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ENVIRONMENTAL MANAGEMENT PLAN:

**Establishment of a landfill site on the
farm Northleigh 422/RE in the Viljoenskroon district, Free State.**

DESTEA Ref No: WML/EIA/01/2017

NEAS Ref. No: FSP/WASTE/0000015/2017

Coordinates:	Latitude:	27°12' 55.69"	South
	Longitude:	26°58' 51.56"	East

August 2017

Applicant:

Moqhaka Local Municipality

Contact person S. M. Mqwathi (Municipal Manager)

Postal Address P.O. Box 302

Kroonstad

9500

Tel: 056 216 9911

Prepared by:

Eko Environmental

Contact person: Louis De Villiers
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1. Project Overview

1.1 Name and address of the Applicant

Name: **Moqhaka Local Municipality**

Contact Person: Mr. S. M. Mqwathi (Municipal Manager)

Postal Address: P.O. Box 302
Kroonstad
9500

Tel: 056 216 9911

1.2 Name and address of land owner

Name: **Moqhaka Local Municipality**

Contact Person: Mr. S. M. Mqwathi (Municipal Manager)

Postal Address: P.O. Box 302
Kroonstad
9500

Tel: 056 216 9911

1.3 Name and address of the Environmental Assessment Practitioner

Name: **Eko Environmental**

Contact Person: Louis De Villiers

Postal Address: Suite 158
Private Bag X01
Brandhof
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Tel: 051 444 4700

Fax: 086 697 6132

Please refer to **Annexure A** for the Curriculum Vitae of Louis De Villiers.

