City of Windhoek

The Gateway to Endless Opportunities

ENVIRONMENTAL MANAGEMENT PLAN (EMP)

FOR THE

CITY OF WINDHOEK CEMETERY DEVELOPMENT ON PROTION 'Y'

Windhoek Municipal Council

February 2025

PROJECT DETAILS

Title	ENVIRONMENTAL MANAGEMENT PLAN (EMP) FOR THE CITY OF WINDHOEK CEMETERY DEVELOPMENT ON PORTION 'Y' IN ROCKY CREST, WINDHOEK, NAMIBIA	
Report Status	Draft	
Reference	01/2025	
Proponent	The Municipality of Windhoek	
Environmental Assessment Practitioner	Grazy Tshipo	
Report date	April 2025	
	Name	**Signature Date**
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Version	Date	Purpose
1	30/09/2024	Application for Environment Clearance Renewal
2	21/8/2025	Application Environment Clearance Renewal

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1. INTRODUCTION

1.2. Background

The Windhoek Municipal Council (**Council**) intends to renew the Environment Clearance Certificate (**ECC**) for Cemetery Development on Portion Y in Rocky Crest, Windhoek Namibia, that expired on 28 June 2023.

Windhoek, the capital of Namibia, has experienced rapid population growth over the past two decades. The city's population increased from approximately 233,529 in 2001 to an estimated 511,369 in 2025, reflecting an average annual growth rate of 3.5%. This growth is primarily driven by immigration and rural-to-urban migration, contributing to increased demand for housing, public services, and burial facilities.

The Windhoek West Constituency, which currently has a population of 92,401, is expected to undergo further residential development, potentially accommodating over 14,000 additional residents in the near future. In this context, the proposed cemetery development represents a critical land use, serving both the existing population and future communities in southern Windhoek.

Existing cemeteries are nearing or have reached capacity. Gammams Cemetery has exceeded its limit, while Oponganda, Khomasdal, and Katutura Cemeteries are already full. The development of a new cemetery is therefore essential to meet the city's long-term burial needs and support sustainable urban planning.

Having studied and analysed the municipal cemetery situation, the Municipal Council resolved to approve the subdivision of Portion B of the Farm Windhoek Town and Townlands No. 3 into Portions ‘X’ and ‘Y’. Where Portion ‘Y’, ± 21 hectares was earmarked for cemetery development.

In accordance with Namibia’s Environmental Assessment Policy of 1995, the Environmental Management Act No. 7 of 2007 (specifically Section 27(2)(a)), and the associated regulations outlined in Government Notice No. 29 of 2012 (Listed Activities) and Government Notice No. 30 of 2012 (Environmental Impact Assessment Regulations), the proposed Rocky Crest Cemetery development involves several listed activities that require an Environmental Clearance Certificate (ECC) prior to commencement.

The development will include the construction of infrastructure such as roads, electricity supply systems, water reticulation, sewerage networks, and stormwater drainage—all of which are classified as listed activities under the following categories:

Table 1. Activities with their corresponding Sections as per the Listed Activities that may not be undertaken without an ECC Government Notice No. 29 of 2012

Activity	Description of Activity	Proposed Development
Activity 1: Energy Generation, Transmission and Storage	Construction of facilities for: (a) Generation of electricity (b) Transmission and supply of electricity	Construction of electrical supply lines
Activity 8: Water Resource Developments	8.6 Construction of domestic wastewater treatment plants and associated pipeline systems	Construction of - Of onsite mini - Waste water Treatment System
Activity 10: Infrastructure	10.1 Construction of: (a) Water supply pipelines (b) Public roads	Construction of: - Roads and stormwater - Water supply lines

1.2 Purpose of This Report

This report serves to update the Environmental Management Plan (EMP) in support of the renewal of the ECC issued on 28 June 2023. The updated EMP now includes detailed designs for the Rocky Crest Cemetery, which were not available during the initial EIA and the first ECC renewal.

Thus, the updated EMP include the updated project description (section 4) with the aligned mitigation measures. Also the of the City of Windhoek is corrected to Windhoek Municipal Council. The population data is also updated to match the current.

1.3 Previous Environmental Clearance Certificates

The initial application (**ECC**) for the proposed Rocky Crest Cemetery was submitted by Consulting Services Africa in April 2014 to the Ministry of Environment, Forestry and Tourism (**MEFT**). The ECC was granted on 17 June 2014 and remained valid until 18 June 2017.

A renewal application was subsequently submitted by the Windhoek Municipal Council, resulting in the issuance of a second ECC on 28 June 2020, which expired on 28 June 2023.
The purpose of this report is to support a new application for the renewal of the ECC, in accordance with the requirements of the MEFT.

Key updates in this EMP include:

- A revised project description (Section 4) aligned with current designs and infrastructure plans
- Updated mitigation measures based on the refined scope of works

Correction of the proponent's name from "City of Windhoek" to Windhoek Municipal Council

Updated population data to reflect current demographic trends

1.4. Objectives of Environment Management Plans

The EMP will form the basic tool for reducing the magnitude of impacts and suggesting practical measures to attain this. It is also used to measure compliance by the Applicant. It is this tool that gives guidance during monitoring, auditing and taking corrective actions during its implementation, thereby ensuring continuous monitoring of the environment. An EMP is developed after an environmental assessment, depending on the level of such assessment. It can also be drawn after the authorisation by the Competent Authority, to incorporate the conditions of the authorisation to reach environmental and social sustainability during project implementation and operation.

The objectives of the EMP are to:

- Promote sustainable development by encouraging conservation and mitigation negative significant impacts to the natural and social environments.
- Inform the Contractor, Consulting Engineer (**CE**), Windhoek Municipal Council's Parks Division (**Council's PD**), Windhoek Municipal Council's Architecture Division (**Council's AD**), Windhoek Municipal Council's Environmental Management Section (**Council's EMS**) and the Applicant about their roles and responsibilities regarding environmental management in the project.
- Identify specific actions to be taken by the Contractor to prevent or minimise negative significant impacts to the natural and social environments.
- Identify laws, regulations and standards that are applicable to the environmental management of this project.
- Describe monitoring and verification procedures to be employed by the CE and Council PD to ensure that the Contractor complies with all requirements of the EMP.

1.5. Summary of the types of Construction work to occur

The proposed project will involve the transformation of approximately 21 ha of vacant land into a public cemetery for the primary use of the residents of Windhoek Municipality.

It is proposed that the Cemetery development will conclude the following:

- Graves for both adults and young,
- Office/ Administrative block,
- Fencing and gate,
- Parking Area,
- Ablution facilities,

- Security office and
- Access roads

The Cemetery will also be able to provided services for different religions such as Christians, Traditional, Muslims and other. It is estimated that the Cemetery will operated for more than 10 years.

2. LOCATION

The proposed cemetery development is located south-west of Rocky Crest suburb, on an undeveloped land. The project site is at least 6km west of Windhoek Central Business District (CBD), and 1km west of the Western Bypass (See Figure 2). The site is also bordered by a proposed access road and proposed Rockey Crest Ext 9 township. This proposed road is the Bernt Carlsson Road that will extended to this site.

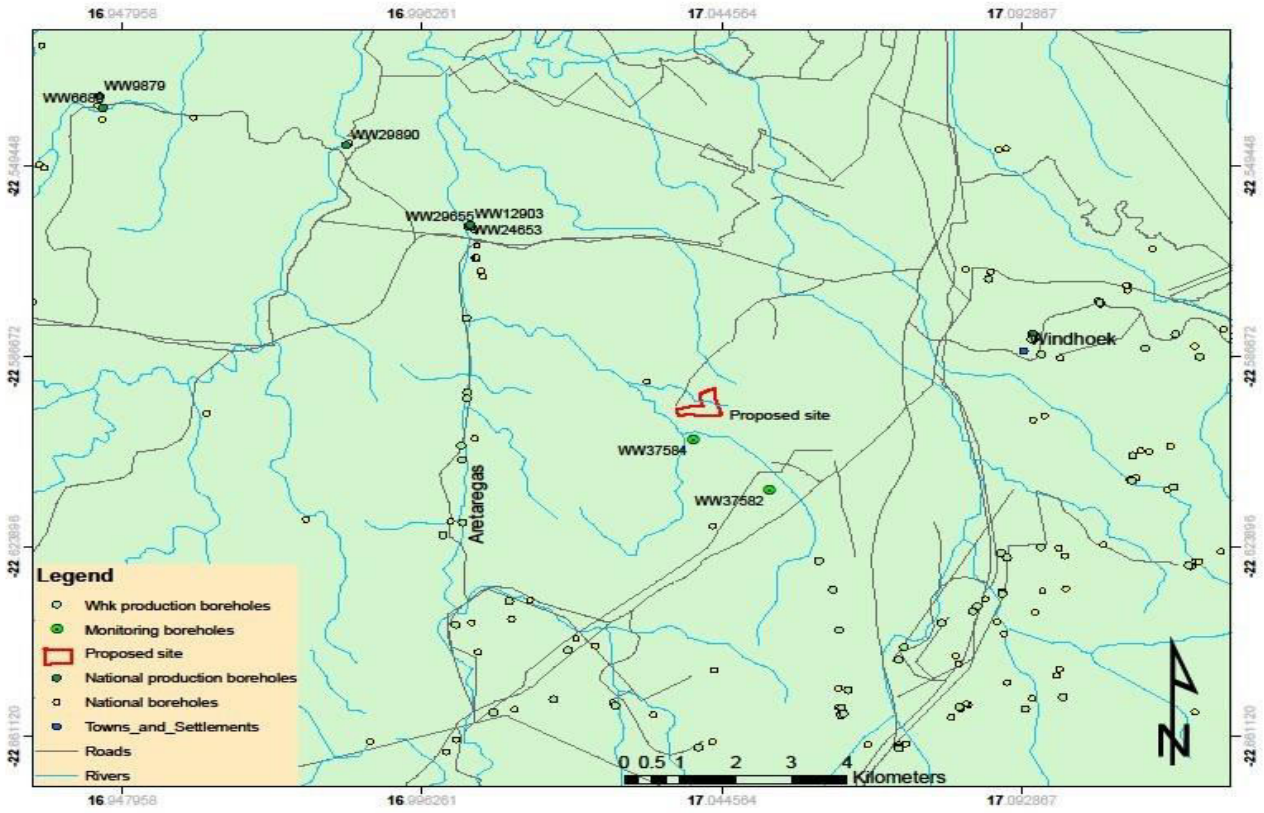

Figure 1: Location of the proposed cemetery (Source: Matengu, 2013)

