-type: none"> <li>- Ensure there is an emergency power supply capable of maintaining minimum water treatment operations.</li> <li>- The emergency power equipment should be checked at least monthly to ensure that they remain in good operating condition.</li> <li>- Provide a log to document a monthly check of emergency power supply operation.</li> <li>- List name and number of power supplier.</li> <li>- In case of power loss.               <ul style="list-style-type: none"> <li>• investigate if the power failure is local (site) or the entire town.</li> <li>• If the entire town, contact Erongo Red</li> <li>• If locally, inspect the source of power loss, restart the main switch.</li> <li>• If necessary, inform critical customers.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- ECO</li> </ul>

		<ul style="list-style-type: none"> <li>Record source of power shortage in the power supply logbook</li> </ul>	
3.	<b>Fire outbreak</b>	- Follow the holistic Fire Approach as presented in Annexure 3	- ECO
4.	<b>Chemical leakage</b> i.e., chlorine leak	<ul style="list-style-type: none"> <li>In case of Chlorine or CO<sub>2</sub> gas leakage <ul style="list-style-type: none"> <li>Make sure storerooms are built according to legal requirements for the storage of chlorine with appropriate ventilation.</li> <li>Wear a face mask with a B2P3 filter.</li> <li>Evacuate all persons in the affected room.</li> <li>Shut down all the dosage system valves.</li> <li>Check information on the dosage system control panel.</li> <li>Isolate the faulty dosage system and replace the gas cylinder with the leak.</li> <li>Record in the incident report form.</li> </ul> </li> </ul>	- ECO
5.	<b>Accident</b> i.e., injury to a person	<ul style="list-style-type: none"> <li>The priority after a construction accident should be to seek medical attention for an injured person.</li> <li>Assess the injured person's condition.</li> <li>Notify the First Aid Person</li> <li>Assist the First Aid Personnel</li> <li>Record in the incident report form.</li> <li>Report incident to the Plant Manager.</li> </ul>	- ECO
6.	<b>Equipment failure</b> i.e., pumps failure, loss of pressure, etc.	<ul style="list-style-type: none"> <li>The STP is designed with limited automation, thus there should always be an Operator on duty.</li> <li>In case of faulty pumps: <ul style="list-style-type: none"> <li>First analyses the source of emergency by checking information displayed on the SCADA system.</li> <li>Check the flow rate of each pump to identify the fault.</li> <li>Ensure that the standby pump is switched on.</li> </ul> </li> </ul>	- ECO

## 9.4 Grievance response procedure

All grievances should be submitted through the completion of the grievance registration form as presented in Annexure 5 and submitted to the ECO.



**Figure 15: Grievance response procedure**

Upon receipt of the registered grievance forms, the ECO shall screen and assess to either act to solve the grievance locally or refer it to head office. If the grievance is referred to the head office, the line manager should make the appropriate decision. If the grievance is to be solved locally, it should either be rejected or handled appropriately of which the decision should be communicated to the aggrieved person.

## **10. CONCLUSION**

The preparation of this EMP is based on the current information provided, any changes or deviation with regards to the proposed pipeline route and /or the proposed ground level reservoir site shall trigger changes to this EMP. If all mitigation measures are implemented as outlined in the EMP, it is anticipated that the consequences and/or probability of the predicted negative impacts will be managed/reduced.

Although the implementation of this EMP requires a multitude of administration, NamWater should play a pivotal role in the implementation as outlined in this report. NamWater should also ensure proper coordination with all parties involved in the project activities during all project phases. NamWater shall also ensure to avail necessary resources (i.e., human, financial, etc.,) and training to enable the full implementation of this EMP. The implementation of this EMP can be combined with the Municipal SHE Policy. Monitoring of certain environmental parameters must be conducted regularly as outlined in this EMP. Environmental biannual reports must be kept available for possible submissions to the MEFT and ensure the renewal of the project's ECC.

Upon approval by the MEFT, this EMP should be used as an on-site reference document for the STP, thus a copy of this EMP shall be kept onsite always. It is a legally binding document, thus, any deviation or transgression from this EMP is punishable by law as per the Environmental Management Act 07 of 2007. Parties responsible for transgressing may be held responsible for any rehabilitation that may need to be undertaken.

## **11. ANNEXURE**

**11.1 Annexure 1: Environmental compliance monitoring checklist**

**11.2 Annexure 2: Fire response procedures**

**11.3 Annexure 3: Incident / Accident report form**

**11.4 Annexure 4: Grievances register form**

**11.5 Annexure 5: Municipal Safety, Health, and Environmental Policy**

## Annexure 1: Environmental Compliance Monitoring Checklist

The following checklist should be used during the compliance monitoring.