1.4 Property Description

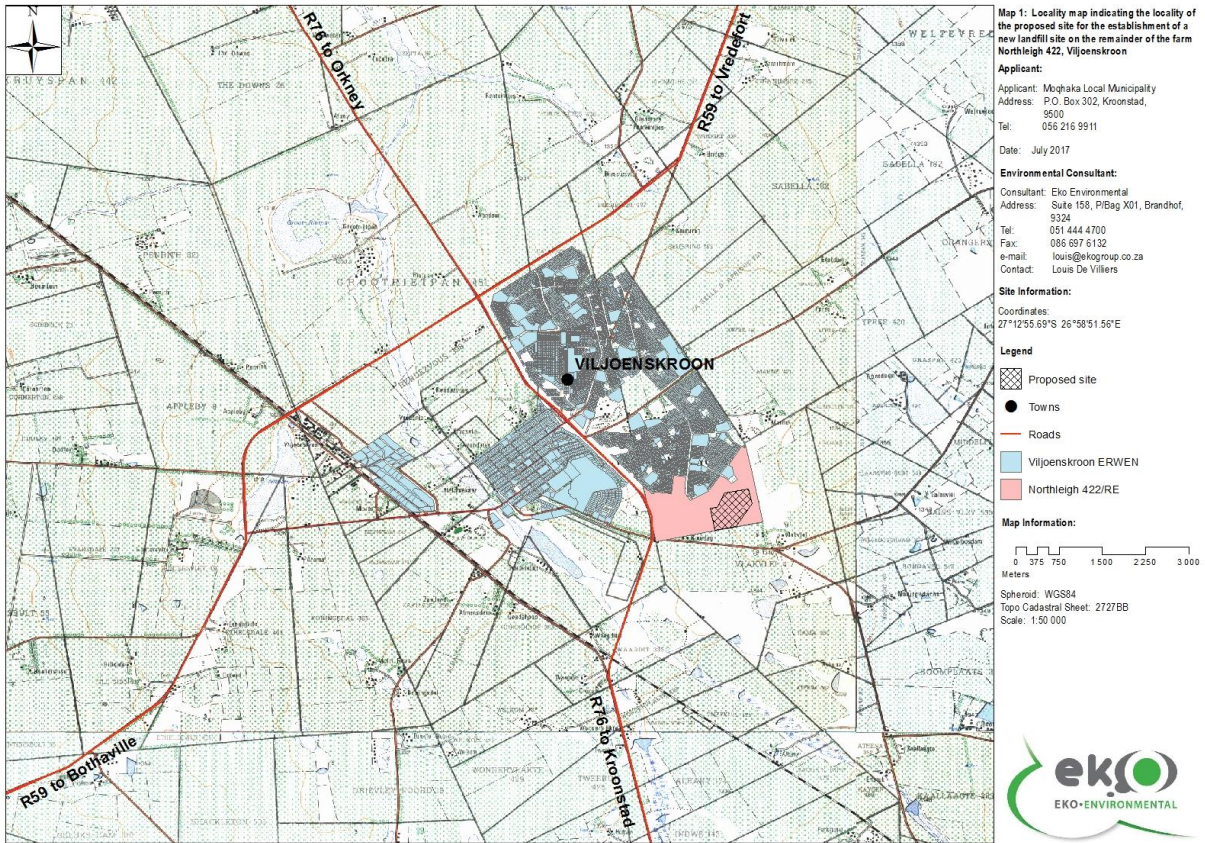
Table 1: Property description

Farm name and number	Farm portion	Area (ha)	Title deed
Northleigh 422	Remainder	400.5973	T6387/2006

Local Municipality: Moqhaka

District Municipality: Fezile Dabi

Figure 1: Regional setting of Northleigh 422/RE



Direction to the nearest towns

Viljoenskroon town is located approximately 2 km to the west of the proposed location of the landfill and Rammulotsi is situated about 1.3 km to the northwest of the proposed site (refer to **Figure 1**). It should be noted that future expansion of Rammulotsi will occur in the direction of the landfill. However, a buffer of 500 m will always be maintained.

Surface infrastructure

The proposed site was previously and is still currently used for agriculture (i.e. crop production and grazing) and there is currently no infrastructure on the site.

Roads

Access to the proposed landfill will be obtained from Krige Street onto an existing road (Refer to Figure 1).

Water

The water table in the area surrounding Viljoenskroon is very shallow. Water will be used at the ablution facilities for sanitary purposes. Appropriate measures will be implemented to reduce the risk of contamination of the water. A hydro census revealed that there are numerous boreholes on neighbouring land which are used by them.

Waste and Effluent

Due to the nature of the project, waste will be disposed of at the facility. The site will be used for the disposal of general waste. The volume of waste to be disposed of at the landfill site is between 1 500 - 2 500 m³/month (Refer to Section 6 in this report for further detail).

Presence of servitudes

No servitudes are present on the farm.

Land tenure and use of immediately adjacent land

The Remainder of the farm Northleigh 422 is the property of the Moqhaka Local Municipality. The land is leased by local farmers and is used for agriculture (i.e. grazing and crop production). It was proposed that the town will expand in the direction of the proposed landfill site. However, due to the need for a new landfill site it was decided that the town will no longer expand in this direction.

The farm is bordered by municipal grounds of Rammulotsi township to the north, north west with the town of Viljoenskroon located on land west of the site. The land use of the other immediately adjacent land is mainly residential (i.e. town) and agricultural (i.e. crop growing and lives stock farming). The

owners of the land adjacent to the farm are listed in **Error! Reference source not found.** with an indication of the properties:

Table 2. Detail of landowners adjacent to Northleigh 422/RE

Owner	Farm name and number	Farm portion
Mr. Paul Marè	Vlakovlei 417.	RE, 1, 2, 3
	Marne 421	RE
Moqhaka Local Municipality	Viljoenskroon Townlands 11	RE
Moqhaka Local Municipality	Northleigh 422	7

2. Objectives of the Environmental Management Plan (EMP)

The Environmental Management Plan is intended to provide environmental specifications to put measures in place to mitigate and manage potential environmental impacts arising from the Construction and Operation phases of the establishment of a landfill site on the Remainder of the farm Northleigh 422 in Viljoenskroon, Free State. This EMP enables the key role players to use a pro-active approach by addressing potential impacts beforehand thus limiting the corrective measures needed during the construction and operational phases of the project.

This EMP deals with the phases as set out below:

2.1 The Planning Phase

The EMP offers an ideal opportunity to incorporate pro-active environmental management measures in order to ensure that potential harmful impacts are limited and avoided as far as possible. Furthermore, by implementing this EMP during the planning phase, the necessary corrective actions can be taken to limit future potential impacts which could be detrimental to the environment.

2.2 The Construction Phase

The majority of impacts during the construction phase will pose immediate effects (e.g. noise, dust etc.). The site must be monitored on a regular basis during the entire construction phase in order to identify and mitigate impacts as they occur. These impacts can then be mitigated effectively using the measures as set out in this EMP.