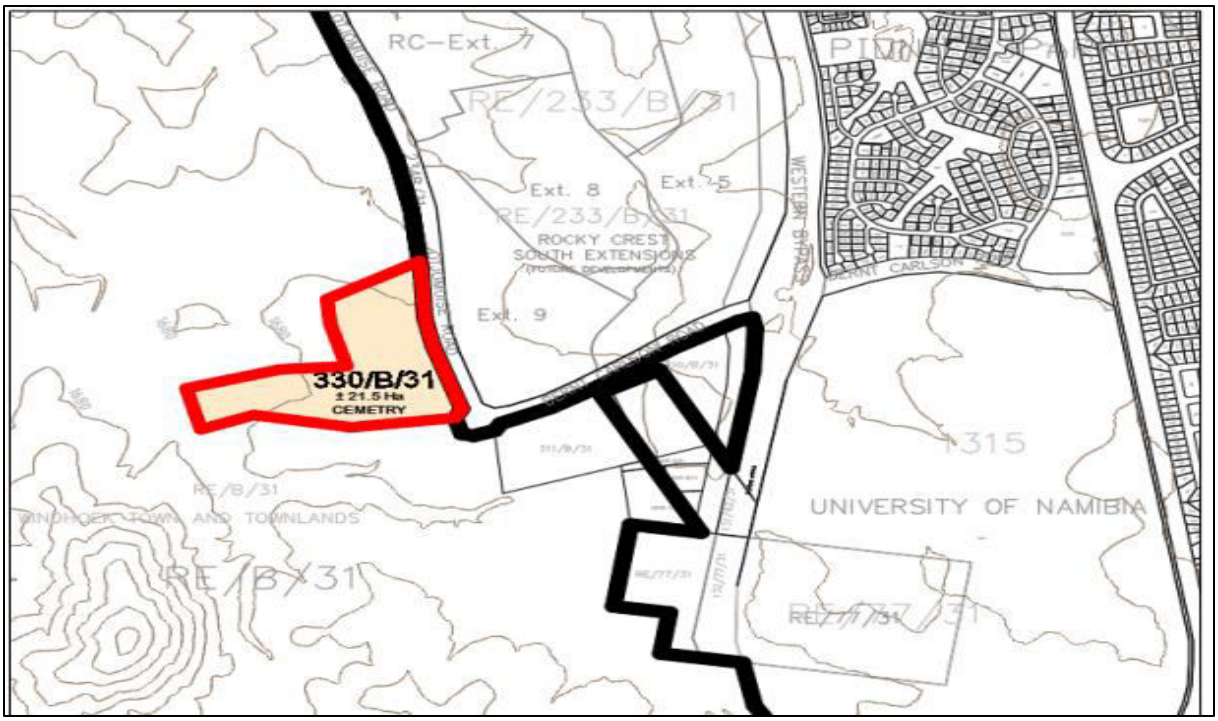

Figure 2: Site Location of the Rockey Crest Cemetery (Source:Lithon Consultants, 2024)

3. DESCRIPTION OF PROPOSED PROJECT

3.1 Layout of the Cemetery

The proposed project's physical foot-print will be ±21ha.The proposed layout include:

- ±14 600 graves for both adults and young,
- Office/ Administrative block,
- Fencing and gate,
- Parking Area,
- Ablution facilities,
- Security office and
- Access roads

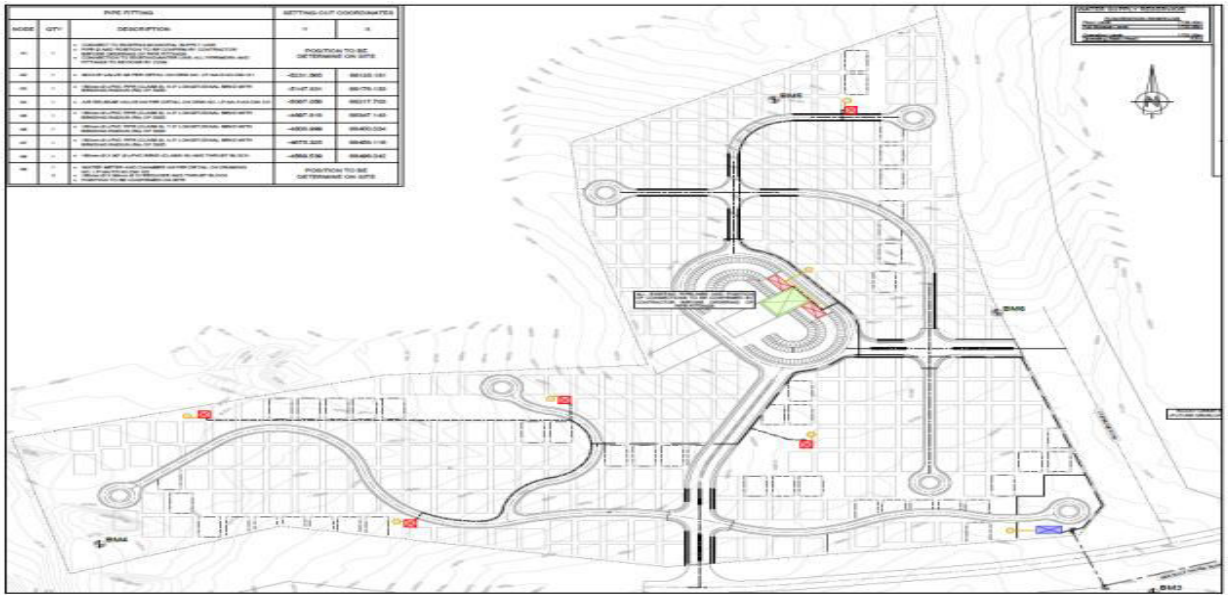

Figure 3. Detailed Design Layout of Rockey Crest Cemetery (Lithon, 2024)

The proposed cemetery will have 4 rows of 10 graves within each plot, for easier record keeping and grave searches. The size of each grave will be, for adults: Length 2m, Width 0.8m, Depth 2.44m (See Figure 4) and for children: Length 1.5m, Width 0.6m, Depth 1.22m.

Please note that 6-foot graves will be no longer used, hence the new proposed cemetery will only use 8 foot graves for adults. This will allow for the second interment (burial) of a deceased related family member within one grave, thus prolonging the lifespan of the cemetery (See Figure 5).

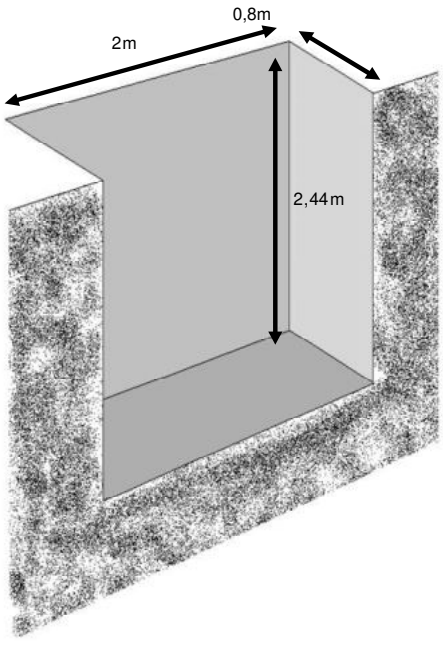

Figure 4: Eight foot vault/graven (Source: CoW, 2013)

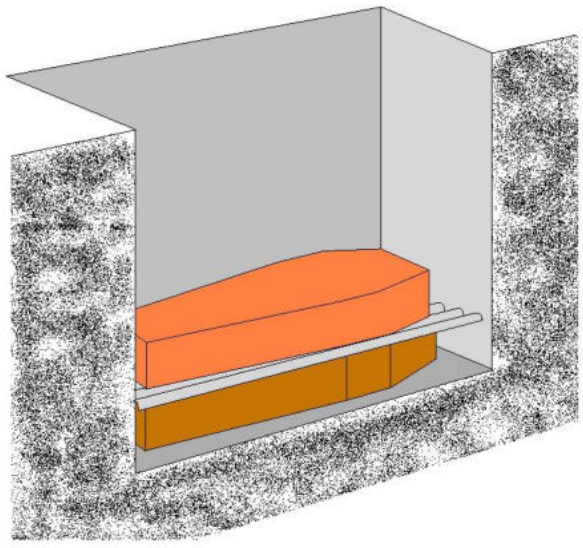

Figure 5: Double burial in the eight foot vault/grave (Source: CoW, 2013)

3.2 Water Reticulation

The water will be supplied from the existing 350mm municipal water line (350mm dia) near the site along the Western Bypass, 800m from site. This will be a temporary solution until the Rocky Crest Extensions are constructed.

3.3 Sewage Network

There is currently no existing sewer infrastructure near the proposed cemetery site. As the adjacent Rocky Crest Township is yet to be developed, Phase 1 will include the installation of a modular Bio-Tech Waste Water Treatment System (Figure 6). This system will be replicated in subsequent phases as needed.

Phase 1 will consist of a single ablution facility with approximately four toilets, resulting in minimal sewage flow. The internal sewer network will connect all ablution facilities to the treatment plant, in alignment with the planned seven-phase development.

Future phases will be integrated into the municipal sewer network as the Rocky Crest Extensions progress and connections become available. Sewer pump stations will be required to facilitate this integration.

The Bio-Tech system includes UV disinfection at the outlet, enabling the treated effluent to meet standards suitable for irrigation use.

Figure 6: The BioTech Waste Water Treatment System

3.4 Electricity

The internal electricalelectricity design for the Rocky Crest Cemetery will adhere to the City of Windhoek Municipal Council Planning and Design Guidelines to ensure compliance with municipal standards and operational efficiency.

The primary bulk power supply will be sourced from a dedicated 11kV/400V transformer, connected via a dedicated 11kV 11 kV overhead line located approximately 1 km from the proposed site. The estimated total power demand for the development is 50 kVA.

3.6 Roads and Stormwater

The proposed cemetery will be bordered by extensions of Bernt Carlsson Road to the South and Otjomuise Road to the East. Primary access will be provided via the extended Bernt Carlsson Road.

The internal road network, as shown in the layout plan, includes a dual carriageway with a central median, surfaced with interlocking paving. Secondary distribution roads and a perimeter buffer road will be constructed with gravel surfacing.

