PROPOSED DEVELOPMENT OF A NEW SOLID WASTE SITE IN LUCKHOFF, LETSEMENG LOCAL MUNICIPALITY

DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME

DESTEA REF No: WML/EIA/01/2021 & EMS/15/21/06

NEAS REF. NO.: FSP/EIA/0000397/2021

CONSULTANTS

NSVT

ENVIRONMENTAL & SOCIAL SCIENTISTS

NOVEMBER 2021

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

APPENDICES

1. INTRODUCTION

Letsemeng Local Municipality has appointed *NSVT Consultants* as independent environmental assessment practitioners to undertake an Environmental Impact Assessment process as part of the Waste Management License ("WML") and Environmental Authorisation ("EA") application and subsequently to complete the draft Environmental Management Programme ("EMPr") for the construction of a waste facility in Luckhoff in the Free-State. An EMPr is management tool to manage and mitigate the negative impacts associated with the proposed waste site and to promote environmental sustainability. The EMPr was carried out in terms of Environmental Impact Assessment Regulations ("EIA") of 2014, as amended on the 7th April 2017 of National Environmental Management ("NEMA") Act (Act 107 of 1998). Section 28 "duty care" of NEMA bestows the responsibility on the polluter to ensure that reasonable measures are put in place to prevent pollution or degradation of the environment to occur, continue or recurred and the plan must be in line with NEMA.

2. DETAILS OF ENVIRONMENTAL ASSESSMENT PRACTITIONER

The curriculum vitae of the EAP is attached hereto as **Appendix A**.

EAP	NSVT Consultants		
CONTACT PERSON	Lorato Tigedi *Pr. Sci. Nat.*		
POSTAL ADDRESS	P. O. Box 42452, Heuwelsig, 9332		
TELEPHONE	061 500 8461	**FACSIMILE**	086 239 9133
E-MAIL	lorato@nsvt.co.za	**CELL**	082 784 8259
QUALIFICATIONS	B. Sc (Natural Science) B. Sc Hons (Wildlife)	**EXPERIENCE**	18 years working in the environmental management field as an EAP. She has completed environmental impact assessment, basic assessment, drafting of EMPRs and environmental compliance monitoring for various developments within the Free State., North West, Northern Cape and Eastern Cape Provinces.
EXPERTISE/ TRAINING	Resources & Sustainability, Physical & Biological Environment and Informatics Project Management for Environmental Management Social & Economic Sustainability Use of Matrices in EIA Public Participation Training Introduction to Social Impact Assessment		

	Integrating HIV/Aids and Gender related issues into EIA Process Integrated Water Resources Management, Water Use Authorisation and Water Use License Application One Environmental Systems Introduction to Environmental Law	**PROFESSIONAL AFFILIATE**	Environmental Assessment Practitioners Association of South Africa-2020/2519 South African Council for Natural Scientific Professionals: Professional Natural Scientist-4000161/09 Member of International Association for Public Participation Southern Africa Affiliate – IAPSA020 Member of international Association for Impact Assessment South Africa - 2191

3. DEFINITIONS

Environmental Management Programme ("EMPr"): An environmental action plan or tool used to ensure that undue or reasonably avoidable adverse impacts of a development are prevented, and that positive impacts are enhanced. It thus addresses the how, when, who, where and what of integrating environmental mitigation and monitoring measures through the project development activities.

Alien Vegetation: An undesirable plant growth which shall include, but not be limited to all declared category 1 and 2 listed invader species as set out in the Conservation of Agricultural Resources Act ("CARA"), 1983 regulations. Other vegetation deemed to be alien shall be those plant species that show the potential to occupy in number, any area within the defined construction area and which are declared to be undesirable.

Construction Activity: Any action taken by Setsoto Local Municipality, its contractors and sub-contractors, suppliers, or personnel during the construction process.

Environment: The surroundings within which humans exist and that could be made up of the following:

- the land, water, and atmosphere of the earth;
- micro-organisms, plant, and animal life;
- any part or combination of (i) and (ii) and the interrelationships among and between them; and
- the physical, chemical, aesthetic, and cultural properties and conditions of the foregoing that influence human health and well-being.

Environmental Aspect: An environmental aspect is any component of Setsoto Local Municipality, its contractors and sub-contractor's construction activity that is likely to interact with the environment.

Environmental Impact: An impact or environmental impact is the change to the environment, whether desirable or undesirable, that will result from the effect of a construction activity. An impact may be the direct or indirect consequence of a construction activity.

Environmental Authorization: A written decision from the Free State Department of Economic, Small Business Development, Tourism and Environmental Affairs ("DESTEA") that records its approval for undertaking the planned infill development and the conditions of approval which may include mitigating measures required to prevent or reduce the effects of environmental impacts during the life of a contract.

4. PROJECT DESCRIPTION

4.1. BACKGROUND INFORMATION

The proposed solid waste facility is located in Luckhoff, 48km from Koffiefontein which falls under the jurisdiction of Letsemeng Local Municipality in the Free State Province. The proposed site is 25 hectares and situated in the Remaining Extent of Farm Dorpsgronden van Luckhoff 577. The proposed site is accessible via Rabie Street followed by an existing dirt road. The travelling distance from the edge of town is approximately 2.7km. The waste site will close the gap in the community of Luckhoff for disposal of general and domestic waste. The solid waste facility will be used by the local municipality to service the Luckhoff area and surrounding farms.

Specialist studies that were conducted as part of the Environmental Impact Assessment Process in order to determine the most environmentally acceptable development footprint, are as follows:

- Heritage Assessment;
- Ecological Assessment and Wetland Delineation;
- Geohydrological Assessment; and
- Geotechnical Investigation

The proposed solid waste facility will comprise of the following components:

1. Two cells;
2. Security guardhouse;
3. Office with ablution facilities;
4. Waste recycling facility;
5. Stormwater drain;
6. Leachate pond;
7. General waste dump area;
8. Rubble dump area;
9. Cover material stockpile area;
10. Borehole upstream and downstream; and
11. 1.8m perimeter fence with a lockable gate.

The condition of the existing gravel road, which branches off from Rabie Street will be improved as part of the construction phase and the water and sewer will be connected to the municipal connections.

4.2. PROJECT LOCATION

The proposed site is located within Portion 1 of the Farm De Dorpsgronden 577, which is to the eastern side of Luckhoff/Relebohile, approximately 3km from the Luckhoff central business district using the Provincial Road R48, along the eastern side. A future residential development is to be located approximately 700m to the west and the existing settlement is more than 1km further west. To access the proposed site, an existing dirt road that branches off from Rabie will be used.

The co-ordinates of the external boundary for the proposed solid waste site is shown in *Table 1* below.

Table 1: Four (4) External Boundary Co-ordinates of the Proposed Site

POINT	LATITUDE			LONGITUDE		
	DD	MM	SS	DD	MM	SS
A	S29˚	44’	7.81”	E24	47’	54.90”
B	S29˚	44’	2.44”	E24˚	48’	17.30”
C	S29˚	44’	14.09”	E24˚	48’	25.58”
D	S29˚	44’	19.39”	E24˚	48’	3.65”

4.3. SENSITIVITY OF THE PROPOSED ROUTE

There are no sensitive areas within the proposed site per findings of the specialists below.

Ecologist:

1. The entire assessment area falls within the Northern Upper Karoo vegetation type Nk3, which consists mainly of flat to slightly sloping shrubland, dominated by dwarf karoo shrubs and sparse grasses, which is classified as Least Concern.
2. Ground truthing suggest that the broader areas rather form part of a transitional zone between the Northern Upper Karoo (NkU3 and Xhariep Karroid Grassland.
3. The entire assessment area is categorised as a Critical Biodiversity Area one (CBA 1) in accordance with the Free State Provincial Spatial Biodiversity Plan 2017.
4. The broader area to the west of the assessment area has also mainly been transformed by anthropogenic activities and majority of the vegetation has been subjected to burning.
5. There are no Red Data Listed, provincially or nationally protected species or any other species of conservational significance present.
6. The area does not fall within an Important Bird Area and no conservationally significant or important bird species or locally distinct habitats were observed during the site assessment,
7. No conservationally significant or important faunal species or locally distinct habitats were observed.

