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EKO•ENVIRONMENTAL

ENVIRONMENTAL MANAGEMENT PLAN:

THE PROPOSED TOWNSHIP ESTABLISHMENT ON PLOT 146, BLOEMSPRUIT, SMALLHOLDINGS, BLOEMFONTEIN, FREE STATE

Coordinates	Latitude:	29° 08.053'	South
	Longitude:	26° 16.795'	East

May 2018

Applicant:

Lenova Construction and Development (Pty) Ltd

Contact person Mrs. A. Zhao
Postal Address PO Box 29373
Danhof
Bloemfontein
9310
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Prepared by

EKO ENVIRONMENTAL

Project Team:

Project Team	Richard Williamson
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1 Objectives of the Environmental Management Plan (EMPr)

The Environmental Management Plan is intended to provide environmental specifications for the township development and to put measures in place to mitigate and manage potential environmental impacts arising from the phases of the proposed township development on plot 146, Bloemspruit Agricultural plots, Bloemfontein.

2 Responsibility of contractors during planning and construction phase

- Protect the environment on the site planned for construction as well as the surrounding properties.
- Ensure controlled access to the site to prevent degradation.
- Be held responsible for the implementation of the EMPr.
- Be held responsible to have the EMPr available on site at all times.
- Be held responsible for compliance with all relevant aspects of the EMPr.

3 Responsibility during operational phase

- Providing a budget for maintenance of infrastructure.
- Maintaining all approved infrastructure in good working order to effectively fulfil its intended purpose to prevent negative environmental impacts.
- Not construct any additional buildings, infrastructure, etc. contrary to the approved RoD, without performing an Environmental Impact Assessment (if required) to evaluate alternatives and identify potential impacts.
- To immediately remedy any factors that contribute to negative environmental impacts.

4 Layout plan

- A copy of the layout plan must be available at the site for scrutiny during construction when required.

5 Demarcating the development area

- The area must be clearly demarcated by means of beacons at its corners, and along its boundaries if there is no visibility between the corner beacons.
- The barrier of the proposed development must be erected first in order to prevent the construction activities from encroaching into open spaces and to minimize disturbance. The type of barrier to be used to fence off the construction area should be in such that avifauna cannot be trapped in it.

6 Protection of Topsoil

- Topsoil must be removed from all areas where physical disturbance of the surface will occur.
- Topsoil must be kept separate and shall not be used for building or maintenance of access roads.

7 Protection of Cultural or Historical Elements

- The South African Heritage Resources Agency must be notified if any elements of cultural or historical importance are found during the construction phase.

8 Protection of Plant and Animal Live

- No open fires are allowed on site.
- No hunting of wild animals on site or surrounding area.
- The collection of fire wood is not allowed on site or surrounding area.
- The establishment of access roads should be as indicated in paragraph 9.

9 Establishing access roads on the site

- The existing access roads shall be used as far as practicable.
- Should a portion of the access road be newly constructed the following must be adhered to:
    - The route shall be selected that a minimum number of bushes or trees are felled and existing fence lines shall be followed as far as possible.
    - Steep gradients shall be avoided as far as is practicable.
    - Adequate drainage and erosion protection in the form of cut-off berms or trenches shall be provided where necessary.

- No other routes will be used by vehicles or personnel for the purpose of gaining access to the site.

10 Dust control on the access and haul roads

- Access roads will be maintained.
- The liberation of dust into the surrounding environment shall be effectively controlled if it becomes problematic by the use of, inter alia, water spraying and/or other dust-allaying agents. The speed of trucks and other vehicles on the access road must be limited to 35 km/hour to avoid dangerous conditions, excessive dust or excessive deterioration of the road being used.

11 Toilet facilities, waste water and refuse disposal

- Temporary chemical toilet facilities must be made available on site during construction.
- Sewage from these toilets should be managed appropriately and not be disposed of on site or the surrounding environment to cause water or other pollution.
- Sewer lines will be connected to the municipal lines.

12 Handling of waste

- Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., shall be disposed and stored in suitable containers at a collecting point and collected on a regular basis and disposed off at an authorized waste disposal facility in the region. Specific precautions shall be taken to prevent refuse from being dumped on or in the vicinity of the site.
- Spills of any product like paint, oil, cleaning agents etc. should be cleaned up immediately by removing the spillage together with the polluted soil and by disposing it at a recognised facility.
- Suitable covered receptacles shall be available at all times and conveniently placed for the disposal of waste for general and hazardous waste.
- All used oils, grease or hydraulic fluids, paints, thinners etc. that can not be re-used shall be placed in a hazardous waste container for disposal at a suitable waste disposal facility.
- Best practices in terms of the management of any waste together with the recommended mitigation measures as described in the Basic Assessment Report should be implemented as minimum.

13 Rehabilitation

Rehabilitation of access roads

- Any gate or fence erected which is not required after the construction phase must be restored to the pre-construction condition.
- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the soil must be analysed and any deleterious effects on the soil arising from the development must be corrected and the area be seeded with a representative seed mix.

Final Rehabilitation of site

It is not anticipated that the proposed project will undergo decommissioning and / or closure. However, should it be decided to rehabilitate the site in future, the site will be rehabilitated to its original state as far as practicable possible, depending on the end land use to be decided upon at that time. The final rehabilitation of the site will, amongst other, include the following activities:

- All infrastructures, equipment and other items used during the operational period will be removed from the site.
- Scrap metal will be sold to be recycled.
- Waste material of any description, will be removed entirely from the site and disposed of at a recognised landfill facility in the area.
- Waste will not be permitted to be buried or burned on the site.
- Any concrete surface will be removed and compacted areas will be ripped.
- The site will be profiled with acceptable contours and erosion control measures.
- Topsoil will be returned to its original depth over the area.
- Depending of the end-land use, to be decided upon by the land owner at the time, the area will be revegetated with natural occurring vegetation.