3.6 Statutory Approvals

The proposed cemetery development will be undertaken in line with existing legislations, plans, policies, guidelines relating to town planning schemes, general construction, cemetery development and management of environmental resources.

3.7 Project Alternatives

Consideration for alternative sites for the proposed development was limited due to the fact that the Council no longer has land of such size suitable for the proposed development. Thus, the proposed site is the only convenient site suitable for the proposed development, Portion 'Y'. Portion 'Y', is the only land available with the suitable topography and far enough from important water resources use for the Windhoek. However, consideration was still given to other alternatives sites even though they were found to be not meeting certain criteria.

Reasons for not choosing these other sites included;

- Priority to water resources conservation and management,
- Displacement of the peri-urban communities/informal settlements,
- Geomorphology and topography of sites,
- Planned future land uses in the surrounding area and
- Pristine nature of sites.

Consideration of Design Alternatives: No alternative design was considered for the proposed cemetery. The design and operational models of existing cemeteries were reviewed and was found to be largely uniform. Based on this review, along with insights from field surveys and stakeholder consultations, it was concluded that alternative designs would not result in significantly different or unforeseen environmental impacts beyond those already identified in this EIA process.

No-Development Alternative: Under the no-development scenario, the cemetery would not be constructed, and the site would remain in its current state. Presently, the area is subject to topsoil stripping, illegal dumping of construction and household waste, off-road vehicle activity, and the spread of invasive alien plant species.

The environmental and socio-economic implications of this alternative include:

- Loss of Urban Burial Space: The growing demand for burial space in Windhoek would remain unmet, necessitating the future identification of alternative, environmentally suitable sites.
- Missed Economic Opportunities: Potential increases in surrounding land values and local economic benefits—such as job creation and demand for goods and services—would not be realized.

12. LEGISLATIVE FRAMEWORK

The environmental impacts associated with the proposed cemetery development are required to be investigated in compliance with the Environmental Impact Assessment (**EIA**) Regulations published in Government Notice No. 30 of 2012 read with Section 27 of the Environmental Management Act, 2007 (Act No. 7 of 2007).

The required environmental studies encompass the undertaking of a Basic Assessment. This study was undertaken in two phases, an Environmental Scoping Study (**ESS**) Phase and the compilation of an Environmental Management Plan (**EMP**). The ESS provided a record of all issues identified, evaluation of the significance of identified potential impacts and their mitigation in order to make recommendations regarding the required EMP.

The proposed project is a listed activity in terms of Section 27 (2) of the Environmental Management Act, 2007 (Act No. 7 of 2007) and Government Notice No. 29 of 2012 (Listed Activities, No. 11.2). The proponent was therefore required to submit a report detailing the scoping phase (Scoping Report) and an EMP. The competent authority will issue a decision subsequent to their review of the EMP.

Table 1 below summarises some of the legislation and policy guidelines that are relevant to the proposed project.

Table 1: Relevant Legislation and Policy Guidelines on National Level

Title of legislation, policy or guideline	Implications for proposed project
The Namibian Constitution of 1990	The Constitution clearly indicates that the state shall actively promote and maintain the welfare of the people by adopting policies aimed at management of ecosystems, essential ecological processes and biological diversity of Namibia for the benefit of all Namibians, both present and future.
Water Resources Management Act No. 24 of 2004	This Act protects all water resources in Namibia, including the Usib River and its tributaries in Windhoek. The Act also laid down conditions to ensure that proper wastewater treatment is provided, including requirement for wastewater discharge permit from the Directorate of Water Affairs.
Environmental Assessment Policy of Namibia (1995)	The Policy seeks to ensure that the environmental consequences of development projects and policies are considered, understood and incorporated into the planning process, and that the term ENVIRONMENT is broadly interpreted to include biophysical, social, economic, cultural, historical and political components.
Environmental Management Act No. 7 of 2007	The Act provides a list of projects requiring an Environmental assessment. It aims to promote the sustainable management of the environment and the use of natural resources and to provide for a process of assessment and control of activities which may have significant effects on the environment

Forest Act No. 12 of 2001 and its amendments	The purpose of this Act guides the use and management of forestry and related resources. The aims of the forest management as per the Act, is to achieve manage of forest "for which forest resources are managed and developed, including the planting of trees where necessary, to conserve soil and water resources, maintain biological diversity and to use forest produce in a way which is compatible with the forest's primary role as the protector and enhancer of the natural environment."
Public Health Act, No. 36 of 1919 and Amendments and Regulations	This Act makes provision for the prevention and control of infectious diseases, venereal diseases and epidemics. It also regulates sanitation, food and public water supplies.
Hazardous Substances Ordinance No. 14 of 1974	The Ordinance applies to the manufacture, sale, use, disposal and dumping of hazardous substances, as well as their import and export. Its primary purpose is to prevent hazardous substances from causing injury, ill-health or the death of human beings. Hydrocarbons handled during the construction phase may be hazardous thus careful handling and management is vital to prevent spills, explosions, ill-health or death.
Pollution Control and Waste Management Bill of 1999	The Bill promotes sustainable development and the establishment of the Pollution Control and Waste Management Unit; to prevent and regulate the discharge of pollutants to the air, water and land; to make provision for the establishment of an appropriate framework for integrated pollution prevention and control; to regulate noise, dust and odour pollution; to establish a system of waste planning and management; and to enable Namibia to comply with its obligations under international law in this regard.
Draft Wetlands Policy of 2004	This policy strives to complement existing policy instruments regarding sustainable development and sound natural resource management in Namibia. Its implementation provides a platform for the conservation and wise use of wetlands, thus promoting inter-generational equity regarding wetland resource utilisation. Furthermore, it facilitates the Nation's efforts to meet its commitments as a signatory to the International Convention on Wetlands (Ramsar) and other Multinational Environmental Agreements (MEA's).
National Waste Management Policy, 2010	This policy is focusing specifically on Waste Management and use of various technologies waste treatment and disposal to minimize health risks. It is also geared to have a unified waste management system country wide. This policy provides the necessary guidance on the processes related to waste management in the MOHSS, wider Namibia health and social welfare sectors, and other relevant stakeholders. It is taking into consideration the process of integrated waste management from generation to final disposal. This practice also focus on medical, household, mining, agricultural, and construction waste.
Cemetery and Crematorium Regulations of 1999	The Council of the Municipality of Windhoek has under section 94(1)(k) of the Local Authorities Act, 1992 (Act No. 23 of 1992), made the regulations set out in this Schedule. These regulations control the development and use of cemeteries in the Windhoek Municipality.

Local Authorities Regulations and By-laws for City of Windhoek	These legislative frameworks also guide the development activities by regulating and controlling activities to be carried out within this local authority jurisdiction. Activities regulated and controlled inter alia include: - Emergency procedures - Noise levels - Waste management - Infrastructure development - Traffic and transportation management, etc.
National Heritage Act No. 27 of 2004	The Act provide for the protection and conservation of places and objects of heritage significance and the registration of such places and objects; to establish a National Heritage Council; to establish a National Heritage Register; and to provide for incidental matters.

The Table below are for below summarizes some of the legislation and policy guidelines that are relevant to the proposed project.

Table 2. below summarizes the legislation and policies on local authority level for Windhoek Municipal Council

Title of legislation, policy or guideline	Implications for proposed project
Cemetery and Crematorium Regulations of 1999	The Council of the Municipality of Windhoek has under section 94(1)(k) of the Local Authorities Act, 1992 (Act No.23 of 1992), made the regulations set out in this Schedule. These regulations control the development and use of cemeteries in Windhoek Municipality
Windhoek Environmental Structure Plan and Environmental Policy	This plan and Policy guide the development activities within the Wind Municipality by identifying environmental sensitivities areas, development control zones and environmental management standards
Waste Management Regulations for Windhoek Municipality (16 of 2011)	The Regulations stipulates measures that must be taken by builders in respect of builders waste. Builders waste is defined as waste generated during the building, construction, repair, alteration, renovation, excavation or demolition of any road, surface, structure, building or premises, including builders rubble, earth, vegetation and rock displaced during such building, construction, repair, alteration, renovation, exaction and demolition. This gives provisions related to the collection, depositing, storage and transport of such waste. The proponent should ensure that building contractors adhere with all the requirements of the Act.
Windhoek Town Planning Scheme (2005)	Allowed activities under “Residential Building” and “Residential Unit”. Any person intending to erect a building in any use zone may be required by Council to furnish an environmental assessment report having regard to the promotion of health, safety, order, amenity, convenience and general welfare and the impact the new buildings and the operations are likely to have on the amenity of the locality”.

Noise Regulations	Control	It is essential to ensure that before any development project is approved and undertaken, an assessment or evaluation of expected noise level is done and it should be done in accordance with the City of Windhoek Noise Control Regulations.

5. ROLES AND RESPONSIBILITIES

The EMP requires the involvement of multiple stakeholders: the Applicant (Windhoek Municipality), the Consulting Engineer and the Contractor. The following are the responsibilities of the different key stakeholders:

5.1 Applicant (Municipality of Windhoek)

5.1.1 Review reports regarding the implementation of the EMP and make payments to the Contractor if the EMP is being implemented in a satisfactory manner.

5.1.2 Give warnings and imposes fines and penalties on the Contractor if the Contractor neglects to implement the EMP satisfactorily.

5.2 Consulting Engineer (CE)

The Consulting Engineer (**CE**) will be appointed by the Applicant and will work closely with the Windhoek Municipal Council's Parks Division (Councils PD) and Council's Architecture Division (CAD) to development the Cemetery Master Plan.

The Councils Parks Division should visit the project site on a regular basis to perform compliance monitoring of the Contractor's operations and of cemetery users' activities to this EMP and Cemetery Regulations. The Council's Parks Division will provide their findings to the Council's Parks Division and to the Consulting Engineer. Any matters of non-compliance are communicated to the Contractor by the Council Architect Division through the Consulting Engineer.

The following are the responsibilities of the Consulting Engineer:

- Be familiar with all aspects of the Scoping Report and EMP.
- Responsible for ensuring that the Contractor complies with this EMP throughout the construction phase.
- Review and approve the Contractor's Management Plan based on guidance provided by this EMP.
- Monitor the Contractor's compliance to the EMP on a regular basis.
- Discuss EMP issues at every monthly site meeting (with input provided by the Council Park Division, Council Architect Division and Council Environmental Division (CED) when he/she attends the site meetings).
- Communicate to the Contractor, verbally and in writing, regarding any matters of non-compliance.
- Ensure that land areas are properly designated according to the approved construction site layout, including sensitive environments and "No-Go" areas.