### PART 1: ADMINISTRATIVE INFORMATION

Project Title:		Date:
Project location:	Reporting period	Individual Preparing Checklist:
Region:		Department:
Plant Manager		Phone No.:

### PART 2: ENVIRONMENTAL ASPECTS

ENVIRONMENTAL ASPECT/IMPACT	ENVIRONMENTAL COMPLIANCE (AS PER EMP REQUIREMENT?)		Remarks (specify the location, a good practice observed, causes of non-conformity, and proposed action)
	YES	NO	

### PART 3: RECOMMENDATION

FOR EACH ITEM CHECKED IN PART 2, DESCRIBE THE CORRESPONDING CONTROLS TO BE IMPLEMENTED TO REDUCE POTENTIAL ENVIRONMENTAL IMPACTS (e.g., spill prevention, erosion controls, air emission controls including dust suppression, selection of materials, etc.). Provide details of the activities and impacts for each box and the proposed mitigations. Include attachments where appropriate. Use the same number system for your input.

ECO: Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Manager Water & Sewage Division

Signature: \_\_\_\_\_ Date: \_\_\_\_\_



## Annexure 3: Fire Response Procedures

### Things you must-do if you discover a fire!!!



#### STEP 1

- Do not panic
- Press the nearest alarm button
- Rescue any person in immediate danger, if safe to do so



#### STEP 2

- If possible, commence fighting the fire
- Call fire brigade



#### STEP 3

- Leave the building by the nearest emergency exit
- Ensure all other personnel are warned along the way
- Do not stop to collect personal belongings
- Do not use lifts, use stair ways



#### STEP 4

- Report to the assembly point
- Do not return to the building until authorized to do so

## Annexure 4: Incident / Accident Report Form

This form is to be completed in case of an environmental incident and shall be forwarded to the Municipality Environment Section.

**Note:** This form is not intended to replace other Municipal internal reporting procedures.

Section 1. GENERAL DETAILS	
<b>Date:</b> <b>Time:</b> am / pm	<b>Reported By:</b> <b>Name:</b> <b>Position:</b> <b>Company:</b> <b>Phone:</b>

Section 2. RESPONSIBLE PARTIES	
<b>Name:</b>	<b>Phone:</b>
<b>Company Name:</b>	<b>Email:</b>
<b>Witness Details (if applicable)</b>	
<b>Name:</b>	<b>Phone:</b>
<b>Witness Statement Taken?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	

Section 3. INCIDENT DETAILS	
<b>Type of Incident:</b>	<input type="checkbox"/> Spill <input type="checkbox"/> Waste/rubbish <input type="checkbox"/> Wildlife disturbance <input type="checkbox"/> Vegetation disturbance/damage <input type="checkbox"/> Acid Sulphate Soils disturbance <input type="checkbox"/> Cultural Heritage disturbance/damage <input type="checkbox"/> Chemicals/herbicide Use <input type="checkbox"/> Water pollution/contamination <input type="checkbox"/> Nuisance (noise, air quality) <input type="checkbox"/> Other:
<b>Incident Description</b>	
<b>Immediate Response Actions Taken:</b>	

**Section 4. CONTRIBUTING FACTORS AND PREVENTATIVE ACTIONS**

(To be completed by Manager/Supervisor)

<b>Cause, Circumstances, and Contributing Factors:</b>			
<b>Measures that were in place to prevent this type of incident:</b>			
<b>Measures to be implemented to prevent/minimize this type of incident from occurring again</b>			
<b>Comments:</b>			
<b>Name:</b>	<b>Position:</b>		
<b>Company:</b>	<b>Signature:</b>	<b>Date:</b>	

**Section 5. NAMWATER ENVIRONMENT OFFICE ONLY**

<b>Assessed Level of Potential or Actual Harm:</b>			
<b>Is an Investigation Required?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Investigation Team:</b>		
<b>FOLLOW UP ACTION:</b>			
<b>COMMENTS</b>			
<b>Name:</b>	<b>Position:</b>		
<b>Signature:</b>	<b>Date:</b>		

**Annexure 5: Grievances Register Form.**

<b>Grievance Registration</b>	
<b>Case No:</b>	<b>Date:</b>
<b>Name of the complainant:</b>	<b>Cell no:</b>
	<b>Email address:</b>
<b>Details of grievance: (Date, location, persons involved, frequency of occurrence, effects of the ensuing situation, etc.)</b>	
<b>Name of person recording grievance:</b>	<b>Cell number:</b>
<b>Proposed date of response:</b>	
<b>Signature of recording person:</b>	<b>Signature of the complainant:</b>
<b>Date of redress:</b>	
<b>Decision and action:</b>	