2.3 The Operational phase

Pro-active measures used during the planning and construction phases can be used to minimise potential environmental impacts during the operational phase of the landfill. These measures will also limit the risks related to certain impacts and reduce the intensity of monitoring during the operational phase.

3. Construction phase and Responsible parties

Formal responsibilities are necessary to ensure that procedures and EMP measures are executed throughout the construction phase by each responsible party. Responsible parties for this project include the following; Project Manager, Site Manager, Contractors, Environmental Control Officer and construction workers.

The Project Manager:

- Ensure that the Applicant and on site contractors are aware of all specifications, legal aspects, and standards of procedure relating to the construction phase in terms of environmental protection.
- Ensure that all EMP measurements and guidelines are communicated to and adhered to by all parties on site.
- Monitor the implementation of the EMP throughout the construction phase through regular monitoring, inspections and meetings with all applicable parties on site.
- Should be completely familiarised with the EIA for the project, the conditions of the RoD and other relevant environmental legislation.

The Site Manager:

- Will be familiarised with the EIA for the project.
- Will be familiarised with the conditions regarding the RoD for the project.
- Will have sound knowledge of and be familiarised with the EMP.
- Should be aware of all specifications, legal aspects, and standards of procedure relating to the construction phase in terms of environmental protection and ensure compliance with these.
- Will have an overall responsibility to implement measures as set out in this EMP.
- Will ensure the relevant audits take place to ensure compliance with this EMP.
- Will continuously liaise with the project manager, the environmental control officer and other role players on matters concerning the environment.
- Prevent actions that will harm or may cause harm to the environment, and take steps to prevent any form of pollution on the site.
- Confine related activities to the demarcated construction site.

The Environmental Manager:

- Conduct daily inspections to determine compliance with RoD using checklists
- Submit monthly audit update report to External Auditor and Project Management, showing progress with findings
- Facilitate reporting, recording, investigation and follow-up of environmental related incidents.
- Facilitate and integrate relevant training programs for personnel covering all activities impacting on the environment
- Ensure that the environmental commitments in this Environmental Management Plan and the RoD are complied with by the contractor and sub-contractors.

- Evaluate construction methods, techniques and procedures, identify environmental risk, draw conclusions and recommend possible solutions.
- Implement and manage the necessary construction and operational Environmental Management Measures.
- Proactively interpret and objectively analyse environmental data and initiate programs to mitigate against the environmental and related risks
- Assume a leading role in performing environmental audits and guiding other staff in the performing of external and internal audits
- Perform monthly environmental reporting for input into Divisional management information reports.

The Environmental Control Officer:

- Should be fully familiar with the Environmental Impact Assessment Report.
- Be fully familiar with the conditions of the Record of Decision (RoD).
- Be fully familiar with the Environmental Management Plan.
- Be fully up-to-date with all relevant environmental legislation and policies and procedures, and ensure compliance with them.
- Ensure that periodic environmental performance audits are undertaken on the project implementation.
- Submit an environmental compliance report on a monthly basis, in writing, to the DESTEA.
- Maintain the following on site:
 - A daily site register
 - A non-conformance register
 - A public complaint register
 - A register of audits
- Remain employed until the completion of the construction phase.
- Report to project manager.
- Convey the contents of this document to the site staff and discuss the contents in detail with the Project Manager and Contractor.
- Undertake regular and comprehensive inspection of the site and surrounding areas in order to monitor compliance with the EMP.
- Take appropriate action if the specifications contained in the EMP are not followed.
- Monitor and verify that environmental impacts are kept to a minimum, as far as possible.

- Ensure that activities on site comply with all relevant environmental legislation.
- Compile progress reports on a regular basis, with input from the Site Manager, for submission to the Project Manager, including a final post-construction audit carried out by an independent auditor/consultant.

Contractors and Service Providers:

All contractors (including subcontractors and staff) and service providers are ultimately responsible for:

- Complying with the environmental management specifications where applicable;
- Provide Environmental; Method Statements to the Site Manager with regards to how certain activities on-site will be conducted.
- Adhering to any environmental instructions issued by the Site Manager/Project Manager
- Submitting a report, in a format and frequency as decided upon by the Project/Site Manager, which will document all incidents that have occurred during the period before the site meeting
- Arrange that all his employees and those of his subcontractors receive training. Training has to be appropriate for the level of the tasks and functions undertaken.

4. Layout Plan

- A copy of the layout plan must always be available on site.