- Undertake damage assessments where incidents, accidents and serious infringements have occurred.
- Inspect and approve all areas that have been rehabilitated by the Contractor.
- Review complaints received and issue instructions to the Contractor as necessary.
- Maintain a record of complaints from the public and communicate the complaints to the Contractor.
- Enforce temporary work stoppages where serious environmental or health & safety infringements and non-compliances have occurred.

5.3 Parks Division (PD) and Environmental Management Section (EMS)

Due to the nature of this activity/development, especially taking into consideration that cemetery activities do not require a lot of services from Engineers, the Parks Division (PD) will be the Internal Supervising Agent. Therefore, the Environmental Division (ED) will act as the Internal Compliance Monitoring Agent. While the Plant Manager for the City of Windhoek will be responsible to implement the attached EMP for the operation and Maintenance of the BioTech WWTS

Key Sections under the Parks Division to implement this EMP are the:

- Cemeteries and Funerals Section that deals with the development of burial plots, digging of graves, management of the cemetery's records and data, and
- Facility Maintenance Section responsible for the maintenance and beautification of cemeteries.

The following are the responsibilities of the **Parks Division**:

1. Be familiar with all aspects of the EMP.
2. Responsible for ensuring that the Contractor complies with this EMP throughout the cemetery lifecycle.
3. Review and approve the Contractor's works based on guidance provided by the Environmental Division.
4. Monitor the Contractor's compliance with the EMP on a daily basis.
5. Discuss EMP issues at every monthly management meeting (with input provided by the Council Environmental Division when their representatives attend these meetings).
6. Communicate verbally and in writing, regarding any matters of non-compliance.
7. Ensure that land areas are properly designated according to the approved cemetery plans and layout, including sensitive environments and "No-Go" areas.
8. Undertake damage assessments where incidents, accidents and serious infringements have occurred.

9. Inspect and approve all areas that have been cleaned or rehabilitated.
10. Review complaints received and issue instructions to the Contractor as necessary.
11. Maintain a record of complaints from the public and communicate the complaints to the Contractor and to the Environmental Division.
12. Enforce temporary work stoppages where serious environmental or health & safety infringements and non-compliances have occurred.

The following are the responsibilities of the Environmental Management Section under **Health and Environment Services**:

1. Be familiar with all aspects of the EMP.
2. Review the Contractor's works and informs the Parks Division whether the works are acceptable or if it needs to be revised.
3. Perform monthly environmental compliance audits to inspect the cemetery and determine whether the Contractor's operations are in compliance with the EMP.
4. On a monthly basis, attend management meetings with the Parks Division, Contractor and (Applicant if necessary).
5. Prepare a monthly environmental compliance audit report to communicate findings of site visit to the Parks Division, which is then included into the Parks Division report to the Applicant.
6. Provide guidance to the Parks Division on matters of non-compliance.
7. Undertake damage assessments where incidents, accidents and serious infringements have occurred.

The following are the responsibilities of the Council PD:

i Be familiar with all aspects of the EMP.

ii Review the Contractor's Management Plan and informs the Consulting Engineer through the Council's AD whether the Management plan is acceptable or if it needs to be revised.

iii Perform regular environmental audits to inspect the site and determine whether the Contractor's operations are in compliance with the EMP.

iv On a monthly basis, attend site meetings with the CE, Contractor and Council AD.

v Prepare a monthly environmental audit report to communicate findings of site visit to the CE, which is then included into the CE's report to the Council AD.

vi Provide guidance to the CE on matters of non-compliance through the Council AD.

vii Undertake damage assessments where incidents, accidents and serious infringements have occurred.

5.4 Plant Manager

The Plant Manager as appointed by the Windhoek Municipal Council, will implement the EMP for the operation and Maintenance of the BioTech WWTS. The EMP for the operation and maintenance of the BioTech WWTS is attached as Annexure A.

5.5 Contractor

The following are the responsibilities of the Contractor:

- Fully implement the conditions stipulated in the Authorization and Record of Decision issued by Environmental Commissioner/Directorate of Environmental Affairs (DEA) and any other competent regulatory body having authority over the project or the activities concerned.
- Act as an Environmental Management Officer or appoint such Officer to oversee all aspects of the implementation of the EMP and communicate with the CE and Council AD on all EMP-related issues.
- Prepare a Management Plan that includes Sub-Plans, Method Statements and drawings as described below in this EMP.
- Prepare and submit a monthly report concerning environmental management and health and safety issues. The report contents will cover: any training performed; status of training received by all staff and sub-contractors; copies of the Contractor's weekly Site Inspection Forms; summary of any issues or incidents concerning environmental management or health & safety, and what the Contractor has done to address the issues and incidents that have been identified by the Contractor or by the CE.
- Ensure that all employees and sub-contractors on site are informed about environmental and health & safety responsibilities, practices and procedures.
- Perform daily inspections to monitor environmental management and health & safety performance.
- Perform weekly inspections for which Site Inspection Forms must be completed, and submit the completed Forms to the CE on a monthly basis.
- Notify the CE immediately in the event of any accident or infringements of the EMP and ensure appropriate remedial action is taken.
- Notify the CE at least 10 working days in advance of any activity s/he has reason to believe may have significant adverse environmental impacts, so that mitigatory measures may be implemented timeously.
- Maintain a register of environmental management, health & safety and HIV/AIDS training for

site staff and sub-contractor's staff for the duration of the contract.

- Identification and enforcement of environmental "No-Go" areas (to be approved by the CE).

- Ensure that stockpiles and construction waste is stored and disposed off according to the relevant laws, policies and guidelines.

- Undertake rehabilitation of all areas affected by construction activities to restore them to an acceptable state, as determined by the CE.

- Develop and conduct training and awareness sessions regarding: environmental management practices and procedures for the project; health & safety issues, practices and procedures for the project, and; HIV/AIDS background, prevention, testing, treatment and counselling.

6. THE CONTRACTOR'S MANAGEMENT PLAN AND TRAINING

The Contractor shall submit a ***Management Plan for all activities that could be potentially harmful to the environment.*** The Management Plan shall consist of Sub-Plans and Method Statements related to: 1) environmental management, 2) waste management, 3) noise management, 4) health and safety, 5) recruiting and training workers, 6) construction site layout and management, and 7) construction site closure,

No construction work may commence until the Management Plan has been approved in writing by the CE. Where necessary, changes may be made to Management Plan, Sub-Plans and Method Statements once construction has commenced. In such instances the proposed changes shall be agreed to in writing by the CE prior to implementing the change.

The Sub-Plan on environmental management shall include a list and location of all petroleum, lubricant, chemical (including concrete and cement), harmful and hazardous substances and materials on site. The Sub-plan shall describe the procedures for storage, handling, servicing and maintenance, disposal, and spillage and control procedures for these materials. The Sub-Plan shall describe how all staff and sub-contractors will be trained and informed about environmental management issues and practices.

The Environmental Management Sub-Plan shall specify:

- Contractor's provision of equipment to clean chemical spills and procedures to be followed in the case of chemical emergencies.
- Contractor's provision of fire suppression equipment (types, locations) and procedures to be followed in case of a fire anywhere on site.
- How the Contractor will perform dust suppression on site and for trucks in transit that transport rock and sand.
- All emergency telephone numbers and contact persons, and how this information will be kept up to date and posted at relevant locations at all times

The Waste Management Sub-Plan shall specify:

- How the Contractor's waste management activities on site shall incorporate reduction, recycling, re-use and disposal of waste where appropriate.
- How the Contractor shall dispose of collected wastewater, including vehicle and equipment wash water.
- How all construction rubble and waste shall be removed from site upon completion of construction activities to a licensed landfill site.

Note that the Contractor shall supply the CE with a certificate of disposal, if applicable.

The Noise Management Sub-Plan shall specify how the Contractor will minimise noise through:

- Monitoring of noise levels.
- Working hours restrictions.
- Vehicles having low noise emissions and complying with the Namibian Roads Traffic Regulations for noise level emissions.
- Regularly maintaining vehicles, machinery and equipment used on site
- Altering or enclosing equipment to reduce noise at the source, or to isolate it.

The Occupational Health, Wellness and Safety Sub-Plan on shall identify potential health risks and hazards associated with the construction activities, and set out plans and procedures to minimise those risks, as well as emergency procedures to follow in the event of an accident. The Sub-Plan shall describe how all staff and sub-contractors will be trained and informed about health and safety issues, and HIV/AIDS. The Sub-Plan shall specify:

- That the Contractor shall comply with Namibian health and safety laws, regulations and standards.
- Contractor's provision of first aid equipment and supplies (types, locations), and procedures to be followed in case of an injury, accident or illness.
- All emergency telephone numbers and contact persons, and how this information will be kept up to date, posted at relevant locations at all times.

The Construction Site Layout, Management and Closure Sub-Plan shall include:

- Site plans and written descriptions that show locations of, and provide details about, land areas to be cleared, fuel supplies, stockpile sites, offices, vehicle parking, access points, delivery points, equipment cleaning areas, laydown areas, housing areas for construction personnel (incl. location of services, ablution facilities, eating areas, etc.), "No-Go" areas, etc.
- Details on the expected amount of construction-related traffic, as necessary for materials hauling, ponds construction, etc.
- Details of what is to performed by the Contractor at site closure, such as: closure and rehabilitation of temporary roads, removal of residual stockpiles and building material, removal of all temporary structures and services, etc.

The Contractor must conduct a comprehensive, induction awareness raising and training session. All personnel working on the project, including sub-contractor staff, shall be required to complete this induction session prior to starting work. The Contractor must keep a register with signatures from all who received the training. The induction session shall cover the following topics:

- Contractor's Management Plan.
- Legal and statutory requirements.

- Concepts of due diligence and duty of care.
- Minimising potential impacts such as noise, air, soil and water quality.
- Location and protection of environmentally sensitive areas, e.g., crop fields, fruit trees, oshanas, wells, boreholes, water channels, power lines, water pipes, homesteads, schools, clinics, etc.
- Waste management and minimization.
- Washing, refueling and maintenance of vehicles and equipment.
- Safe use of machinery, equipment and materials.
- Communication and stop work procedures.
- Emergency response procedures and contact arrangements in case of an environmental or safety incident.
- Incident reporting procedures for environmental and safety/health incidents.
- HIV/AIDS awareness and prevention: information regarding preventative actions, access to contraceptives, access to testing, access to treatment, and access to counselling services.