Heritage Specialist:

1. There is no evidence for the accumulation and preservation of intact fossil material within the Quartenary sediments and the likelihood of finding fossil vertebrate.
2. No evidence of stone age open sites, prehistoric settlement structures, rock engravings, graves, or historically significant buildings older than 60 years within the boundary of the area.

Geohydrologist: One upstream and one downstream surface water was observed in close proximity and there are no major groundwater abstraction identified within the local area.

There were no sensitive areas identified within the proposed site, Sensitivity Map and Conservational Status Map of the proposed site including the broader surrounding is shown in *Figures 1* and *2* below:

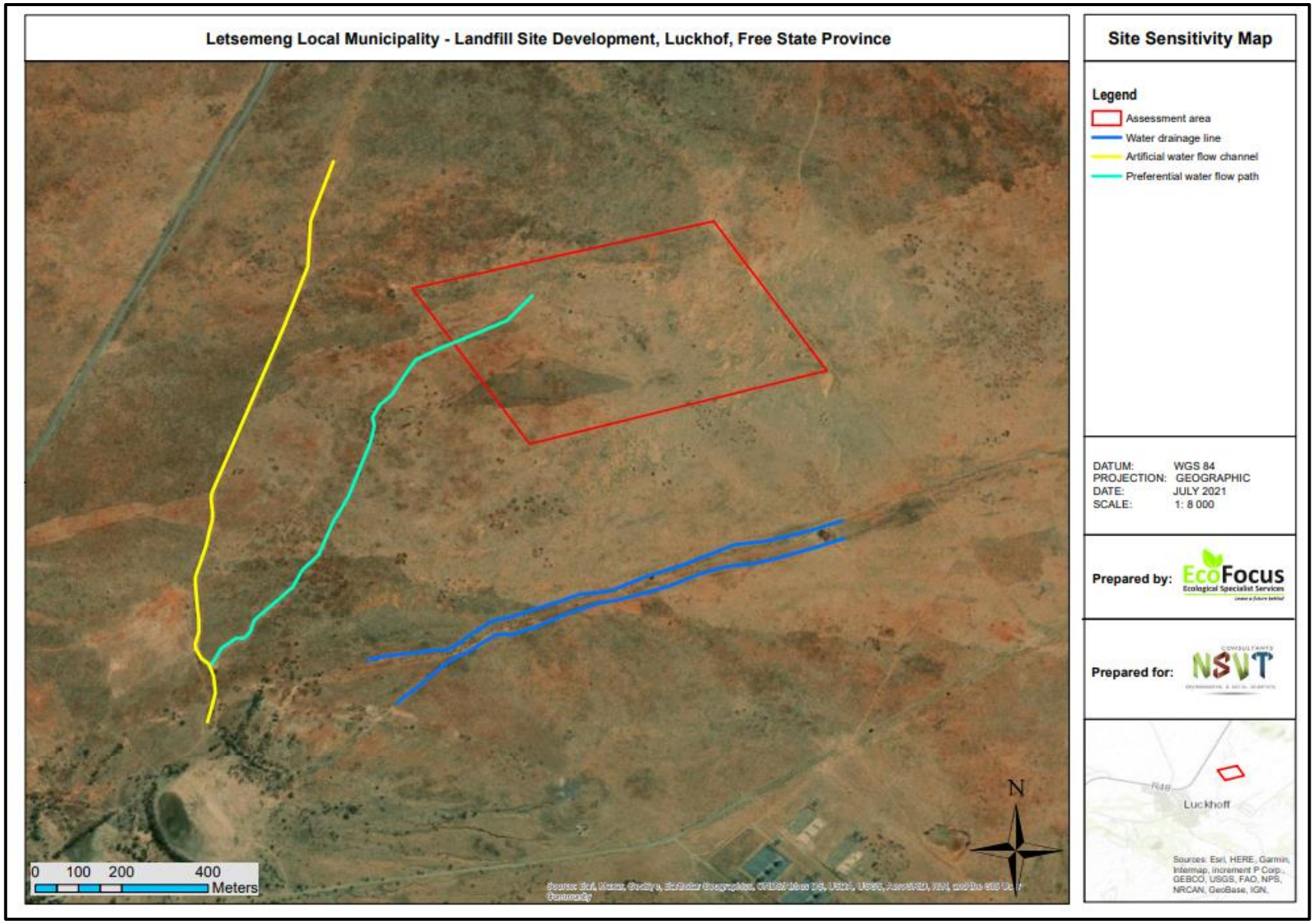


Figure 1: Sensitivity Map of the Proposed Site

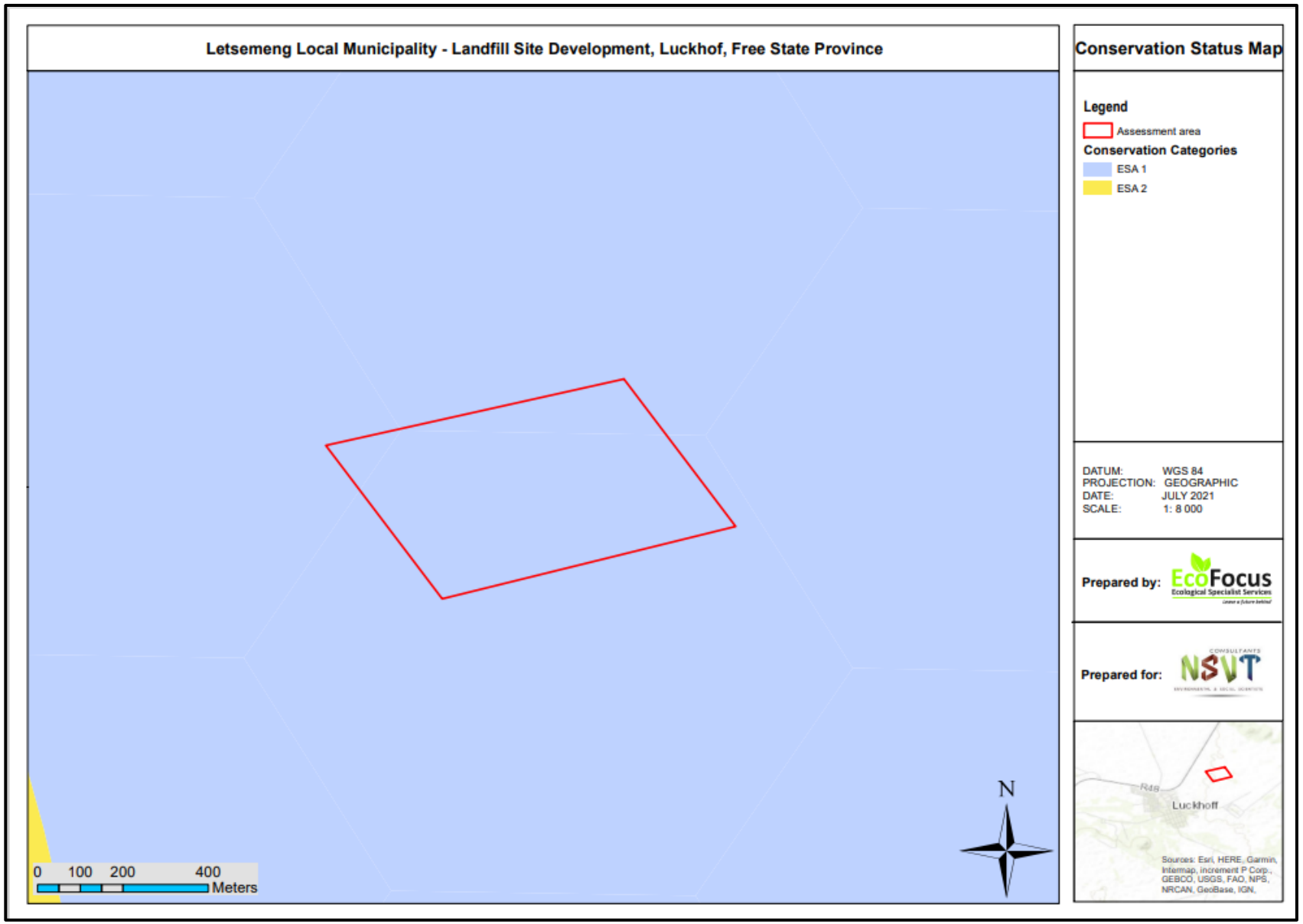


Figure 2: Map depicting Conservation Status Map of the Proposed Site

5. CHECKLIST FOR THE PROPOSED DEVELOPMENT

1. **Give a brief description of the surrounding area:**

   The surrounding area, which is undeveloped, is mainly used for livestock grazing. There is an Eskom overhead powerline within close vicinity and a dirt road that is assumed is used for the maintenance of the powerline. Although the residential area is located more than 1km south-west of the proposed site, there is future residential development, and it would be approximately 700m nearer.

