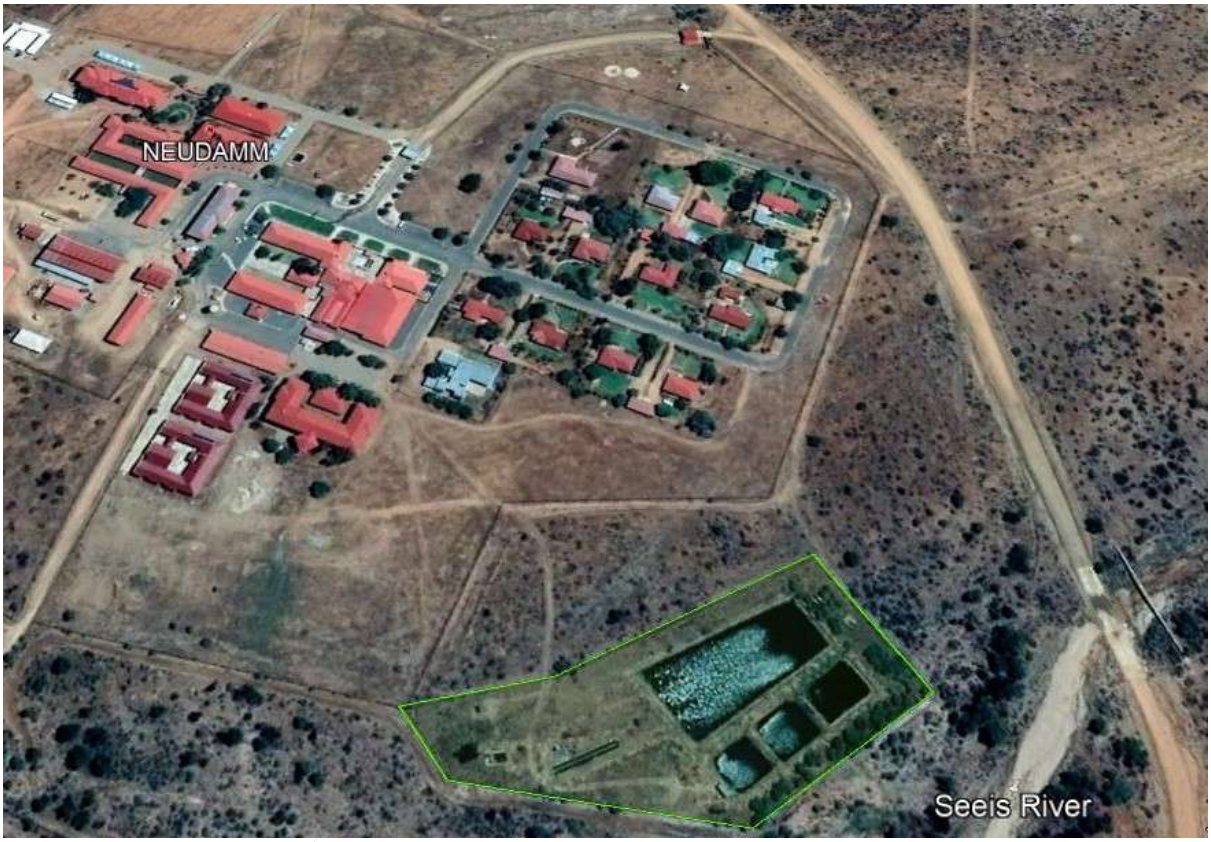
Application No: 230313001127

Application For The RENEWAL Of Environmental Clearance Certificate for Sewerage Facility of the University Of Namibia At Neudamm Campus And Farm, Khomas Region



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ACRONYMS

DEA	Department of Environmental Affairs
EA	Environmental Assessment
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
ECO	Environmental Compliance Officer
EIA	Environmental Impact Assessment
EMA	Environmental Management Act (No. 7 of 2007)
EMP	Environmental Management Plan
FANR	Faculty of Natural Resources
MEFT	Ministry of Environment Forestry and Tourism
PPE	Personal Protective Equipment
RD	Red-Dune Consulting CC
SM	Site Manager
UNAM	University of Namibia

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EXECUTIVE SUMMARY

Neudamm campus is the leading agriculture training institution in Namibia. The Campus is home to the Department of Agricultural Economics and Extension, Department of Animal Science Department Food Science and Technology and the Department of School of Veterinary Medicine (SoVM).

Majority of the students studying at the Campus are accommodated in the hostel which has the capacity to accommodate ± 175 students including some of its employees. Due to its remoteness, the campus operates and manage its liquid waste facilities.

To comply with the Environmental Management Act 2007 (Act No. 7 of 2007), the campus was initially issued with an Environmental Clearance Certificate (ECC) in October 2019, **ECC 00178, Serial: BWoq0m178** to continue operating its sewerage system. In accordance with EMA, the ECC is valid for a period of three years, thus it has expired, and Section 56 of EMA provides for the renewal of the ECC. This EMP is updated for purpose of application of the renewal of the ECC.