The Contractor shall conduct additional training and awareness raising sessions on the topics covered in the induction session for any staff of the Contractor or sub-contractors who did not attend the induction session.

The Contractor shall also conduct HIV/AIDS awareness raising and education sessions for all personnel and sub-contractors every six months for the duration of the construction period. The Contractor must keep a register with signatures from all who received the training.

The Contractor must demonstrate in each monthly report the status of training received for every staff (and sub-contractor) member working on site.

7. COMMUNICATION, RECORD KEEPING, DOCUMENT CONTROL AND COMMUNITY RELATIONS

The Contractor will perform the following types of communication and record keeping:

- The Contractor shall ensure that all his/her senior staff and sub-contractors are familiar with the contents of the EMP, Scoping Report (Chapters 5 and 6) and Contractor's Management Plan.
- Keep record of significant incidents (e.g., spills, impacts, complaints, and legal transgressions, as recorded in the Contractor's weekly Site Inspection Forms) as well as corrective and preventive actions taken, for submission to the CE at the scheduled monthly meetings along with copies of the Site Inspection Forms. The Contractor shall inform the RE immediately about any emergencies (including spillages) on site and along the transport routes. The Contractor shall submit a full report on the handling of the emergency as soon as possible (i.e. within the following hours or days). The following details shall be discussed in the report:
  - Nature and cause of environmental damage.
  - Type of material spilled and volume spilled.
  - Description of clean-up activities, and restoration actions taken and/or to be taken.
- Keep a register of public complaints in which all complaints are recorded, as well as action taken. The Contractor shall notify the CE of any relevant complaints lodged by a third party and provide appropriate information for inclusion in the Contractor's monthly environmental management and health & safety report.
- Keep records with signed attendance lists of all personnel and sub-contractor staff who attend training and awareness raising sessions conducted by the Contractor. This information is to be included in the Contractor's monthly environmental and health & safety report.
- Submit a monthly written report to the CE that provides details on the Contractor's compliance with the EMP and environmental & health & safety performance. The monthly report on environmental management and health & safety shall include:
  - Findings of the weekly Site Inspection Forms.
  - Notice of any major incidents and complaints and follow up actions taken.
  - Documentation of variations to the EMP, non-compliances and corrective action.
  - Confirmation that appropriates environmental and health & safety training of personnel and sub-contractors has been, and is being, undertaken.
  - Confirmation that emergency procedures are in place and have been effectively communicated to all personnel and sub-contractors.

The Contractor shall establish and maintain procedures for controlling all documents required for the EMP that shall be based on a recognized system (e.g., ISO 9000 or similar). These documentation procedures shall ensure that:

- At least one copy of the EMP shall be readily available on site at all times.
- At least one copy of the Contractor's approved Management Plan shall be readily available on site at all times.
- The Contractor shall be responsible for ensuring that documentation is kept up to date and ensure that documentation is reviewed regularly.

The Contractor shall facilitate an ongoing and constructive relationship with communities and stakeholders adjacent to the project. This will include the following actions:

- Where necessary, the Contractor shall erect and maintain information boards in appropriate positions. Such boards shall also include contact details where members of the public may address any complaints or comments they may have.
- The public shall be kept informed of any activities that may cause a disturbance, such as dust, poor bypass roads, loud and noisy construction activities.
- The Contractor shall maintain a Public Complaints Register in which all complaints are recorded.

8. COMPLIANCE WITH ENVIRONMENT MANAGEMENT PLAN

The Contractor shall ensure that all construction staff, sub-contractors, suppliers, etc. are familiar with, understand, and adhere to this EMP. Failure by any employee of the Contractor, Sub-contractors, or Suppliers to comply with the EMP shall be considered sufficient cause for the CE to instruct the Contractor to have the relevant employee removed from the site. The Applicant may also order the Contractor to suspend part or all of the works if there is non-compliance with the EMP. Such suspension shall be lifted only when the offending procedure or requirement is corrected and/or if required remedial measures are put in place.

The Plant Manager as appointed by the City of Windhoek shall ensure that the EMP for the operation and maintenance of the BioTech WWTS is adhered to. This EMP is attached as Annexure A.

9. PROCEDURES REGARDING NON-COMPLIANCE

The Contractor must fully implement and comply with the EMP on an ongoing basis throughout the duration of construction activities. If and when the Contractor fails to do, the Applicant or the CE may impose fines and/or penalties against the Contractor. The procedures that the Applicant or the CE shall follow in matters of non-compliance are described in the Contract Document between the Applicant, Consulting Engineer and with the Contractor.

10. CONCLUSION

The Environmental Management Plan (EMP) will form basic tool for reducing the magnitude of impacts and suggesting practical measures to attain this. It is also used to measure compliance by the applicant. It is this tool that gives guidance during monitoring, auditing and taking corrective actions during its implementation, thereby ensuring continuous monitoring of the environment. This EMP was developed after an environmental assessment. Conditions of the authorization from the Competent Authority should be incorporated and implemented in complement to his EMP.

Key sustainability principles to be emphasized include:

- Development must not irreversibly degrade the natural, built, socio-economic and governance resources on which it is based.
- Current actions should not cause irreversible damage to natural and other resources, as this potentially prevents the realization of future sustainable options.
- Where there is uncertainty about the impact of activities on the environment, caution should be in favour of the environment.
- Land use and environmental planning need to be integrated.

- Immediate and long-term actions need to be identified and planned for, so that urgent needs can be met while still progressing towards longer-term sustainable solutions.

This EMP should be implemented throughout the project life-cycle, e.g. during pre-construction, construction, operation and decommissioning, in order to minimize negative impacts and enhance positive ones. This EMP is an effective and a practical working document that sets out the requirements and the goals required in mitigation.

11. PROPOSED MITIGATION MEASURES TO BE PERFORMED (Read with Scoping Report's Chapters 5 and 6)

Table 3: Management of impacts on Biodiversity

Environmental Statement					
EMP Ref:	**Environmental Aspect/Impact**	**Mitigation**	**Phase**	**Monitoring**	**Responsibility**
T1.1	Loss of vegetation and habitat	1. The demarcation of these habitats must be done in consultation with the Council's PD. 2. The Council's PD and Council's AD must site the actual project footprint with the surveyor and/or owner. 3. The design and Master Plan should make provision for systematic re-vegetation aimed at offsetting removed plants for vaults/graves excavations 4. Site clearance must be confined only to areas designated for construction as in the site layout, and unless absolutely necessary, vegetation will not be removed. 5. Site clearance will be done mechanically, the use of fire is to be avoided. 6. Interference with surrounding vegetation will be minimized, and only vegetation in the way of construction will be removed. 7. Encourage tree and grass planting within the cemetery as soon as possible. 8. Encourage planting of ornamental trees and fruit trees as long as they are not invasive or alien.	Pre-construction and Construction	Daily	Contractor Council's PD
T1.2	Death and injury of animals	1. Avoid injury to or death of wild animals by reducing speed of construction vehicles. 2. Trenches must be inspected daily to monitor for trapped animals. 3. Workers to be discouraged from killing animals and birds for food and relish.	All phases	Daily	Contractor Council's PD

T1.3	Illegal removal of vegetation	1. Any evidence of plant theft (especially protected species) must be followed up with prosecution and penalties levied on the construction company. 2. Construction teams will not, as a contractual obligation, be allowed to collect firewood or any other plant resources from surrounding vegetation, notably the wetland, outcrops and riparian areas. Any evidence of this must be followed up with prosecution and penalties levied on the construction company.	Pre-construction and Construction	Daily	Council's PD Contractor
T1.4	Protected species	1. Prior to vegetation clearing, the development footprint must be surveyed for plant species of conservation concern. 2. Protected plants occurring within the footprint should be relocated in consultation with an approved specialist after obtaining the necessary permits from authorities. 3. All protected species occurring within the footprint should be clearly marked for the duration of the construction phase, and should remain intact and undisturbed. If this is unavoidable, the contractor must follow procedures as advised by the Council's PD. 4. Important flora that may become apparent at a later stage should be reported to a specialist and the authorities and be relocated or conserved.	Pre-construction and Construction	Continuous	Contractor
T1.5	Spreading of weeds	1. Where alien invasive plants occur they must be uprooted, cut and /or chemically treated. (Use only authorised chemicals).	Pre-construction and Construction	Monthly	Contractor
T1.6	Management of fauna	1. No wild animal may under any circumstance be handled, removed or be interfered with. 2. No wild animal may be fed on site. 3. If applicable, regularly undertake checks of the surrounding natural vegetation, in fences and along game paths to ensure no traps have been set. Remove	All phases	Daily	Contractor Council's PD

		and dispose of any snares or traps found on or adjacent to the site. 4. Problem animals and vermin need to be removed by an appropriate organization or authority (i.e. such as the Ministry of Environment and Tourism, the Police, the SPCA or a registered exterminator). 5. Do not make use of any pesticides, unless approved by the Applicant and relevant authorities. 6. Important fauna that may become apparent at a later stage should be reported to a specialist and the authorities and be relocated or conserved. 7. Encourage tree and grass planting within the cemetery as soon as possible to encourage repopulation of fauna			
T1.7	General Conservation of biodiversity	1. There were no cultural heritage sites observed during this assessment. The project engineer and the contractor should regularly communicate with relevant local authorities to identify cultural heritage sites. If such sites are found or excavated, construction should immediately stop and relevant authorities should be informed. Construction works can only resume with written approval from the relevant authorities. 2. Site Management Plans depicting preferred site for construction camps, materials storage, no-go sensitive and protected areas, known borrow pits, etc. need to be developed by the contractor with the assistance of the project engineer. These plans need to be documented, refined, updated, and agreed on prior to the commencement of works at any location. 3. No water should be abstracted from any source without specific written approval from relevant authorities. 4. Staff members are not allowed to engage in illegal activities such poaching, illegal harvesting forest products including timber and non-timber productions. 5. To minimise land degradation, no off-road driving is	All phases	Daily	Contractor Council's PD

		allowed except on demarcated access and hauling roads. 6. The confines of the site, especially haul and access roads shall be clearly marked and signposted by the contractor at the direction of the Council's PD. 7. Access and haul roads should be rehabilitated by ripping them so to facilitated water penetration and seed bank establishment. 8. All necessary measures should be implemented to minimize fauna displacement and flora destruction. 9. No fires are allowed on site at all times, unless dually authorized by the Council's PD. 10. Soils from areas infested with invasive flora should not be hauled from those specific areas. The risk of such species dispersing and displacing natural vegetation is very high, thus the Council's PD should be consulted at all times to ensure that invasive plants are not accidentally dispersed. Any person or institution or company not complying with these specifications are liable to fines and penalties as indicated in this EMP and other relevant contracts conditions, relevant laws, and regulations.			