2. **Is the project significantly different from the surrounding land use?**

   Yes

3. **Are any of the following located on the site chosen for the development?**

   i. River, stream, dam, wetland – Yes, the watercourses (earth-dams, seasonal drainage line and stream) are 300m away. There is a preferential waterway but has no conservation significance.

   ii. Open space area – No

   iii. Residential (formal or informal settlement) – No

   iv. Area of cultural or archaeological importance, e.g. graveyards, old houses, museum, etc. – No

4. **Will the project be considered a noisy intrusion to the neighbors?**

   No, there are no sensitive receptors within 500m radius.

5. **Would it be necessary to construct roads to access the proposed site?**

   No, there is an existing dirt road that will be upgraded as part of the construction of the solid waste facility.

6. ENVIRONMENTAL MANAGEMENT PROGRAMME

6.1. INTRODUCTION

The EMPr has been divided into four different phases associated with the proposed development namely the pre-construction planning phase, the construction phase and operational phase. This draft EMPr will be considered a Final EMPr if approved by the DESTEA. It should be read in conjunction with the contract documentation to ensure that Letsemeng Local Municipality works in an environmentally sensitive manner, thus ensuring the impacts on the environment and neighbouring agricultural properties are kept to a minimum.

6.2. OBJECTIVES OF THE EMPR

The aim of the EMPr is to ensure that impact on the environment due to the proposed development is limited. To achieve this, the EMPr has the following objectives:

- To identify possible environmental impacts of the proposed activity on the environment and mitigation thereof.
- To provide information on construction activities associated with the identified environmental issues.
- To provide guidelines for the Letsemeng Local Municipality in respect to the identified environmental issues.
- To provide guidelines to the responsible persons from Letsemeng Local Municipality to follow appropriate contingency plans in the case of various negative impacts.

6.3. RESPONSIBLE PERSON (S)

The implementation of this EMPr requires the involvement of various role players, each with specific responsibilities to ensure that the development is completed in an environmentally sensitive manner.

The Developer: Letsemeng Local Municipality

Responsibility: To implement the final EMPr after approval by DESTEA before completion of the construction phase and ensure the constructed development complies with the National Environmental Management Act (Act 107 of 1998) requirements and the conditions of the EA. This includes obtaining all the other applicable permits and/or licenses before commencement of construction.

Consulting Engineers: Dipabala Solutions

Responsibility: To undertake the detailed design for the proposed development and to ensure that necessary permits have been obtained prior to commencement of construction as well as the monitoring of construction activities.

Environmental Control Officer:-To be appointed

Responsibility:

- To ensure that the Letsemeng Local Municipality implements the EMPr for the duration of the project from pre-construction to post-construction (decommissioning).
- To review the method statements compiled by the contractor with the resident engineer.
- To maintain a direct open line between the Letsemeng Local Municipality team and the community.
- To audit the implementation of the EMPr and compliance to the environmental authorisation once a month until project completion.

The Contractor:-To be appointed

Responsibility:

- To implement the EMPr and keep a copy on-site for the duration of the construction phase, as the obligations imposed by the document are legally binding.
- To comply with the Waste Management License conditions and undertake construction activities in an environmentally sensitive manner and rehabilitation of the proposed site.
- To undertake good housekeeping practices during the duration of the project.
- To ensure that adequate environmental awareness training takes place in the language of the Employees.

Designated Environmental Officer:

Responsibility:

- To implement the environmental management plan.
- To maintain records of environmental queries for the duration of the construction.
- To resolve environmental issues during the construction phase of the project.

As a minimum the DEO/SECO shall have an accredited Higher Diploma qualification in environmental or natural sciences or equivalent. Alternatively, the DEO should have a minimum of 2 years' experience in a similar role in construction or regulatory environment.

The Project Steering Committee (Environmental Forum): A committee that comprises of representatives of Letsemeng Local Municipality, Engineers, ECO; Councillor and Ward Committees.

Responsibility:

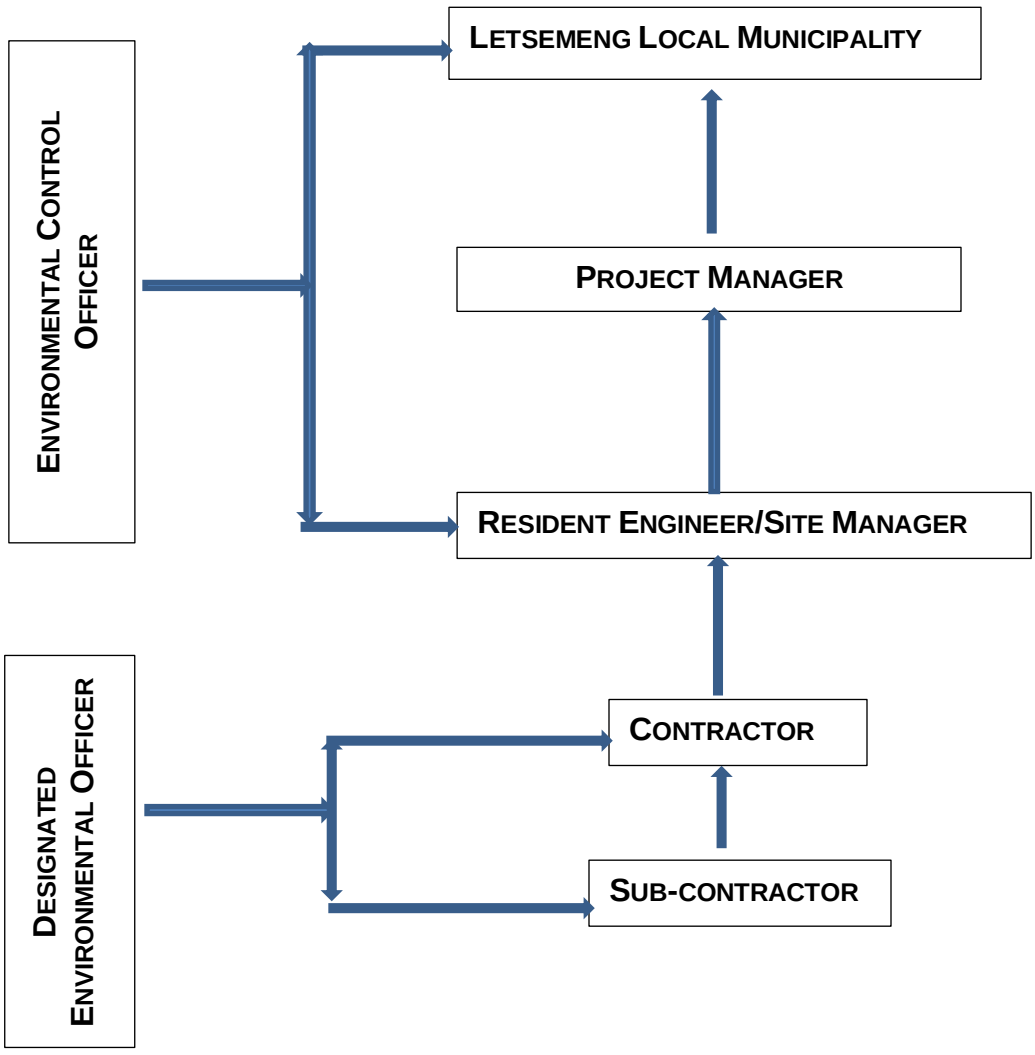
- To monitor the implementation of the EMPr.
- To assist in the sourcing of general workers from the local community and surrounding farms.
- To help ensure participation of local contractors during construction.
- To assist in resolving social or environmental issues that may arise during construction.