1. Overview

This environmental management (EMP) plan is updated for the application of the RENEWAL of the an Environmental Clearance Certificate **ECC 00178, Serial: BWoq0m178** that was issued on October 2019 for the continued operation of the sewerage facility at the University of Namibia's Neudamm Campus.

1.1. Purpose of the EMP

This Environmental Management Plan (EMP) is a risk strategy that contains logical framework, monitoring programme, mitigation measures, and management control strategies to minimize environmental impacts. It further stipulates the roles and responsibility of persons involved in the project. These strategies are developed to reduce the levels of impacts for the projects.

1.2. Compliance to the EMP

This EMP is a legally binding document as given under the provisions of the Environmental Management Act, 2007 (Act No. 7 of 2007). UNAM and its contractors must adhere to the framework of this document.

1.3. Roles and Responsibilities

1.3.1. Proponent

The proponent (UNAM), shall take overall responsibility for proper implementation of the EMP. It remains the responsibility of the proponent to appoint key personnel for the implementation of the EMP.

1.3.2. Site Manager

The Site Manager (SM) represents the proponent on site. He/she shall be responsible for daily activities in ensuring environmental protection. All communication with regard to the implementation of EMP must be channelled through the SM.

1.3.3. Environmental Compliance Officer (ECO)

Compliance to EMP is enforce by the environmental inspector as provided for under Environmental Management Act (No. 7 of 2007) (EMA).

1.3.4. Employees and contractors

It shall be responsibility of employees and contractors to adhere to the provision of EMP at all times.

1.4. Disciplinary Action

1.4.1. Proponent

The EMP is a legally binding document, non-compliance to the EMP is punishable upon conviction under EMA. Amongst others, legal action, fines and suspension of work or both.

2. Project Description

2.1. Location

Neudamm Campus and Farm is situated ± 30 kilometers east of Windhoek on the B1 road to Hosea Kutako International Airport. The evaporation ponds are located south of the campus (-22.503984°S, 17.371364°E) Figure 1.

Figure 1. Neudamm Sewerage facility

2.2. Sewer System description

In developing countries, most sewerage are treated through conventional method of oxidation pond system (Pond stabilization), which is the case for Neudamm campus. Non-conventional methods exist, but they are expensive while conventional methods depend mainly on natural purification process. The oxidation ponds system allows a certain extend of sewage treatment by removing some contaminants from wastewater.

Neudamm's sewerage system has a four screening levels. Firstly, the sewer enters the initial screening compartment where a mesh prevents the solids such as hard paper and toilet to pass through (Figure 2).

Figure 2. Initial sewerage screening phase

Solid at the screen mesh are removed and stacked net to the inlet waiting to be burn. After the initial screening, the water is recirculated to allow for the settlement of the sludge in a concrete pond (Figure 3).

Figure 3. Sewerage settlement pond

To ensure oxygen supply from the movement of sewer water, the settlement pond is equipped with aerator boat that circles around this aid to supply oxygen to aerobic bacteria. The aerobic bacteria are an important component of the oxidation ponds. The algae thrive on nutrient in the sewerage and in the process of photosynthesis, the produce oxygen which is vital for aerobic bacteria that decomposes the sewerage which eventually prevent odors.

The settled sewage sludge in the pond is removed, and sun dried on the concrete slab, which is later used as manure (Fig 4).

Figure 4. Dried sewerage sludge

The wastewater from the settlement pond is circulated into the main holding pond for further purification by bacteria and then through to three smaller ponds. In the fourth ponds, the grey water is pumped using a mechanical pump (Figure 5) to the holding dam, where it is used for irrigation purposes.

Figure 5. Mechanical pump on site

3. Environmental Audit

During site assessment on 13th March 2023, status quo of facility remained, and the facility's operation are in accordance with the EMP. Nonetheless, some recommendation were not implemented and are highlighted in red in the EMP.

4. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

Table 1. Regulatory Framework

REGULATORY FRAMEWORK	SUMMARY	APPLICABILITY
The Namibian Constitution	The State shall actively promote and maintain the welfare of the people by adopting policies aimed at … The maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilization of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future	Protection of the environment and biodiversity
Environmental Management Act No. 7 of 2007	This act aims to promote the sustainable management of the environment and the use of natural resources and to provides for a process of assessment and control of activities which may have significant effects on the environment; and to provide for incidental matters	The acts provide a list of activities that may not be undertake without an environmental clearance certificate to prevent environmental damages

REGULATORY FRAMEWORK	SUMMARY	APPLICABILITY
Draft Pollution Control and Waste Management Bill	This Bill serves to regulate and prevent the discharge of pollutants to air and water as well as providing for general waste management	To protect the Environment from possible pollution
Environmental Policy framework (1995)	This policy subjects all developments and project to environmental assessment and provides guideline for the Environmental Assessment.	Consideration of all possible impacts and incorporate them in the development stages
National Solid Waste Strategy	The strategy to control and manage solid waste in Namibia	Solids from screening may require handling as per the provision of this strategy
Regulations Related to the Health and Safety of Employees at Work. Reg No. 156	Promotes the Safety and Health of employees at the work place	Employees working at the facility are prone to water borne disease, especially during cleaning and maintenance.
Public Health Act No. 1 of 2015	To Protect the public from nuisance and states that no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health.	Application of proper mitigation measure to prevent water pollution
Labour Act No. 11 of 2007	This Act outlines the labour laws which encompass protection and safety of employees at work.	Ensure that employees at work place are protected