5. Protection of Cultural or Historical elements

- Due to the nature of the project it is not expected that there will be any cultural or historical significant artefacts on the site. The South African Heritage Resources Agency must be notified if any elements of cultural or historical importance are found during the operational phase.

6. Protection of Plant and Animal Life

- No open fires are allowed on the site after rehabilitation.
- No hunting of wild animals on site or surrounding area.

7. Inspections and monitoring

- Ongoing and regular reporting of the progress of implementation of this EMP will be done.
- Inspections and monitoring shall be carried out on both the implementation of the EMP and the impact on plant and animal life.
- Visual inspections on erosion and physical pollution shall be carried out on a regular basis.

- The groundwater will be monitored by sampling boreholes downstream of the landfill, monitoring will be conducted on an annually basis and sampling routines will be updated subsequent the water quality results after one year.

8. Compliance reporting / submission of information

- An internal environmental officer will be appointed. The officer is responsible to monitor all the environmental management measures and ensure compliance with the EMP.
- A compliance assessment will be undertaken by an independent Environmental Control Officer once during and after rehabilitation of the site to verify compliance with the EMP and the Record of Decision (should the project be considered for approval) (refer to Table 1).
- Any changes of the lay-out and/or rehabilitation plan or technology will be submitted to the Free State Department of Economic Small Business Development, Tourism and Environmental Affairs for approval.
- Reports confirming compliance with various points identified in the EMP will be kept and made available when requested.
- Any emergency or unforeseen impact will be reported within 12 hours after identification to the Free State Department of Economic Development, Tourism and Environmental Affairs telephonically and confirmed in writing.

Table 1: Mitigation measures and monitoring, responsible person(s) and time frames

Activity	Potential Impact	Mitigation	Responsible Person	Performance Indicators	Time Frame
Operational Phase					
Storm water management	<ul style="list-style-type: none"> • Erosion • Surface water pollution 	Inspection, maintenance and repair if necessary.	Environmental officer	<ul style="list-style-type: none"> • No erosion • Minimum soil loss 	Ongoing
EMP compliance monitoring	N/A	Environmental compliance assessment to verify compliance with the EMP during operation.	Independent Environmental Control Officer	Full compliance with the EMP and RoD.	Once during rehabilitation and once after rehabilitation.
Security and recovery of site	<ul style="list-style-type: none"> • Injury to people or animals, • Re-establishment of vegetation is not sufficient due to disturbance. 	The site will be fenced.	Environmental officer	<ul style="list-style-type: none"> • No injuries, • Good re-vegetation on site. 	Ongoing
Drainage of water	<ul style="list-style-type: none"> • Pollution of groundwater 	Monitoring will be done on groundwater to determine	Environmental officer	<ul style="list-style-type: none"> • No contamination of groundwater. 	Annually Groundwater monitoring

Activity	Potential Impact	Mitigation	Responsible Person	Performance Indicators	Time Frame
		background values and if pollution occurs.			should be done annually
Clearing of alien species	<ul style="list-style-type: none"> • Overgrowth of weeds • Altering of ecosystem 	Monitoring of plant growth and removal of alien species.	Environmental officer	<ul style="list-style-type: none"> • No alien species on site. 	Ongoing Plant growth monitoring should be done ongoing.

APPENDIX: **A**



Project team

Curriculum Vitae Louis de Villiers

Nationality : South Africa
Profession : Scientist
Specialization : Environmental Management, Soil Science, GIS and Health and Safety
Date of birth : 22 December 1983
ID-Number : 831222 5030 080

QUALIFICATION:

UNIVERSITY OF THE FREE STATE

2010: B.Sc. Environmental Geography

2013: SAMTRAC – NOSA Bloemfontein

EXPERIENCE

Dec 2010 – Present: EKO Environmental, Environmental Practitioner

2010: Practical demonstrator at the UFS:

- First year Introduction to Chemistry
- Second year Soil Science
- First year Introduction to Geography
- First year Urban Geography
- Second year Geographic Information Systems

2009: Practical demonstrator at the UFS (Geography Department): Second Year Geographic Information Systems Students

FIELD OF EXPERTISE

Environmental Impact Assessments

Environmental Management Reports

Mining authorisations

Waste license applications

Water use authorisation

Environmental Compliance Audits

Atmospheric Emission License applications

Data and GIS management