6.4. PROPOSED MECHANISMS FOR MONITORING COMPLIANCE WITH THE EMPR AND REPORTING THEREOF

The ECO must have adequate environmental knowledge to understand and implement this EMPr. They may not be someone appointed by the contractor, engineer or other party involved with the project. The ECO must be appointed and report to LLM only. If, in the opinion of the ECO, that there is a serious threat to or impact on the environment caused directly by the construction activities, the ECO may petition the Engineer to stop the works. Upon failure by the contractor or his workforce to show adequate consideration to the environmental aspects of this EMPr, the ECO may recommend to the engineer to have the contractor's representatives' or any employee(s) removed from the site or the work suspended until the matter is remedied. If the transgression continues, the ECO in consultation with the Engineers may issue the contractor with a penalty.

6.4.1. ORGANIGRAM FOR REPORTING LINES

The organogram below depicts reporting lines for implementation of the EMPr.



All senior personnel shall be required to familiarise themselves with the contents of this document.

6.5. METHOD STATEMENT

A method statement outlines construction activities to be undertaken with mitigation measures. The contractor should give a written statement to the resident engineer at least two weeks before the activity so that any irregularities can be handled before construction commences and also communicated to the Employees. The format of the method statement should clearly indicate the following:

1. Construction and Operational Procedures
2. Materials and Equipment used
3. How and where materials will be stored
4. When actions will be undertaken

Based on the EMPr specifications, the following method statements are required as a minimum:

- Site clearing
- Site layout and establishment
- Storage of hazardous substances and accidental spillages of hazardous substances
- Cement mixing
- Waste management procedures
- Wastewater management procedures
- Stormwater Management
- Traffic accommodation
- Erosion remediation
- Fire control and emergency procedures

6.6. ENVIRONMENTAL AWARENESS TRAINING

LLM, workforce of the contractors and sub-contractors involved with the work in the construction phase are to be briefed on their obligation towards environmental protection and methodologies in terms of the EMPr prior to work commencing. The briefing must be done by the DEO prior to construction in the form of an on-site talk (toolbox talks) and demonstration. There should be records for the said presentation, which should be done in a language that will be easily understood by all. This should be done prior to commencement of construction activities and for new sub-contractors and general workers if construction has commenced.

The environmental training should, as a minimum include the following:

- The importance of conformance with all the environmental policies and legislation.
- The roles and responsibilities in achieving conformance with the EMPr.
- The environmental Impact, actual or potential, of their work activities.
- The mitigation measures required from specified operating procedures.
- The potential consequences of departure from specified operating procedures.

The basic rules of conduct, which should be considered for the duration of the project, are shown in *Table 2* below.

Table 2: Basic conduct rules during construction

Do	Do Not
Use of toilet facilities provided and report	Make open fires for cooking, dedicated areas should be provided.
Clear your work areas of litter and building rubbish at the end of each day	Allow any cement bags or litter to be blown around
Report all leakages and/or spillages	Access the neighboring properties without the owners' consent
Confine work and storage of equipment and comply with all safety procedures	Collect fire wood from the neighboring farms
Provide easily accessible fire extinguisher and in good working condition	Dispose of cigarettes and burning matches randomly
Use areas designated for food preparation	Do not leave food lying around
Only emergency repairs of construction vehicles are allowed on the construction site	Dump any hazardous material into the watercourses.
Use all safety equipment and comply with all safety procedures	Abstract water from the earth dams
Prevent excessive dust and noise	Stockpile material on the seasonal drainage lines.

6.8. RECORD KEEPING

There should be an up to date filing system at the site office for the duration of the project whereby method statements, environmental incidents report, training records, audit reports and public complaints register are kept. It is advised that photographs of the site should be taken pre-, during and post-construction as a visual reference. These records should be kept for a minimum of 2 years after completion of the project.

6.9. PENALTIES

In cases of transgressions and non-compliance regarding the EMPR by the contractor, they should be liable to a penalty fine. The penalty fine could be paid to an organization that works to protect and conserve the environment in various ways or could be saved for the upkeep of the new Stone Tool Knapping site located near the facility. Transgressions should be recorded in a dedicated register and be kept at the site office for the duration of the project. The resident engineer will issue the penalties in terms of the severity of the environment; however, *Table 3* below may be used as a guideline.

Table 3: Penalties for transgressions

TRANSGRESSION	PENALTY
Littering and defecation in the bush	R1000
Concrete mixing on the ground	R2000
Spillages	R1000-R10 000 depending on the magnitude)
Soil erosion	R2000
Veld fires	R5000

The penalty could be donated to an environmental charity in the area or any need for environmental protection.

6.10. COMPLIANCE WITH ENVIRONMENTAL LEGISLATION

The proposed development must be in compliance with the applicable Environmental Legislation in *Table 3* below and necessary authorisation, permits and licenses obtained before commencement of construction activities as shown.

Table 4: Compliance to Environmental Legislation

LEGISLATION	APPLICABLE		OBTAINED	
	YES	NO	YES	NO
Environmental Authorisation in terms of Section 24 of National Environmental Management Act (Act 107 of 1998)	X			
Water Use License in terms of Section 21(c) and (i) of the National Water Act (Act 36 of 1998)		X		
Permit in terms of National Environmental Management Act: Biodiversity Act (Act 10 of 2004)		X		
Section 38 of National Heritage Resources Act (Act 25 of 1999)	X			
Section 37 of the Mineral Resources Development Act (Act 29 of 2002)		X		
Waste Management License in terms of National Environmental Management: Waste Management Act (Act 59 of 2008)	X			

6.11. IMPACT AND MANAGEMENT MEASURES

The Draft EMPr is outlined in *Table 5* below. Adherence to this plan during construction will ensure that the environmental impacts associated with the proposed development will be mitigated, thus promoting sustainable development. The commitment and co-operation of the identified responsible person (s) will ensure effective implementation of the EMPr from pre-construction to post-construction. It is therefore imperative that there be a file dedicated for Environmental Documentation.

Table 5: Environmental Management Programme

ASPECT	POSSIBLE IMPACT	MITIGATION PLAN	RESPONSIBLE PERSON (S)	OBJECTIVES	FREQUENCY
1. PRE-CONSTRUCTION PHASE					
Project Contract and Programme	Adherence to the conditions of the EA and WML including EMPr	◊ The EMPr must be included in the tender documentation and a copy should be made available on-site for the duration of the project. ◊ The environmental responsibilities should be formalized, and environmental awareness should be taught to the laborers in their preferred language as toolbox talks.	**LLM, RESIDENT ENGINEERS & CONTRACTOR**	Ensure that EMPR is adhered to	Frequency Once off, prior to commencement of construction activities
MANAGEMENT ACTION		Copy of the EMPr included in the contractual agreement and a designated person responsible for monitoring compliance to the EMPr for the duration of the construction phase.			
Location of Camp and Depot	Environmental damage	◊ The camp depot should be in an area where the dirt road users and Eskom personnel are not disturbed or inconvenienced. ◊ The contractor must provide the layout plan of the camp depot for approval before commencement of the construction phase. The plan should include site offices, temporary fencing boundary, sanitation facility, waste and petroleum products storage facilities, stockpiling areas, etc. The parking of vehicles, storage of equipment and materials must strictly be confined to designated areas. ◊ If located on the "virgin" ground, area to be rehabilitated once the project is completed but it is recommended that	**RESIDENT ENGINEERS & CONTRACTOR**	Prevent environmental damage and disturbance of identified sensitive areas and the neighboring land users or encroachment to the Eskom servitude.	Frequency Once off

		construction should be within the footprint of the development. ◊ No camp depot should be established on the preferential water path. ◊ A full list of all volatile liquids and chemicals stored on-site including the Material Safety Data Sheets must be in place,			
MANAGEMENT ACTION		An approved camp depot layout by the Resident Engineer. Photographs of the approved area before and after establishment must be kept for recordkeeping. Inventory list of chemicals and fuels stored on-site including their volumes and locations.			
Water Supply	Source of water during the construction phase.	◊ Potable water must be available at the camp depot, office site and construction site. ◊ No water must be abstracted from the earth dam. ◊ No boreholes may be established without DWS approval. ◊ If source of potable water is not LLM, an agreement with the supplier must be in place.	**RESIDENT ENGINEERS, CONTRACTOR & MUNICIPALITY**	Ensure availability of water for various uses, especially portable water	Frequency Duration of the project
MANAGEMENT ACTION		A written agreement between the Engineers and Municipality regarding water supply or any service provider			
Access Control	Hazards to animals, and stealing of construction materials	◊ A Fence or suitably secured camp depot, main site office and material storage area should be established with access control. ◊ Unauthorized entry should be prohibited.	**RESIDENT ENGINEERS & CONTRACTOR**	Keep the site secure from trespassing, minimize possibility of theft and keep the grazing livestock out.	Frequency Duration of the project
MANAGEMENT ACTION		Site access register and complaints book should be in place. The camp depot must be fenced off and construction material stored safely.			