REGULATORY FRAMEWORK	SUMMARY	APPLICABILITY
Water Resource Management Act No.11 of 2011	Provide for the management, protection, development, use and conservation of water resources; to provide for the regulation and monitoring of water services and to provide for incidental matters.	Possibility of surface and groundwater contamination.
National Heritage Act No.27 of 2004	The Act gives provision of the protection and conservation of places and objects with heritage significance.	To ensure precaution if archaeological material are found.

5. The EMP table

Table 2. The Environmental And Social Management Plan (ESMP)

Environmental / Social Impact	Objectives	Proposed Mitigation Measures	Monitoring Indicator	Party Responsible
Induction	To ensure that employees are familiar with the EMP	1. All employees must go through an induction course to understand the provision of the EMP.	Induction Minutes, report and Attendance Register	**UNAM**
Solids from screening	To surface and ground water contamination	1. A concrete slab, similar to the one for the sludge drying must be constructed (pending) 2. Solids must be spread on the slab to ensure complete dryness 3. A mesh should be installed on top of the slab to prevent solids from being blown away by wind (pending). 4. Solids must be collected, taken to the waste disposal site for burning (These solids are not classified as hazardous waste).	Visual inspection	**UNAM**
Surface and Ground water pollution	To prevent surface and ground water	1. Aeration ponds must be installed with the liner material to prevent leaching 2. The ponds must be monitored frequently to ensure that there is no overflow	Water monitoring result Visual monitoring for overflows	**UNAM**

Environmental / Social Impact	Objectives	Proposed Mitigation Measures	Monitoring Indicator	Party Responsible
		3. Implement a water monitoring system next to the ponds, especially on the southern side (I.e. monitor ground water quality 50m south of the pond) and 200m east in the river stream) (pending).		
Air Pollution	To prevent odors	1. The aerator boat must be kept well serviced and functioning	Physical inspection of aerator boat	**UNAM**
Health and Safety	To ensure good health and safety for the employees and public	1. A compulsory safety induction course must be given to all employees; 2. Provide Personal Protective Equipment (PPE) such as dust masks, suitable gear, hand gloves, safety boots etc. employees; 3. No employees must be allowed on site without PPE 4. Ensure proper maintenance of the ponds 5. Safety signs must be put at designated places;	Induction Minutes Complain of health issues by employees PPE for all employees	**UNAM**
Growth of alien vegetation	To prevent invasion buy invader vegetation.	1. Implement a maintenance program, where a contractor may be hired to remove invader vegetation	Physical inspection	**UNAM**

Environmental / Social Impact	Objectives	Proposed Mitigation Measures	Monitoring Indicator	Party Responsible
Heritage Resources / artefacts	Preserve Heritage	1. Heritage, human remains or artefacts find must immediately be cordoned off and reported to the National Museum (+264 61 276800) or the National Forensic Laboratory (+264 61 240461). 2. No artefacts must be removed or be interfered with prior to authorisation from the Namibian National Heritage Council (NHC)	Sighting report/s of heritage resources / artefacts	**UNAM**

6. Decommissioning Plan

It is not envisioned that the project would be decommissioned. Perhaps, a lot would change by the time UNAM intends to decommission the project. However, the following measure must be taken.

1. Hire qualified personnel to develop a decommission plan;
2. Submit the decommissioning plan to the Ministry of Environment and Tourism for approval;
3. Inform workers and the affected stakeholders (Service providers) about the project closure at least 6 months prior to the decommissioning;
4. Ensure that all contaminated material must be properly cleaned before their disposal at approved sites;
5. The work must be supervised by qualified and competed persons;
6. It is recommended that an environmental specialist be hired to monitor any possible damage to the environment;
7. Workers must be provided with all necessary PPE;

7. Conclusion and Recommendations

7.1. Conclusions

The review of this EMP concluded that the operation of the sewerage facility is within the confines of the EMP with few recommended actions that were not undertaken.

7.2. Recommendations

The environmental audit and the review of this EMP recommend to the approving authority as follows;

- Renewal of the environmental clearance certificate;

Furthermore, the review recommend to UNAM as follows;

- Establish baseline for the water quality in the surrounding area;
- Construct a slab of the storage of solids from the screen
- An environmental audit be undertaken twice a year and bi-annual reports be submitted to MEFT to monitor the environmental performance;
- Aeration ponds must be installed with an approved liner material to prevent ground water pollution;
- The ponds must be monitored frequently to ensure that there is no overflow into of sewer water into the surrounding;
- Implement a water monitoring system next to the ponds, especially on the southern side (I.e. monitor ground water quality 50m south of the pond and 200m east in the river stream).

8. References

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8.1. Appendix 2. Site Pictures