Table 4: Management of impacts on Soil

Environmental Statement					
EMP Ref:	**Environmental Aspect/Impact**	**Mitigation**	**Phase**	**Monitoring**	**Responsibility**
T2.1	Degrading of soil structure	1. Before construction, vegetation and topsoil must be stripped and stockpiled separately to prevent removal and compaction by vehicles. It must be used for future rehabilitation purposes. 2. Topsoil shall be stockpiled in heaps not exceeding 2.0m in height and be protected from erosion. 3. Re-usable subsoil stripped from construction sites must be stockpiled separately and clearly identified as such. 4. Soil must not be stockpiled on drainage lines. 5. Deficiency of backfill material will not be made up by excavation within the remainder of the development area. Where backfill material is deficient, it must be made up by importation from an approved borrow pit.	Pre-construction and Construction	Weekly	Contractor
T2.2	Soil erosion	1. Appropriate soil erosion and control procedures must be applied to all embankments that are disturbed and destabilized. 2. Movement of equipment and earth-moving machinery to be restricted to designated roads. 3. Steep slopes to be avoided during planning and establishment of access roads. 4. Surface run-off hump should be made to direct water flow into vegetated surfaces. 5. Disturbed terrains should be tilled and re-seeded with local vegetation or re-vegetated. 6. Disturbed steep slopes should be supported with surface rock gladding or vegetation.	Pre-construction and Construction Operational	Daily Weekly	Contractor Council's PD

		7. Excavated areas will be backfilled to avoid unnecessary accumulation of surface water and high velocity overflow. 8. Occurrence of erosion should also be monitored during operational phase and corrective measures taken if necessary. 9. Adequate sedimentation control measures must be instituted at any prominent drainage lines, water crossings and construction trenches. 10. Where possible construction activities must be positioned away from drainage lines and steep slopes. 11. Occurrence of soil erosion and silt generation has to be monitored during construction and operational phases and corrective measures taken if necessary. 12. The storm water from within the site need to be controlled by well-designed concrete drains and energy breakers			
T2.3	Pollution of soil	1. Avoid contamination of soil with oil, diesel, petrol, waste or any other foreign matter, which may impact on the capability of the soil as a growth medium. 2. All equipment to be inspected daily for oil or fuel leaks before it is operated. Leakages must be repaired on mobile equipment or containment trays placed underneath immobile equipment until such leakages has been repaired. 3. Contaminated soil has to be: – Removed up to depth 300mm below the saturation mark and disposed at permitted landfill site. 4. The soil can be regenerated by using bio-remediation methods. 5. Hazardous substances to be stored on lined surfaces and be surrounded by berms or bund walls to prevent pollution. 6. Divert storm water from stockpiles and other sites sensitive to erosion.	Pre-construction and Construction Operational	Daily Weekly	Contractor Council's PD

Table 5: Management of construction impacts and general environmental pollution

Environmental Statement					
EMP Ref:	**Environmental Aspect/Impact**	**Mitigation**	**Phase**	**Monitoring**	**Responsibility**
T3.1	Air pollution & generation of dust	1. Speed limit must be enforced in all areas to reduce the levels of dust pollution. 2. Air pollution caused during construction can be limited by using dust suppression methods such as water spraying. Water used for this purpose must be in quantities that will not result in the generation of run-off. 3. The contractor's representative or environmental officer must notify all people living within 100 m of the construction site of the proposed activities. 4. In the event of serious levels of dust pollution, the implementation of constant dust monitoring by qualified consultants must be undertaken. 5. Vehicles used on, or entering the site must be serviced regularly to ensure that they do not emit excessive smoke or fumes. 6. No refuse waste is to be burned on the premises or on surrounding premises.	Pre-construction and Construction	Daily	Contractor
T3.2	Noise pollution	1. Noise control measures must be implemented. All noise levels must be controlled at the source. 2. All employees must be given the necessary ear protection gear if the noise levels exceed 55**dB.** 3. Interested & Affected Parties (I&APs) must be informed about the possibility of impending excessive noise. 4. Generators and pumps must be housed in casings to help reduce any noise in operation. 5. No loud music or excessive noise generated by	Construction	Daily	Contractor

		employees is allowed on site and in construction camps. 6. Loading bins should be rubberized to reduce rattling sound. 7. No unnecessary hooting of construction vehicles will be permitted. 8. No screaming and whistling at the public, by construction workers as they pass-by residential areas, will be permitted.			
T3.3	Construction disturbances and waste disposal	1. Construction methods must be respectful of the environment; no unnecessary vegetation clearing, excavations or untidiness. 2. Concrete mixing will be done on pre-designed slabs underlined by PVC lining, on an area previously disturbed. Alternatively, maintain one mixing site and transport the concrete to the construction site. 3. Any concrete spillage must be cleaned immediately. 4. Littering on site and the surroundings areas is prohibited. Clearly marked litterbins must be provided on site. The contractor's representative must monitor the presence of litter on the work sites as well as the construction campsite. All bins must be cleaned. 5. Waste must be disposed, as soon as possible and not be allowed to stand on to decay, resulting in bad odours and attracting vermin. 6. Adequate sanitation and water supply must be installed for the construction personnel (authorization from DWAF and from Windhoek Municipal Council may be required). 7. Stockpiles should be stored and/or disposed in accordance to the relevant policies, guidelines and standards. 8. Ensure that no excavated soil, refuse or building rubble generated on site are placed, dumped or deposited on adjacent/surrounding properties or land. 9. Wind and animal proof bins must be provided at demarcated areas.	Pre-construction and Construction	Daily	Contractor

		10. Waste must be disposed off at a licensed waste disposal site. 11. No waste, even biodegradable waste may can be buried. 12. All waste removed from site must be disposed at the municipal/permitted waste disposal site. 13. The contractor must ensure that all temporary structures, materials, waste and facilities used for construction activities are removed upon completion of the project. 14. The contractor must clean up and restore all disturbed areas and implement rehabilitation measures were required by Council's PD.			
T3.4	Noise and dust	1. Dust and noise generation should be monitored during operational phase 2. Excavation, handling and transporting of gravel must be minimised under high wind conditions. Dust suppression measures may be required, such as sprinkling the construction site with water to suppress the dust. 3. Dust protection masks must be provided to all staff members working in dust polluted environment. 4. All vehicles' speeds should be controlled to reduced dust production, hence appropriate road signs should be placed to control the traffic speed 5. Ensure engines of construction machinery are fitted with mufflers. 6. Equipment and machinery operators should be equipped with ear protection equipment. 7. Operations should be strictly between 07H00 to 19H00.	Pre-construction Construction Operational	Daily Weekly	Contractor Applicant

Table 6: Management of impacts on surface and groundwater

Environmental Statement					
EMP Ref:	**Environmental Aspect/Impact**	**Mitigation**	**Phase**	**Monitoring**	**Responsibility**
T4.1	Effect on Water quality	1. Adequate sedimentation control measures must be instituted at any prominent drainage lines, water crossings and construction trenches. 2. Where possible construction activities must be positioned away from drainage lines and areas with a perched water table. 3. All fuel, chemicals, oil, etc. must be confined to areas where the drainage of water can be controlled. Use appropriate structures and methods for storage and handling. 4. No washing and or cleaning of clothes, eating utensils, tools or equipment allowed in water bodies. 5. Adequate sanitation for all personnel to be supplied on site. 6. No permanent stockpiling of any kind allowed within the 1:100-year flood line or within 10m of any water courses. 7. Machinery must be inspected and maintained on a daily basis to guard against possible leakages. 8. Refueling of construction vehicles should be done at a designated area paved with concrete slabs to avoid soaking of oils into the ground. 9. Fuel storage facilities should be located away from the vicinity of the wetland and any water courses. 10. Used and empty drums, for oils, fuel, grease, etc., should be disposed off at a registered and licensed facility to avoid pollution and contamination of soil and water.	Pre-construction and Construction	Daily	Contractor

T4.2	Effect on water course	1. Occurrence of soil erosion and silt generation has to be monitored during construction and operational phases and corrective measures taken if necessary.	Construction Operation	Daily Monthly	Contractor Council's PD
T4.3	Effect on storm water	1. The storm water from the parking area should be controlled by concrete drains. Storm water will be disposed off into the natural area at points where the volume of water becomes too much to be accommodated by the concrete drains. Energy breakers need to be created at these disposal points and erosion control measures should be implemented.	All phases	Regularly	Council's PD Contractor
T4.4	Effect on groundwater	1. Prevent spillages of any grease, oils, chemical or fuel product. Use drip trays during maintenance of vehicles and machinery. 2. A 15cm soil must be placed under each casket/coffin to reduce the movement of leachate from decomposing corpse and embalming chemicals. 3. Vaults/graves near the any stream need to be lined with an impenetrable liner to stop leachate from decomposing corpse and from embalming chemicals reaching the streams. 4. The vehicles maintenance area must be equipped with a concrete floor surface to prevent soil pollution. 5. All areas used for storage and cleaning of machinery or equipment and vehicles must be bunded with prescribed height, and covered with an impermeable floor surface. 6. Polluted soil should be collected and stored into containers and disposed off at appropriate and licenced dumping sites. 7. Collected waste fuels and oils or waste water contaminated with oils must be stored in containers and disposed off to licenced and appropriate dumping sites.	Pre-construction Construction Operational	Daily Daily	Contractor Council's PD

Table 7: Management of heritage sites and socio-economic issues

Environmental Statement					
EMP Ref:	**Environmental Aspect/Impact**	**Mitigation**	**Phase**	**Monitoring**	**Responsibility**
T5.1	Heritage sites	1. Work in areas where artefacts are found must cease immediately. The excavation must be examined by an archaeologist as soon as possible.	All phases	Continuous	Contractor Council's PD
T5.2	Socio-economic	2. Local residents are to benefit from employment opportunities.	All phases	Continuous	Contractor Council's PD