ASPECT	POSSIBLE IMPACT	MITIGATION PLAN	RESPONSIBLE PERSON (S)	OBJECTIVES	MONITORING ACTION AND FREQUENCY
Access route	Erosion and dilapidation of the access routes	◊ Upgrade the access dirt road used during construction to an acceptable and road worthy condition. ◊ Proper maintenance must be done to ensure the quality of the access road is improved. ◊ Implement erosion protection works at identified problem areas.	**CONTRACTOR, ECO & ENGINEERS**	Improve the road condition	Frequency Weekly
MANAGEMENT ACTION		Photographs depicting conditions of the road pre- and post-construction.			
Power Supply	Safety Impacts	◊ All health and safety laws and regulations must be adhered to. ◊ No illegal electrical connection. ◊ A safety officer should be appointed to undertake safety audits.	**RESIDENT ENGINEERS & CONTRACTOR**	Implement safety measures and authorized electrical connection or alternative energy	Frequency Monthly
MANAGEMENT ACTION		Appointment letter of the Safety Officer must be in place. Observation of illegal electrical connections to the grid or use of alternative energy			
Solid Waste	Littering/ Pollution of environment with waste materials	◊ Temporary site should be identified for storage of general and hazardous waste. ◊ System for regular waste removal must be set up. ◊ Letter of agreement or appointment letter between the contractor and pollution control officers and the locally sourced contractor dealing with hazardous waste should be kept on site always.	**RESIDENT ENGINEERS & CONTRACTOR**	Ensure proper waste management is in place and improve aesthetics and housekeeping	Frequency Duration of the Project
MANAGEMENT ACTION		Method Statement for storing, handling, and disposal of waste (Waste Management)			

		Letter of agreement for handling of hazardous waste must be in place between the contractor and the accredited service provider.			
Sewage	Pollution of environment by wastewater/ effluent	◊ Adequate sanitation facilities must be provided. ◊ No emptying of chemical toilets into the natural environment. ◊ Letter of consent from a registered waste facility to allow the contractor to empty the toilets in their sewer system should be in the environmental document.	**RESIDENT ENGINEERS & CONTRACTOR**	Prevent environmental pollution	Frequency Duration of the project
MANAGEMENT ACTION		Agreement with the service provider for supply and upkeeping of chemical toilets. Letter of consent from the municipality allowing the contractor to empty contents from the chemical toilets into the wastewater treatment plant. Record-keeping for emptying of the chemical toilets.			
Social & Socio-Economic Aspects	Dissatisfaction	◊ Job opportunities for general workers must benefit the local community. ◊ Labour recruitment must be free and transparent ◊ A project steering committee (PSC), which comprises of the municipality, Engineers, contractor, community representatives must be convened, and details of the project discussed. ◊ The PSC must meet regularly to address any concerns/ issues from the neighboring land users and employing local labourers.	**LLM, RESIDENT ENGINEERS, CONTRACTOR & COUNCILLOR**	Ensure satisfaction of workers and neighbouring land users	Frequency Monthly
MANAGEMENT ACTION		Establishment of the PSC and appointment letter of the CLO Contravening of PSC meetings once a month for duration of the construction phase and Records of the Minutes			

ASPECT	POSSIBLE IMPACT	MITIGATION PLAN	RESPONSIBLE PERSON (S)	OBJECTIVES	MONITORING ACTION AND FREQUENCY
Health & Safety	Danger to the neighbouring landusers and labourers	◊ The contractor should provide employees with suitable equipment to protect them from hazards being presented to ensure that they work without risk to their health. ◊ An Emergency Preparedness Plan must be compiled and approved by the RE, Safety Officer and ECO prior to commencement of construction activities. ◊ A list of all emergency contact details, *i.e.* fire, ambulance, engineers, SAPS, Safety Officer and ECO should be available all the time a the camp site. ◊ The site should be clearly demarcated/fenced of for safety reasons, community and passerby should not be allowed on the construction site as a precautionary measure. ◊ Safety signs complying with SABS and SANS standards should be placed on-site in a manner clearly visible to the public ◊ Construction methods should adhere to the Occupational Health and Safety Act (Act 85 of 1993).	**RESIDENT ENGINEERS, CONTRACTOR & SAFETY OFFICER**	To create a working environment that is not harmful to the health and wellbeing of the neighbouring land users and labourers. To alert individuals of possible hazards on-site.	Frequency Once off

		◊ Although the proposed site is further from the residential area, safety signs complying with SABS and SANS standards should be placed at the construction site.			
MANAGEMENT ACTION		Emergency preparedness Plan. First Aid Kit. Use of PPE by everyone on-site. Records of Toolbox Talks and risk register should be in place. Safety signs placed on-site.			
Stormwater Control	Impact on the water quality of stormwater and surface water flow	A sufficient stormwater cut-off berm/trench must be constructed on the upstream side directly adjacent outside and along the northern and eastern boundaries of the assessment area.	**LLM & ENGINEERS**	To prevent clean surface water from entering the proposed development. To ensure continual flow within the local and broader Quartenary surface water catchment and drainage area.	Once-Off
Stormwater Control	Impact on the water quality of stormwater and surface water flow	A stormwater cut-off berm/trench and associated contamination ponds be constructed on the downstream side directly adjacent inside the boundary of the assessment area.	**LLM & ENGINEERS**	To prevent dirty surface water run-off from the footprint area for	Once-Off

				evaporation and subsequent adequate disposal of undesired solid material.	
Groundwater Management	**Contamination of groundwater**	The landfill area must be lined underground in accordance with Norms and Standards.	**LLM & ENGINEERS**	To prevent undesired seepages or leaks into the groundwater.	Once-Off
MANAGEMENT ACTION		The design of the facility must include the stormwater cut-off/trench and lining of the disposal facility, and they design drawing must be signed off by a registered civil engineer			
Provincially Protected Species	**Loss of provincially protected species**	A provincial Flora Permit must be obtained from DESTEA prior to commencement of construction activities.	**LLM & ECOLOGIST**	To prevent destruction and total loss of provincially protected species.	Once-Off
MANAGEMENT ACTION		An appointed Ecologist for handling the application and a Provincial Flora Permit obtained from DESTEA			

2. CONSTRUCTION PHASE					
ASPECT	**POSSIBLE IMPACT**	**MITIGATION PLAN**	**RESPONSIBLE PERSON**	**OBJECTIVES**	**MONITORING ACTION FREQUENCY**
Health & Safety	Danger to the workforce	◊ The Contractor should provide employees with suitable equipment to protect them from hazards being presented and that will allow them to work without risk to the health in a hazardous environment, e.g. hard hats, gloves, boots, etc.	**RESIDENT ENGINEERS & CONTRACTOR**	To create a working environment that is not harmful to the health and wellbeing of the workforce.	Frequency Once off
MANAGEMENT ACTION		Safety audit reports			
Flora	Loss of vegetation and damage to protected and endangered species	◊ Vegetation clearance must be limited to the development footprint. ◊ Existing access dirt road in proximity to the construction footprint area must be used. ◊ No temporary new roads or tracks may be constructed within the surrounding areas outside the proposed development footprint. ◊ Topsoil must be reserved and used as a top layer on disturbed areas to enable plant succession. ◊ Mechanical tools must be used for vegetation clearance, burning is prohibited.	**CONTRACTOR, ENGINEER, ENVIRONMENTAL COMPLIANCE OFFICER & BOTANIST**	Prevent impacts on flora and destruction of Red Data Species	Frequency Once off