14 Inspections and monitoring

- Monthly internal monitoring of all the environmental management measures and components shall be undertaken during the construction phase to verify compliance to the EMPr.
- Ongoing and regular reporting of the progress of implementation of this EMPr will be done.
- Inspections and monitoring shall be carried out on both the implementation of the EMPr and the impact on plant and animal life.

15 Compliance reporting / submission of information

- An internal environmental officer will be appointed in terms of the specific site. The officer will be responsible to monitor all the environmental management measures and ensure compliance with the EMPr during the Construction Phase.
- It is recommended that a compliance assessment will be undertaken by an independent Environmental Control Officer once during the Construction Phase and once during the Operational Phase to verify compliance with the EMPr and the Record of Decision (should the project be considered for approval).
- Any changes of the lay-out plan or technology will be submitted to the Free State Department of Economic Development, Tourism and Environmental Affairs **("DESTEA")** for approval.
- Reports confirming compliance with various points identified in the EMPr will be kept and made available when requested.
- Any emergency or unforeseen impact will be reported within 12 hours after identification to the DESTEA 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
Construction Phase					
Health and Safety: Potential dangerous working conditions, e.g. construction- vehicles and activities, etc.	Potential safety risk to employees	• Equip all employees and/or contractors working on the site with the necessary personal protective equipment, • Implement safety induction, • Training on relevant machinery.	Contractor	No injury incidents to employees or contractors on site.	• With appointment – Training and Induction • During construction phase - PPE
Clearance of site (Vegetation and topsoil)	• Erosion, • Loss of topsoil • Contamination due to sewage mismanagement • Invasion of alien plant species	• Levelling of the site, • Limit construction activities and movement of construction vehicles to the site under construction, • Stockpile soil in an area not prone to erosion for re-use during rehabilitation or for levelling purposes after construction, • Alien vegetation will be monitored and removed, • Spills of petrochemical or other potentially hazardous substances will be cleaned	Contractor	• No erosion, • Minimum soil loss	During construction phase

Activity	Potential Impact	Mitigation	Responsible Person	Performance Indicators	Time Frame
		immediately and the contaminated soil will be removed and disposed as hazardous waste, • Vehicles and equipment will be serviced regularly to prevent spillages of petrochemical an potential hazardous substances, • Drip trays will be used to prevent spillages, • Temporary toilets will be placed on site to be used by employees. Toilets will be maintained by contractor. • Topsoil will not be used for construction purposes.			
Waste management	• Littering • Aesthetic impact	• All hazardous waste spills must be cleaned immediately and disposed of appropriately, • Hazardous waste must be stored separately from other waste streams and disposed of at an authorised hazardous waste site. Disposal certificates	Contractor	• No pollution and/or littering	During construction phase

Activity	Potential Impact	Mitigation	Responsible Person	Performance Indicators	Time Frame
		must be kept on site, • Building material and general waste must be disposed of at the authorised landfill site in Bloemfontein and may not be dumped in the veld or on site, • Building rubble can also be used as filling material.			
Storage of potentially hazardous material	• Contamination of soil, ground and surface water, • Contamination of soil, ground and surface water as a result of spillage of petrochemical substances.	• Potentially hazardous material will be stored in a dedicated area inside a bund wall on an impermeable surface.	Contractor	• No spillage of potentially hazardous substances	Ongoing
Machine operation and maintenance	• Contamination of soil, ground and surface water, • Contamination of soil, ground and surface water as a result of	• Machines will be operated efficiently and by trained staff • Maintenance will be done regularly.	Contractor	• No spillage of potentially hazardous substances	During construction phase

Activity	Potential Impact	Mitigation	Responsible Person	Performance Indicators	Time Frame
	spillage of petrochemical substances.				
EMPr compliance monitoring: Construction Phase	N/A	• Environmental compliance assessment to verify compliance with the EMPr during construction.	Internal environmental officer	• Full compliance with the EMPr and RoD, • Minimum environmental impacts	Once during construction
Operational Phase					
Maintenance and repair of storm water systems	Erosion	• Maintenance, inspection and repair if necessary	Manager / Supervisor	• No erosion • Minimum soil loss	During operational phase
EMPr compliance monitoring: Operational Phase	N/A	• Environmental compliance assessment to verify compliance with the EMPr during operation.	Independent environmental officer	• Full compliance with the EMPr and RoD,	Once during operation

APPENDIX: A

Project Team CV's

Curriculum Vitae Richard Williamson

Nationality	:	South African
Profession	:	Environmental Assessment Practitioner
Position	:	Junior Scientist
Specialisation	:	Environmental Management, Geology and GIS
Date of birth	:	8 April 1992

EDUCATION AND PROFESSIONAL STATUS:

UNIVERSITY OF THE FREE STATE (UFS)

2013: BSc. Geology

2014: BSc. (Hons.) Geology

2017: MSc. Environmental Management
SACNASP Registration - Candidate Natural Scientist in the field of practice Earth Science

EXPERIENCE

2014:	Student Assistant at the UFS Geology Department
2016-2017:	Research Assistant at the UFS Centre for Environmental Management
2018:	Officer – Professional Services at the UFS Centre for Environmental Management
April 2018 - Present:	EKO Environmental

FIELD OF EXPERTISE
Environmental Impact Assessments
Environmental Management Reports
Mining authorizations
Waste license applications
Water use authorization
Environmental Compliance Audits
Geo- Physics field work
Geological field work
Data and GIS management