Table 8: Management of visual impacts

Environmental Statement					
EMP Ref:	**Environmental Aspect/Impact**	**Mitigation**	**Phase**	**Monitoring**	**Responsibility**
T6.1	Planning and design	1. Alignment of structures should be compatible with the natural contours. 2. Built structures should not break the horizon, when possible. 3. Make use of existing access roads where possible.	Planning Construction	Continuous Continuous	Council's PD Council's AD CE Contractor Council's AD
T6.2	Construction aspects	1. The contractor must ensure that the site is kept tidy at all times, that sufficient refuse bins are provided, and that they are emptied regularly. 2. Refuse or building rubble generated on the premises must not be deposited on adjacent properties, road verges or open spaces. It must be contained on site, then removed and disposed of at an approved dumping site at least every two weeks. 3. Disturbed and open areas must be rehabilitated and re-vegetated as soon as possible after construction. 4. When construction is taking place within 200m of a densely populated area, the construction site must be enclosed by a dark green of black shade cloth of no less than 2m high, to prevent any visual intrusion. 5. Rehabilitate all disturbed areas	Construction	Daily	Contractor

Table 9: Management of traffic disruption impacts

Environmental Statement					
EMP Ref:	**Environmental Aspect/Impact**	**Mitigation**	**Phase**	**Monitoring**	**Responsibility**
T7.1	Construction aspects	1. Traffic management systems must be put in place to control traffic during construction. 2. Appropriate danger signs, safe speed limits, and other precautionary measures should be placed at strategic locations along the Western Bypass and other roads that will be used for during construction and operations. 3. During construction, the speed limit will be below 60km/h for all vehicles. Speed limits must be enforced in all areas, including public roads and private property to avoid potential accidents. 4. The contractor will place flagmen at strategic locations, to control traffic along the Western Bypass and other roads used during the construction and operations. 5. Regular road users of the Western Bypass and other roads used during the construction and operations should be notified at least seven (7) days in advance, by placing notifications on the media and erecting proper signage along the Roads, to alert the road users of construction activities that are likely to disrupt traffic. 6. Controlled accesses will be constructed to manage the movement of vehicles and public in and out of the development site.	Construction	Continuous	Contractor
T7.2	Operational aspects	1. Traffic management systems must be put in place to control traffic during operation.	Operations	Once off	Contractor Council's PD

able 10: Management of fire hazards, safety and security

Environmental Statement					
EMP Ref:	**Environmental Aspect/Impact**	**Mitigation**	**Phase**	**Monitoring**	**Responsibility**
T8.1	Fire precautions	1. Take adequate precautions to ensure that fires are not started as a result of Works on site: the Contractor will be held liable for any damage to property adjoining the Site as a result of any fire caused by one of his employees. 2. Establish and maintain fire breaks around the Work Sites if as and when specified by the Project Management Team and as required by applicable legislation and the local authority. 3. Do not permit any fires or open flames, especially during the dry season. A minimum requirement for construction in a high fire risk area is a water truck, with a minimum capacity of 5000 litres, equipped with pump and hose (minimum length 30m), which must be permanently on site, where veld fire is at risk. 4. Ensure that the Work Site, the contractor's camp and all living quarters are equipped with adequate fire fighting equipment. This includes at least rubber beaters when working in veld areas, and at least one fire extinguisher of the appropriate type irrespective of the site. Take immediate steps to extinguish any fire, which may break out on the construction site. 5. No open fires are permitted on site, except in designated cooking area where adequate precautions need to be taken to prevent the spread of fire. 6. Restrict contained fires for heating and cooking (i.e. in a fire drum) to designated areas on site. 7. Prevent employees from creating fires randomly outside designated areas.	Pre-construction and Construction	Daily	Contractor

T8.2	Security	1. The contractor's representative or environment al officer must inform all adjacent l and owners of any after-hour construction activities and any other activity that could cause a nuisance. Normal working hours are between 07h00 and 17h00 Monday to Friday. Arrangements are to be made with the Local Authority for after-hours work. 2. Staff members residing in the construction camp will not be allowed to cause a nuisance to any neighbouring properties. In the event of a complaint received from the adjacent land owners, the privilege to reside on the property might be cancelled immediately. 3. Permanent security services should be provided during operations to maintain law and order on site and surrounding area.	Construction Operation	Daily Daily	Contractor Council's PD
T8.3	Safety	1. Best practice methods must always be employed and appropriated regulations adhered to. 2. No open trenches are permitted without the use of demarcation tape. 3. There must be a first aid facility onsite. 4. Regular auditing of safety requirements must be undertaken in order to monitor and control the problems before they become unmanageable. 5. Workers' rights to refuse work in unsafe condition must be respected. 6. A record must be kept of all incidents on site. 7. Personnel must be trained in basic site safety procedures (safety talks). 8. Secure storage of materials on site particularly hazardous material e.g. chemicals and fuels. 9. Adequate signage on and off the site about potential hazards must be provided.	Construction	Daily	Contractor

		10. Members of the general public must not be allowed near the construction site. 11. Do not store any fuel or chemicals under trees. 12. Do not permit any smoking within 10m of any fuel or chemical storage area, or refuelling area. 13. The contractor must keep a first aid kit and the telephone numbers of local emergency services in prominent positions at the staff quarters and the site office. All personnel must be made aware of these locations. 14. The contractor on site during the construction phase must provide safety and security arrangements that should ensure that: – The handling of equipment and material is supervised. – Construction vehicles are maintained and controlled by competent personnel. – All excavated areas are clearly marked and that barrier tape is placed around them.			

Table 11: Site clean-up and rehabilitation

Environmental Statement					
EMP Ref:	**Environmental Aspect/Impact**	**Mitigation**	**Phase**	**Monitoring**	**Responsibility**
T9.1	Rehabilitation of environmental damage	1. Ensure that all temporary structures, materials, waste and facilities used for construction activities are removed upon completion of the project. 2. Upon completion of the construction period, the ECO will ensure that any/all temporary access roads are returned to a state no worse than prior to construction commencing. 3. Once heavy machinery has cleared the bulk of these material stockpiles, the disturbed areas will be levelled and cleared of any foreign material manually. 4. Fully rehabilitate all disturbed areas and protect them from erosion. 5. Slopes must be designed according to predefined specifications, aimed at the prevention of soil erosion, of efficient storm water control, of the eventual re-establishment of vegetation and of ultimately achieving aesthetically acceptable landscapes. 6. In general, no slopes steeper than 1:3(V: H) must be allowed. 7. Cut slopes must not be steeper than 1:2(V: H) and rounded off on the top edge. 8. Bulk and fine shaping must be executed according to design, aimed at the prevention of soil erosion, of efficient storm water control, of the eventual re-establishment of vegetation and of ultimately achieving aesthetically acceptable landscapes.	Post construction	After construction	Contractor

		9. On all man-made slopes, the following rehabilitation methods must be applied: – Replacing and redistribution of stripped topsoil to a minimum depth of 200 mm. – Ripping at 300 mm but not more than 400 mm apart and parallel to contours, through the placed topsoil, to a depth of 100 mm at least, into the sub base soil below. – Sowing of specified grass seed mixture and fertilizer, if required.			
T9.2	Compliance	1. Council's PD to audit rehabilitation	Post construction	Once off	Council's PD

Table 12: Management of construction camp and personnel

Environmental Statement					
EMP Ref:	**Environmental Aspect/Impact**	**Mitigation**	**Phase**	**Monitoring**	**Responsibility**
T10.1	Social disturbances	1. Prior to establishing the construction camp, the contractor shall produce a plan showing the positions of all structures, lay-down yards and other infrastructure for approval by the CE/Council's PD. 2. Fires, for the purpose of cooking and smoking, will only be allowed in facilities, equipment or areas specially constructed for this purpose. If required by applicable legislation, a firebreak shall be cleared around the perimeter of the camp and office sites. 3. Construction workers should respect community members. They should be warned not to insult the public and also be prohibited to befriend local women, especially those who are married. 4. Construction & maintenance activities must be of such a nature as not to disturb the livelihood of adjacent property owners. 5. A designated place for food preparation and eating must be established at the construction site. 6. Dry chemical toilets (men and women separately) must be made available at a ratio of 1 toilet per 10 staff, within the campsite perimeter and must be cleaned and serviced as requested by the service provider. 7. Workers movements must be limited to the construction area only and must be enforced in terms of the contracts of appointment. 8. Any complaints must be addressed accordingly with the	Construction	Daily	Contractor Council's PD

		Contractor and record thereof must be kept and communicated to the Applicant. 9. The Applicant must ensure that measures are in place to prevent/mitigate disruption of services as result of construction. 10. Residents have to be notified 7 days in advance of disruptions to services. 11. A resident security guard should be deployed at the campsite for access control, security enforcement and monitoring.			

Table 13: Compliance with the environmental clearance and monitoring

Environmental Statement					
EMP Ref:	**Environmental Aspect/Impact**	**Mitigation**	**Phase**	**Monitoring**	**Responsibility**
T11.1	Compliance to EMP and authorisation	1. Co PD staff to be designated in order to initiate the Applicant and Contractor as well as personnel on the subject of the EMP and authorisation and compliance thereto.	Pre-construction	Council's PD staff designated	Council's PD Council's ED
T11.2	Monitoring	1. Monitoring for any environmental impacts during the all phases is recommended until a satisfactory standard of compliance is attained	All phases	Continuous	Council's PD Council's ED

Table 14 : Compliance with the environmental clearance and monitoring

Environmental Statement					
EMP Ref:	**Environmental Aspect/Impact**	**Mitigation**	**Phase**	**Monitoring**	**Responsibility**
T11.1	Compliance to EMP and authorisation	1. CoW PD staff to be designated in order to initiate the Applicant and Contractor as well as personnel on the subject of the EMP and authorisation and compliance thereto.	Pre-construction	CoW PD staff designated	Council's PD Council's ED
T11.2	Monitoring	1. Monitoring for any environmental impacts during the all phases is recommended until a satisfactory standard of compliance is attained	All phases	Continuous	Council's PD Council's ED

ANNEXURE B. ENVIRONMENTAL MANAGEMENT PLAN FOR BIOTECH WASTEWATER TREATMENT PLANT

1. 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 Biotech Waste water Treatment System (BioTech WWTS) at the Rocky Crest Cemetery. 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).