ASPECT	POSSIBLE IMPACT	MITIGATION PLAN	RESPONSIBLE PERSON (S)	OBJECTIVES	MONITORING ACTION FREQUENCY
Alien Invasive Species	Infestation of invasive alien species displacing the natural vegetation	◊ Alien Invasive Species Establishment Management and Prevention Plan must be compiled by a suitably qualified and experienced Ecologist. ◊ All the identified alien invasive species individuals must be actively eradicated from the assessment area and adequately disposed of in accordance with the National Environmental Management: Biodiversity Act (Act 10 of 2004); Alien and Invasive Species Regulations, 2014. ◊ A designated person must be appointed to keep the construction site weed free. ◊ Construction vehicles must be cleaned before entering the construction site.	**CONTRACTOR, ENGINEER AND**	To prevent and control establishment and infestation of weed and alien species	Frequency Duration of the
MANAGEMENT ACTION		Alien Invasive Species Management Plan; ECO Monitoring Compliance Report			
Fauna	Disturbance to fauna in the area	◊ No hunting, snaring, shooting, nest raiding or egg collection by the construction staff should be allowed. ◊ Toolbox talks should include handling of animals.	**CONTRACTOR, ENGINEER AND ENVIRONMENTAL COMPLIANCE OFFICER.**	Prevent killings of animals and destruction of areas not included in the development footprint	Frequency Duration of the contract

ASPECT	POSSIBLE IMPACT	MITIGATION PLAN	RESPONSIBLE PERSON (S)	OBJECTIVES	MONITORING ACTION FREQUENCY
Geology and Soil	Loss of Topsoil	◊ Exposure of bare ground will be minimized. Topsoil stripping should be limited, and it should be stored separately from the subsoil, *i.e.*, no mixing of soils. ◊ In situ material should be removed to an average depth of 1000mm. ◊ Soil conservation measures such as berms, gabions and mats should be used on-site to help reduce erosion. ◊ Topsoil stockpiles must be bunded and kept free of weeds. ◊ Litter should be removed from the stockpiled topsoil. ◊ Soil conservation measures such as berms, gabions and mats should be used on-site to help reduce erosion.	**CONTRACTOR, ENGINEER AND ENVIRONMENTAL COMPLIANCE OFFICER**	Conserve and protect topsoil from erosion and deterioration	Frequency Weekly
MANAGEMENT ACTION		ECO audit checklist, photographs			

ASPECT	POSSIBLE IMPACT	MITIGATION PLAN	RESPONSIBLE PERSON (S)	OBJECTIVES	MONITORING ACTION AND FREQUENCY
MANAGEMENT OUTCOME		ECO Audit Report, Safety Audit report and Complaints Register			
Air Quality	Nuisance and reduction in visibility	◊ Access road must be maintained properly so that dust generation is minimal. ◊ Occasional wetting of the construction site must be done by means of a water tanker pipe to suppress dust. ◊ Contaminated water must not be used for dust suppression. ◊ Vehicles should drive at 40km/h speed. ◊ Exhaust emissions from engines must be maintained to acceptable levels. ◊ Regular maintenance and inspection programs must be in place for all construction machinery and vehicles. ◊ Proper and efficient operation of construction vehicles by qualified operators.	**CONTRACTOR, ENGINEER AND ENVIRONMENTAL COMPLIANCE OFFICER**	To minimize the generation of dust from excavation work and associated visual impacts	Frequency Twice a day
Noise	Nuisance	◊ Construction should be limited to normal working days and office hours from 08h00 to 17h00. ◊ Ensure that employees and staff conduct themselves in an acceptable manner while on site.	**CONTRACTOR, ENGINEER AND ENVIRONMENTAL COMPLIANCE OFFICER**	To avoid excessive noise generation from site operations	Frequency Duration of Construction

		◊ Limit working hours of noisy equipment to daylight hours. ◊ Fit silencers to equipment. ◊ Municipal by-laws regulating noise must be adhered to. ◊ All machinery and equipment must be operated efficiently and according to the specifications of the manufacturer. ◊ They must be in good working order and maintained regularly to ensure optimal performance during operation. ◊ They must be operated by trained and qualified operators.			
Solid Waste	Littering/ Pollution	◊ All waste should be appropriately separated, contained, and disposed of and be removed from the site to Letsemeng Local Municipality solid waste site during the construction period. ◊ Reduction, reuse, and recycling of waste should be introduced. ◊ Illegal dumping should be forbidden. ◊ Toolbox talks should include a component of waste management. ◊ No dumping of builders' rubble or other materials within the newly proposed servitude area ◊ Good housekeeping practices.	**CONTRACTOR, ENGINEER AND ENVIRONMENTAL COMPLIANCE OFFICER**	Provide facilities for appropriate collection and disposal of solid waste and sewage	Frequency Weekly
Sewerage	Pollution of the receiving environment.	◊ Adequate sanitation facilities *i.e.*, 15 employees per facility should be provided.	**CONTRACTOR, ENGINEER AND ENVIRONMENTAL**	Provide facilities for sanitation	Frequency Weekly

		◊ The toilets should be located at least 50m from the construction site. ◊ They should be kept clean and hygienic regularly to ensure that they are usable. ◊ Effluent must not be discharged into the natural environment and defecating in the bush is prohibited.	**COMPLIANCE OFFICER**		
Water Supply	Source of potable water during the construction phase.	◊ Potable water must be made available at the camp site and construction site in clearly marked containers.	**CONTRACTOR, ENGINEER AND ENVIRONMENTAL COMPLIANCE OFFICER**	Water supply must be made available from the local Municipalities	Frequency Daily
Power Supply	Safety Impacts	◊ Limit the power supply cables & ensure the safety of the workers. ◊ All health and safety laws and regulations should be adhered to.	**CONTRACTOR, ENGINEER AND ENVIRONMENTAL COMPLIANCE OFFICER**	Avoid health and safety impacts	Frequency Daily
Storm water	Contamination of storm water	◊ Storm water must be diverted away from the construction works. ◊ Storm water control works must be constructed, operated, and maintained in a sustainable manner throughout the project. ◊ Storm water leaving the construction site must not be contaminated by any substance produced, stored, dumped, or spilt on site. ◊ No contaminated water should be allowed to flow freely into the drainage channels.	**CONTRACTOR, ENGINEER AND ENVIRONMENTAL COMPLIANCE OFFICER**	Avoid contamination of stormwater	Frequency Duration of project

ASPECT	POSSIBLE IMPACT	MITIGATION PLAN	RESPONSIBLE PERSON (S)	OBJECTIVES	MONITORING ACTION AND FREQUENCY
Soil erosion	Erosion	◊ Adequate stormwater and erosion management measures must be implemented to sufficiently manage stormwater runoff ◊ Effective sediment control practices must be in place. ◊ Possible gulley formation must be prevented.	**CONTRACTOR, ENGINEER AND ENVIRONMENTAL COMPLIANCE OFFICER**	Prevent soil Erosion	Frequency Weekly
Cement mixing	Pollution of soils, surface and groundwater	◊ Mixing of cement should be done at specifically selected areas on mortar boards or similar structures to contain surface run-off. ◊ Cleaning of cement mixing equipment should be done on proper cleaning trays. ◊ No cement or cement containers should be left lying around.	**CONTRACTOR, DEO, RE & ECO**	Avoid polluting soil and groundwater	Frequency Weekly
Traffic Impact	Safety/ Traffic Impacts	◊ Vehicle speed on the site should be limited speed to 40km/h. ◊ Only drivers with valid licenses should be allowed to drive on the site. ◊ If abnormal vehicles are utilized, a permit must be obtained from the local municipality/Department of Traffic.	**CONTRACTOR, ENGINEER AND ENVIRONMENTAL COMPLIANCE OFFICER**	Minimize the disruption to road users	frequency Duration of the project

Fire Hazard	Risk of veld fires	◊ A firebreak around the facility must be maintained. ◊ No open fires are permitted on the construction site, except under strictly controlled conditions subject to the National Veld and Forest Act, (Act No. 101 of 1998). ◊ The contractor and laborers should be informed and advised on the associated risks, dangers and damage of property caused by accidental fires and how to prevent them. ◊ Fire extinguishers should be made available at the construction site, and the laborers should be informed of their location and trained to use them. ◊ Restrict smoking activities to demarcated smoking activities.	**CONTRACTOR, ENGINEER AND ENVIRONMENTAL COMPLIANCE OFFICER**	Prevent veld fires.	Frequency Daily
Vehicle Servicing Areas	Pollution	◊ Vehicle servicing should be done at the identified camp depot on impermeable surfaces to minimize the likelihood of petrochemical spills on the soil. ◊ In the case of accidents, polluted soil should be appropriately treated or taken away to an appropriate disposal site. ◊ Used spares must be collected and disposed of in the correct manner. Oils must be drained into	**CONTRACTOR, ENGINEER AND ENVIRONMENTAL COMPLIANCE OFFICER**	Prevent soil Erosion	Frequency Daily

		a suitable container, transferred to a larger storage container, and then supplied to oil recycling companies. ◊ Oil must under no circumstances be disposed off into the sewer lines, stormwater system, stream, or the ground.			
Areas of Paleontological, Cultural and/or Historical Importance	Disturbance of important scientific artefacts	◊ Should fossil remains be discovered, these must not be disturbed further and SAHRA must be consulted for guidance on how to deal with the remains. ◊ Should any human skeletal remains be found during excavations, work must stop in the area. The findings should be reported immediately to SAHRA.	**CONTRACTOR, ENGINEER AND ENVIRONMENTAL COMPLIANCE OFFICER**	To prevent disturbance of historical scientific artefacts.	Frequency Duration of the Contract