Proposed mitigation measures

Table 1: Proposed mitigation measures during the operation and maintenance phase

ISSUE ENVIRONMENTAL ASPECT	RECOMMENDED MITIGATION MEASURES	MONITORING	RESPONSIBILITY
1. Effluent Management	• Maintain a closed system to prevent leakage or spillage; • Ensure systematic control over the technical maintenance of equipment and technological pipelines of the treatment plant. If necessary, appropriate corrective measures should be taken; • Insulating layer (compacted soil) will be arranged within the territory of the treatment system; • Prevent pollution of environment from overflows; • Maintenance of the BioTech WWTS embankment to control and prevent overflows; • A standby power source (e.g., generator) should be available to power the pumps during power failures; • The raw effluent should be screened of floating debris and desludged regularly; • Maintain existing signage. • No intractable or toxic waste shall be allowed to find its way into the BioTech WWTS system; • Treated wastewater to be used for irrigation must comply with Ministry of Agriculture, Fisheries, Water and Land Reform (**MAFWLR**) standards; • Treatment of wastewater must take place strictly according to the engineers' prescriptions to meet wastewater quality standards as set by MAWLR; • Purified effluent must be monitored on a regular basis to verify water quality.		**Council's Plant Manager**

2. Public Health and Safety Risk	• Minimize generation of unpleasant odours; • Avoid or reduce public health risks associated with the Wastewater Treatment System; • The final effluent should be analyzed twice per year for quality of which results are to be submitted to MAFWLR; DWA; • The fence around the plant must be kept in good shape at all times; • Weatherproof warning notices indicating that the site is out of bounds and human consumption, should be placed; • Ensure gates are locked every time; • No unauthorized persons must be allowed to this site; • Security services must be ensured (24hrs); • The area should be disinfected in case of suspected diseases outbreaks or rodents/pest infestation; • The plant should be kept clean of Vegetation (reeds, trees); • All chemicals should be handling according to the Material Safety Data Sheet (MSDS); • All employees responsible or involved in the chemical applications must be provided with protective clothing; • 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.		**Council's** **Plant Manager**

3. Soil contamination	• Ensure soil conservation; • Prevent or manage any leakage, seepage or overflows; • Only effluent of the required standard may be discharged in the environment; • Prevent soil erosion by installing erosion work in gullies formed by flowing wastewater; • It must be ensured that storm water around the site does not reach excessive speeds. • Control of the fuel/oil storage and usage rules; • In case of fuel/oil spill, cleaning of the territory and withdrawal of the contaminated soil and ground for further remediation; • Training of the personnel on environmental and safety issues during recruitment and then once a year; • In process of repair works, implementation of the mitigation measures considered for the construction phase.		**Council's Plant Manager**

4. Waste Management	• Any solid material or waste generated and removed from the BioTech WWTS should be disposed of at Kupferberg landfill site; • General solid waste expected to be generated by the staff onsite must be kept in a closable refuse bin until such time as it is taken to the landfill site; • Littering (both on and around the site) must be strongly discouraged; • 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; • Develop a waste management plan, to provide the systematic supervision of implementation measures.		**Council's Plant Manager**

5. Operational Management and Maintenance	• Ensure effective and efficient management of the plant; • Plant operators must be appropriate skilled and experienced for the task at hand; • Site operator/s must receive continuous training in all aspects of daily management of the plant (technical or administrative); • Technical support must be available to the sewage plant operator. • The BioTech WWTS must be maintained regularly; • A maintenance plan must be in place to ensure that planning, such as budget allocation or procurement of service providers, can be put into motion sufficiently ahead of time; • Ensure that all reports are available onsite and easily accessible; • The BioTech WWTS must not remain operational for longer than its design lifetime, unless relevant key components are replaced or upgraded, as approved by engineer; • The Engineer must advice on the operational or upgrading of the BioTech WWTS.		**Council's Plant Manager**

6. Legislative requirement	• The BioTech WWTS must comply to the conditions of the Wastewater and Effluent Discharge Permit, as per MAFWLR; • The BioTech WWTS must operate within the requirements and approval of the Council's Engineer; • Renewal of the relevant permits for Wastewater and Effluent Discharge permit and Environmental Clearance Certificate must be ensured; • The BioTech WWTS must operate within the requirements and approval of the Windhoek Council's Engineer. • Annual Environmental Performance Audit Report which should be compiled and submitted to MEFT; • This EMP must be updated every three years, concurrent with the renewal of the ECC.		**Council's Plant Manager**

2. DECOMMISSIONING AND REHABILITATION

2.1 Decommissioning of the operational BioTech Wastewater Treatment System

The decommissioning of the new BioTech WWTS is not foreseen in the immediate future. As mentioned above, future phases will be integrated into the Municipal sewer network as the development of Rocky Crest Extensions progress and connections become available. However, as mentioned before, this system is implemented until the sewerage system in the nearby proposed Rocky Crest Extension is completed. The sewerage line would then be connected to this sewerage system. Should the decommissioning of the BioTech WWTS or its components become pertinent at any stage, a Decommissioning and Rehabilitation Plan (DRP) should be prepared before the commencement of any decommissioning works.

2.2 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 CE, Council's PD, Council's EMS and Council's AD and Plant Manager 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 seized.
- Remove all potential hazards 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 2: Rehabilitation management actions

PARAMETER	REHABILITATION MANAGEMENT ACTION	RESPONSIBILITY
Overall	Progressive rehabilitation shall be undertaken to minimize 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**
Infrastructure	All temporary infrastructure, signage and other installations other than those required for environmental, or safety reasons shall be removed once backfilling is completed.	**Contractor**
Waste	All waste materials (e.g., bags, pegs, skids, pillows) shall be removed from the construction areas once backfilling is completed.	**Contractor**
Soils	Compaction relief shall be undertaken as followed by raking and levelling.	**Contractor**
Erosion	The beds of watercourses shall be restored to the original gradient and the bank to the natural contours post disturbance.	**Contractor**
Erosion	Backfill crown to be graded and shaped as closely as practicable to pre-existing contours and flow patterns of riverbed and riparian zone.	**Contractor**
Erosion	Banks to be reinstated in a manner that minimizes erosion potential and does not alter natural streamflow - this may include the installation of rock gabions, rip rap, cement/s and hessian bags.	**Contractor**

3. 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 Councilor's Plant Council's Manager must ensure that compliance monitoring is conducted at various intervals/frequencies throughout the operational life span of the BioTech WWTS as indicated in the table below.

Table 3: Monitoring plan during the operation phase

The issue to be monitored	Monitoring Objectives	What needs to be monitored	Frequency and means of Monitoring
Production and distribution losses	Prevent overflow of raw sewage.	-Overflows, leakages, pipe bursts, etc.	Weekly inspections and meter reading
Occupational health risks	Ensure health and safe working condition	Chemical exposure and presence of health hazards	Daily physical observations.
Water quality	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 (*Chlorine level, N.T.U, pH, Conductivity, and Temperature*). -Microbiological/ bacteriological quality (*Free Chlorine, Heterotrophic Plate count, Total Chlorine, Coliforms & Faecal Coliforms).*	-Once a month sampling and laboratory testing
Waste management	Prevent environmental pollution and contamination.	Litter chemical storage & handling, cleanliness, Chemical composition of sludge.	-Daily inspections and physical observation regular sludge
Implementation of the EMP	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 Audit report to MEFT.

4. 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 BioTech WWTS as well as procedures and actions to be taken in case of emergency.

4.1 Types and effects of emergencies

Emergencies can occur at any time or place during the operation and maintenance of the BioTech WWTS These emergencies may affect the operations and disrupt the Wastewater 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

4.2 Sources of emergencies

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

4.2.1 Accidents

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

4.2.2 Faulty maintenance

Faulty maintenance may cause unexpected breakdowns on the BioTech WWTS 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 BioTech WWTS.

4.2.3 Negligent operation

Certain operational procedures need to be followed to ensure the satisfactory performance of the BioTech WWTS. 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.

4.3 Emergencies response procedures

4.3.1 Response priorities

Depending on the nature of the emergency, the following response plan must be implemented as an integral part of the BioTech WWTS 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

4.3.2 Emergency response procedures

Table 4: Emergency Response procedures during the Operation and Maintenance

NO.	Type of Emergency	Response actions	Responsible
1.	**Substance spill** i.e., concrete, oil, chemicals, etc.	• Cease operations and control the spill at the source first; • Contain the spillage/leakage with appropriate containers i.e., drip trays, sumps, etc., and in an approved manner to the satisfaction of the Environmental Management Plan; • Clean the affected area with approved cleaning product; • The contaminated soil should be removed and disposed of at the Kupferberg Landfill Site; • Repair machinery with leakage; • If it cannot be repaired, such machinery should not be used until it is safe to do so; • Report the incident and record it in the logbook; • A spill kit must be available at the BioTech WWTS. There must be at least one person with appropriate authority who is trained in hazmat response.	**Council's Plant Manager**
2.	**Power failure**	• Ensure there is an emergency power supply capable of maintaining minimum water treatment operations; • The emergency power equipment should be checked at least monthly to ensure that they remain in good operating condition; • Provide a log to document a monthly check of emergency power supply operation; • Display the list of name and number of power supplier. In case of power loss, the following needs to be done: • Investigate if the power failure is local (site) or the entire town; • If the entire town, contact Windhoek Municipal Electricity Department; • If locally, inspect the source of power loss, restart the main switch; • If necessary, inform critical customers; • Record source of power shortage in the power supply logbook.	**Council's Plant Manager**

3.	**Fire outbreak**	• In case of Fire outbreak, notify Emergency Department for Windhoek Municipality; • The name and number of the Emergency Department should be listed and displayed on notice board.	**Council's Plant Manager**
4.	**Chemical leakage**	In case of chemical leakage • Make sure storerooms are built according to legal requirements for the storage of chemicals with appropriate ventilation; • Wear a face mask with the appropriate filter; • Evacuate all persons in the affected room; • Shut down all the dosage system valves; • Check information on the dosage system control panel; • Isolate the faulty dosage system and replace the gas cylinder with the leak; • Record in the incident report form.	**Council's Plant Manager**
5.	**Accident** i.e., injury to a person	• The priority after a construction accident should be to seek medical attention for an injured person; • Notify the Windhoek Municipal Emergency Department to attend to the injured person. • Assess the injured person's condition; • Assist the First Aid Personnel Record in the incident Report form; • Report incident to the Plant Manager.	**Council's Plant Manager**
6.	**Equipment failure** i.e., pumps failure, loss of pressure, etc.	• The BioTech WWTS is designed with limited automation, thus there should be always be an Operator on duty. In case of Faulty pumps: • First analyses the source of emergency by checking information displayed on the SCADA system; • Check the flow rate of each pump to identify the fault; • Ensure that the standby pump is switched on.	