ASPECT	POSSIBLE IMPACT	MITIGATION PLAN	RESPONSIBLE PERSON	OBJECTIVES	MONITORING ACTIONS AND FREQUENCY
3. POST CONSTRUCTION PHASE					
Aesthetic view of the area	Aesthetic pollution	◊ The contractor should rehabilitate the site when construction is completed, thus a detailed rehabilitation plan should be provided by the contractor. ◊ Areas surrounding the construction footprint must be adequately rehabilitated as soon as practically possible after construction. ◊ Spoil heaps must be flattened to the similar adjacent ground to prevent soil erosion and to encourage natural revegetation. ◊ The site must be kept clear of litter and all waste must be removed and properly disposed of. ◊ All stockpiles must be handled as directed by engineers if not spoilt. ◊ The original site topography should be restored as much as possible.	**CONTRACTOR, ENGINEER AND ENVIRONMENTAL COMPLIANCE OFFICER**	To strive towards and enhance the positive visual impacts associated with post-closure rehabilitation To attempt to mimic natural landscape topography (as much as possible) post-closure rehabilitation	<u>Frequency</u> Monthly

		◊ Grading and levelling should match the adjacent ground and to help prevent soil erosion. ◊ A final audit must be completed before the contractor may leave the site to determine whether all requirements were met. ◊ A meeting must be held between the various stakeholders to ensure that the site has been restored to a satisfactory condition.			

ASPECT	POSSIBLE IMPACT	MITIGATION PLAN	RESPONSIBLE PERSON	OBJECTIVES	FREQUENCY
4. OPERATION PHASE					
Nuisance and aesthetics	Windblown litter	◊ The facility must be fenced off to contain windblown litter and it must be monitored regularly ◊ Ensure that sufficient waste storage and disposal measures are implemented to adequately manage and contain waste. ◊ Waste must be compacted and covered daily or weekly or as required with a minimum of one hundred and fifty (150) millimeters of soil or alternative material. ◊ The community and the municipality team should implement annual clean ups. ◊ Planting of indigenous trees along the fence boundary. ◊ A dedicated area for dumping builder's rubble, which can be crushed to enable use as cover material must be in place.	**MUNICIPALITY & COMMUNITY MEMBERS**	Prevention of plastic and another windblown liter	Frequency Duration of the Operation Phase

Ground water	Pollution of groundwater resources	◊ The lining to be re-evaluated annually to ensure functionality. ◊ Establishment of boreholes for monitoring purpose ◊ Ground water samples to be collected every six months to monitor the status of the water	**LLM**	Maintain good water quality	<u>Frequency</u> 6-months cycle
Stormwater	Inefficient functioning of the stormwater system in managing surface water runoff	◊ Management of all storm water systems to keep them in working condition. ◊ Storm water handling must be done accordingly to prevent soil erosion.	**LLM**	Ensure effectiveness of the stormwater management system and prevent flooding on site, especially within the working face.	<u>Frequency</u> For the duration of the operation phase
Stormwater Control	Mixing of dirty and clean water threatening surface and groundwater	◊ Surface water run-off into the or from the working face must be limited. ◊ Cut-off trenches that separate dirty and clean water must be monitored regularly ◊ Water arising from adjacent land must be diverted away from the site	**LLM**	Reduce leachate generation Prevent mixing of clean and dirty water	<u>Frequency</u> For the duration of the operation phase
Fire	Deterioration of the air quality	◊ Fire break must be maintained around the fence boundary ◊ Burning of waste is prohibited	**LLM**	To prevent veld fires To reduce emissions of greenhouse gases	<u>Frequency</u> For the duration of the operation phase

Recycling	Reduce disposal of recyclable waste	◊ Education and awareness programme must be implemented for the local community especially about recycling. ◊ Recycling initiatives by promoting recycling at source coupled with incentives, e.g., provide refuse bags, formalize recyclers.	**LLM & LOCAL COMMUNITY**	To promote recycling in the area. To reduce unemployment	<u>Frequency</u> For the duration of the operation phase
General operation and impact management	Prevent disposal of waste that is not permissible	◊ Health and safety of the workers and employees on-site must be taken into account. ◊ The personnel working at the facility must be trained to deal with potential hazards associated with waste management ◊ Access control must be in place and unauthorized entry must be prohibited. ◊ Weighbridge must be well-maintained. ◊ Disposal of dead animals, carcasses, contaminated food must be buried in trenches and covered immediately.	**LLM**	To prevent disposal of waste that is not licensed, e.g., medical waste. To prevent creation of nuisance conditions or health hazards	<u>Frequency</u> Duration of the operation phase

ASPECT	POSSIBLE IMPACT	MITIGATION PLAN	RESPONSIBLE PERSON (S)	OBJECTIVES	MONITORING ACTION FREQUENCY
5. DECOMMISSIONING PHASE					
Decommissioning & Removal of all infrastructure		◊ Ideally, shape the waste disposal sites at an adequate slope at the commencement of the project. If not, during closure phase, level to a slope that integrates more successfully into the natural topography of the functional landscape. ◊ Choose plant species for re-vegetation that will grow quickly to cover the bare earth and prevent soil erosion. ◊ Soil conservation measures such as berms, gabions or mats should be used on-site to help reduce erosion. ◊ Implementation of adequate storm water management ◊ Capping	**LLM**	To prevent residual land degradation	Frequency Once-off
Management Action		Closure Plan Rehabilitation plan			

7. AUDIT AND MONITORING

Compliance monitoring provides useful information for gauging environmental performance throughout the duration of the project. The information obtained can be used to gauge how effective the mitigation plans in the EMPr are and determine whether the corrective actions undertaken are adequate and whether some modifications are required. The resident engineer should monitor the overall aspects of the project, e.g., labor issues and complaints raised by the local farming community, so they can be addressed in conjunction with the Project Steering Committee. The ECO should monitor construction activities at least once a month and the monthly reports should be compiled and presented to the PSC for discussion if needs be. It is highlighted that regular meetings between the resident engineer, site manager and ECO should be held to ensure that anticipated environmental impacts are within predicted levels, e.g., noise generation and the implementation of the EMPr is effective. A designated Environmental Officer should be on site for the duration of the construction phase to ensure that the conditions of the Waste Management License, Environmental Authorisation and objectives of the EMPr are adhered to.

APPENDIX A
CV OF EAP

NAME: Lorato Tigedi Reg. EAP (EAPASA) *Pr. Sci. Nat.*

Name of Firm: NSVT Consultants
Present Position: Director/ Environmental Assessment Practitioner
Phone: 061 500 8461
Years with the Firm: 10 Years **Cell: 082 784 8259**
Mailing Address: 1 Fourth Street, Office 1A, Arboretum, 9301 **E-mail: lorato@nsvt.co.za**
Date of Birth.: 1980-09-25

Nationality: South African
Education:

Name of Institution	Degree Obtained	Dates Attended
University of the Free State	BSc. Natural Science (Zoology)	1999-2002
	BSc. Hons. Wildlife	2003-2004

Professional Membership:

MEMBERSHIP	MEMBERSHIP No.
Environmental Association Practitioners Association of South of South Africa (EAPASA)	2020/2519
South Africa Council for Natural Scientific Professions (SACNASP)	Environmental Scientist (400161/09)
International Association for Impact Assessment South Africa Affiliate (IAIAsa)	Member (2191)
International Association for Public Participation Southern Africa Affiliate	Member IAP2SA020

Key Experience: Lorato Tigedi joined Geo Pollution Technologies (Free State) in 2003 and partnered with a Geohydrologist to set up Bokamoso Consultants as an environmental consultant, trading as NSVT Consultants. From 2004-2005 after completion of BSc Hons (Wildlife) she continued to study Master's in Environmental Management in 2006 but only completed the modules work and still have Mini-Dissertation. In 2011, she set up NSVT Consultants CC as a sole member. She has approximately 16 years in environmental consulting and have completed basic assessment, environmental impact assessment, waste management license and water use license applications for Free State, Northern Cape, North West and Eastern Cape Provinces. She therefore has extensive knowledge regarding the competencies required to ensure implementation and alignment of environmental policy instruments such as EIA. For Continuous Professional Development, she has completed short courses in Planning for Effective Public Participation, Social Impact Assessment and Conflict Management, Introduction to Environmental Law, Introduction and Implementation of OHSAS 17001 and EMS 14001-2016 amongst other courses. Therefore, she possesses the technical expertise and scientific knowledge for conducting thorough environmental assessments. She has considerable public participation experience through her work in EIA and understand that an effective public participation process provides an opportunity for identifying problems during the EIA process and identifying opportunities that could be used in the decision-making process. Through her involvement in various projects, she has acquired analytical, problem-solving and excellent research skills

Current Employment:

Duration: March 2011 to date Organization: NSVT Consultants-Environmental and Social Scientists

Project: Environmental Compliance Monitoring for the Upgrading of 31km of widening and rehabilitation of N9 Sec 7 between Wolwefontein and Colesberg as well as the construction of a new access interchange at Colesberg which required the utilization of 10 borrow pits.
Client: South African National Resources Agency SOC Limited Eastern Region

Project: Environmental authorisation applications for a new landfill sites in Mantsopa Local Municipality.
Client: Bigen Africa

Project: Environmental Authorisation application and Environmental Compliance Monitoring for a new interchange, overhead and pedestrian bridge.
Client: UWP Consulting Engineers

Project: Waste management license applications for development of new treatment plant.
Client: ISA & Partners

Project: Application for rectification for upgrading the treatment works without obtaining an Environmental Authorisation in Vredefort
Client: Sobek Engineering

Project: Environmental Authorisation application for development of new residential areas including associated infrastructure in Phumelela Local Municipality, Dihlabeng Local Municipality, Tswelopele Local Municipality.
Client: Phethogo Consulting Engineers

Project: Environmental Authorisation application for development of new residential area including associated infrastructure in Metsimaholo Local Municipality and Maluti-a-Phofung Local Municipality.
Client: YB Mashalaba & Associates

Project: Basic Assessment, Water use License and Environmental Compliance Monitoring, for the Ficksburg Pipeline from Meulspruit Dam to the water treatment plant.
Client: Flagg Consulting Engineers

Project: Environmental Impact Assessment for the proposed residential area in Mafube Local Municipality
Client: Pula Strategic Resource Management

Project: Environmental Compliance Monitoring for the Construction of a feeder pipeline to connect reservoir 8 with the existing water supply network, Section F, Botshabelo, Mangaung Metropolitan Municipality, Free State Province
Client: Flagg Consulting Engineers

Project: Basic Assessment for a new 132kV powerline from Rouxville substation to Melkspruit substation in Aliwal North
Client: Eskom Free State Operating Unit

Project: Environmental Services for the proposed pipeline from Luiperdsvallei to the Bultfontein Water treatment plant.
Client: Selatile Moloi Consulting Engineers

Project: Basic Assessment for the proposed Jan Kempdorp infill residential development.
Client: Phokwane Local Municipality

Project: Environmental Services for the proposed potable water pipeline from Lindley Water Treatment to the reservoir in Leratswana within Nketoana Local Municipality.
Client: RTT Consulting Engineers

Project: Environmental Service for the Routine Maintenance of the National Route 8 Section 8 and National Route 10 Section 8 to 11.
Client: Damians Contractors

Project: Environmental Services for the Routine Maintenance of the National Route Section 5 to Section 8.
Client: Expidor Contractors

Project: Environmental Services for the expansion of Slovopark, Masilonyana Local Municipality
Client: Vexocom (Pty) Ltd.

Project: Environmental Compliance Monitoring for the repair of the Lerato Park Housing, Sol Plaatje Local Municipality
Client: Northern Cape COCHSTA

Position: Director Environmental Assessment Practitioner and Environmental Specialists/Scientist

Responsibilities: Business Operations, Marketing, Project Management, Community Facilitation, Internal EIA Evaluation and associated administration work including Determine whether the Basic Assessment or Environmental Impact Assessment is required, Initial assessment of site to identify potential environmental constraints, Initial screening (considering sensitivity/environmental flaws) of borrow pits and selection of suitable ones, Team co-ordination, Collate project information, i.e. civil reports and review, Consult with the Competent Authority to ensure the project is compliant with applicable national requirements and social legal requirements and policies, Consult with relevant Stakeholders per requirements of the National Environment Act of 1998, Undertake Site Investigation, Review of the Draft Environmental Management Plan and amendment s following the confirmations of the route selection and alignment, Compilation of Progress Reports (Weekly or Monthly as required), Undertake public participation process, Compilation of construction EMP since no Basic Assessment/Environmental Impact Assessment was required, Compilation of EMPR as part of mining permit application for borrow pits, Approval of EMPRs and obtaining mining permit applications, Internal Review of Environmental Reports, Mentoring of Environmental Management Undergraduate Students

<u>Previous Employment:</u>
Duration: March 2004 to February 2011 Organization: Bokamoso Consultants- Environmental Scientists and Geohydrologist
Project: Environmental Impact Assessment for the upgrading of the wastewater treatment works in Dewetsdorp
Client: Ninham Shand Consulting Engineers

Project: Application for exemption from conducting EIA process for the upgrading of the treatment works in Marquard

Application for exemption from conducting EIA process for the upgrading of the treatment works in Senekal
Client: ISA & Partners Consulting Engineers

Project: Environmental Impact Assessment for a new access road in Mount Arthur
Client: Thuso Development Consultants

Project: Environmental Impact Assessment for the upgrading of D313 road from Morokweng to Vorstershoop
Client: Babereki Consulting Engineers

Project: Environmental Impact Assessment for the upgrading of the wastewater treatment plant in Jan Kempdorp
Client: Phokwane Local Municipality

Project: Environmental Impact Assessment for the upgrading of wastewater treatment works in Jagersfontein
Client: Phethogo Consulting Engineers

Project: Community facilitation and public participation process for the resettlement planning and environmental authorisation application for Khuis Community
Client: regional Land Claims Commission Northern Cape

Position: Environmental Consultant
Responsibilities: Site visits, undertake public participation process and compile public participation report and/or comments and responses report, compilation of basic assessment and scoping report, compilation of environmental management plan, liaison with stakeholders and competent authorities, Water use License Applications, Waste Management License Applications, Environmental Compliance Monitoring,

Duration: March 2003 to February 2004 **Organization: Geo Pollution Technologies (Bloemfontein)**
Project: Application for rezoning and closure of the landfill site in Thaba Nchu and Botshabelo
Client: Mangaung Local Municipality

Project: Environmental Impact Assessment for the wastewater treatment works in Ladybrand
Client: Kwezi V3 Consulting Engineers

Project: Environmental Impact Assessment for the new reservoir in Ladybrand
Client: Trubuild Consulting Engineers

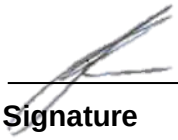
Position: Junior Environmental Consultant
Responsibilities: Site visits, undertake public participation process and compile public participation report and/or comments and responses report, compilation of basic assessment and scoping report, compilation of environmental management plan, liaison with stakeholders and competent authorities.

References:

CONTACT NAME	ORGANISATION	CONTACT NUMBER
Mamofolo Matebele	Babereki Consulting Engineers	076 141 4940
Solomon Munthali	TS Consulting Engineers	071 875 8952
Christiaan Vermaak	Tucana Solutions	082 703 5680

Consent:

I confirm that the above CV is an accurate description of my qualifications and experience in environmental management, waste management license applications, which included basic assessment and environmental impact assessment processes, water use license and mining permit and rights applications, and environmental compliance monitoring, and public participation, stakeholder engagements and social facilitation.



2021-10-01

Signature **Date**