

ENVIRONMENTAL MANAGEMENT PROGRAMME

FOR

S24G VERGENOEG TOWNSHIP ESTABLISHMENT, WESSELSBRON

DESTEA REF NO: 24G/27,12/19/03

PREPARED FOR



PREPARED BY



JULY 2019

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1. INTRODUCTION

Hoxana Holdings on behalf of Nala Local Municipality appointed *NSVT Consultants* as independent environmental assessment practitioners to lodge a S24G rectification application and subsequently to compile the Environmental Management Plan as part of the Environmental Impact Assessment Process that should be undertaken to obtain and Environmental Authorisation for undertaking unlawful activities associated with the proposed formalization of the Vergenoeg Informal settlement in Wesselsbron. The competent authority is Environmental Authorisation from the Department of Economic Development, Small Business, Tourism and Environmental Affairs. The Layout Map for the proposed development is attached hereto as **Appendix A**.

2. DETAILS OF ENVIRONMENTAL ASSESSMENT PRACTITIONER

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

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QUALIFICATIONS	B. Sc. (Natural Science) B. Sc. Hons (Wildlife)	EXPERIENCE	16 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 development 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 System Introduction to environmental Law	PROFESSIONAL AFFILIATE	
			SACNASP Professional Natural Scientist-4000161/09 Member of International Association for Public Participation Southern Africa Affiliate-2010/ZA/FS/0001) Member of International Association for Impact Assessment SA-2191

3. PROJECT DESCRIPTION

3.1. BACKGROUND INFORMATION

The Vergenoeg Informal Settlement is identified for formalization is located on Portion of Farm Herman 326 in Monyakeng, Wesselsbron within the jurisdiction of Nala Local Municipality. It is located to the north of Monyakeng and is accessible via Provincial Road R515 through existing roads within Monyakeng. Although the proposed site is completely transformed, the surrounding areas to the north, west and east are undeveloped and Monyakeng is bordering the southern side. The proposed site is earmarked for residential development in the Spatial Development Framework of the Municipality.

3.2 SENSITIVITY OF THE PROPOSED SITE

The site is completely transformed therefore has no areas that are considered sensitive except for the drainage line and pans located to the north-east and north-west of the informal settlement. The surrounding undeveloped areas are moderately disturbed and degraded as a result of grazing activities that aren't managed. Specialist studies which were conducted as part of the S24G Rectification process for the proposed formalization are as:

- Ecological Impact Assessment
- Heritage Impact Assessment.

From the findings of the studies, it was recommended that the formalization may go ahead as there are no sensitive, protected and/or threatened species of heritage artefacts that must be protected. However, there are two cemeteries (Vergenoeg cemetery and an old graveyard) that needs to be fenced off within the vicinity of the development so that they may be protected from vandalism. A detailed stormwater management plan must be compiled and submitted to Department of Water and Sanitation for approval prior to commencement of construction activities and this will be a requirement when a Water Use License Application is lodged with the department. The map indicating the protective buffer that must be maintained to ensure that the functionality of the adjacent drainage lines and pans are not disturbed by the construction activities is shown in *Figure 1* below.

The Sensitivity Map is shown in *Figure 1* below:

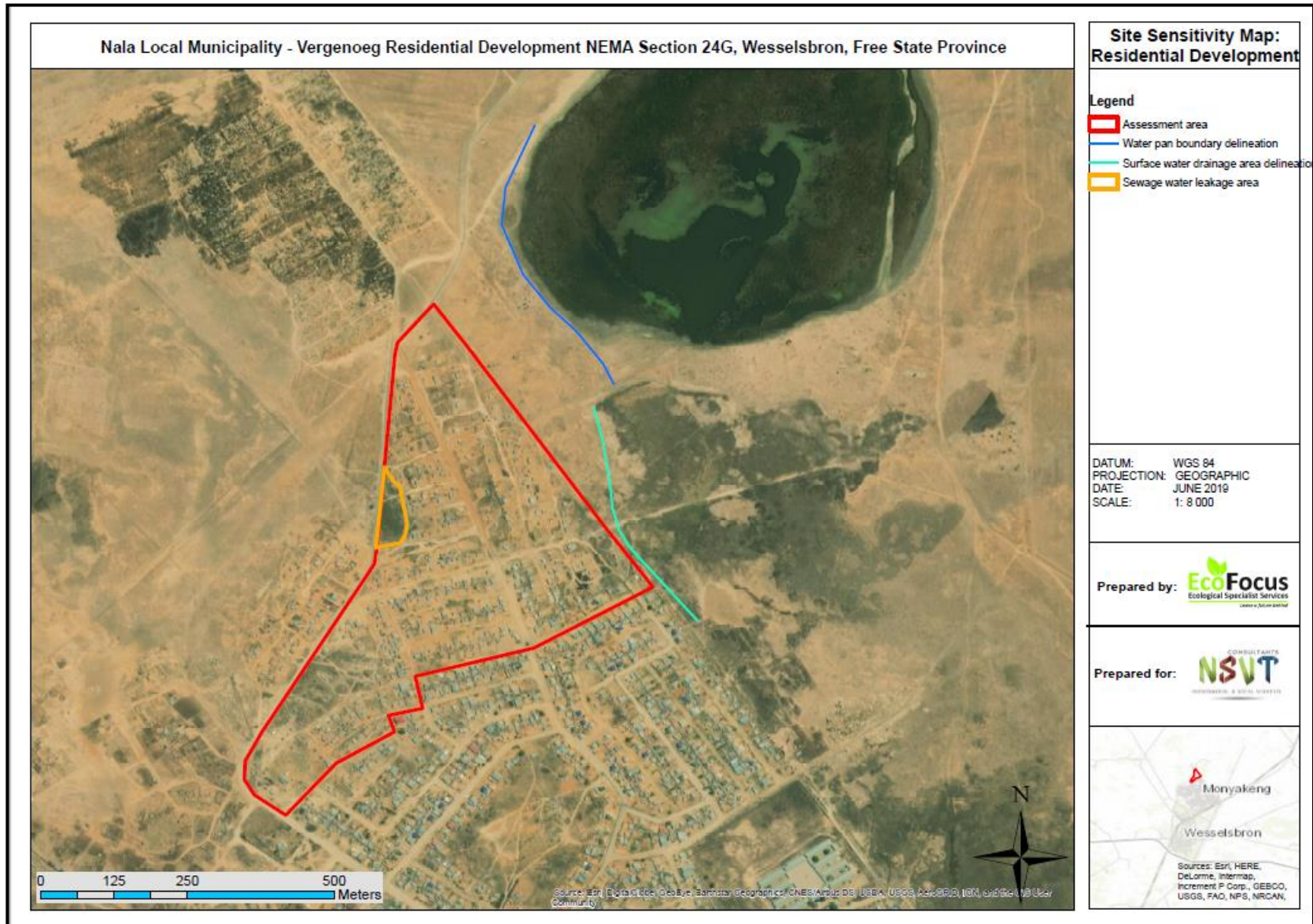


Figure 1: Sensitivity Map for the Proposed Site

4 CHECKLIST FOR THE PROPOSED PROJECT

1. Give a detailed description of the development:

The municipality have unlawfully commenced with activities, which could have a harmful impact on the environment without obtaining an authorisation. The activities are clearance of vegetation in a land of approximately 20 hectares and the clearance taking place within 100m of a drainage line, without obtaining an environmental authorisation. The established settlement was also provided with a basic level of water supply, *i.e.* communal water standpipes and mast lights. The informal settlement also has gravel roads although they are in poor condition and the top structures is mostly corrugated iron with pit latrines.

2. Give a brief description of the surrounding area:

The area to the north, west and east of the informal settlement is undeveloped. In the vicinity is livestock enclosures, pans and Monyakeng, a formalised settlement is on the southern side.

3. Is the project significantly different from the surrounding land use?

No, it can be deemed as an extension of Monyakeng as to access the area you use the existing roads, e.g. Cemetery road to access the informal settlement.

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

- i. River, stream, dam, wetland – Yes, drainage line and pans
- ii. Open space area – No
- iii. Residential (formal or informal settlement) – Yes, formal settlement
- iv. Area of cultural importance, e.g. graveyards, old houses, museum, etc. – No

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

No, the increased noise levels will be during construction and thereafter, it will be general noise levels of a residential area.

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

No, but the existing roads will have to be upgraded or rehabilitated.

5 ENVIRONMENTAL MANAGEMENT PROGRAMME

5.1. INTRODUCTION

The Environmental Management Programme (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 EMPr will be implemented by Nala Local Municipality on approval by the Department of Economic Development, Small Business, Tourism and Environmental Affairs (DESTEA). It must be read in conjunction with the contract documentation to ensure that the municipality works in an environmentally sensitive manner, thus ensuring the impacts on the environment and neighbouring residents of Monyakeng are kept to a minimum.

5.2 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 management of the identified environmental issues.
- ❑ To provide guidelines to the responsible persons from Nala Local Municipality to follow appropriate contingency plans in the case of various possible impacts.

5.3 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: Nala Local Municipality

Responsibility: To implement the final EMPr after approval by DESTEA before the commencement of the construction phase and ensure the proposed development complies with the NEMA requirements and the Environmental Authorisation.

Consulting Engineers: Hoxana Holdings

Responsibility: To undertake the detailed design for the proposed development and to ensure that necessary permits have been obtained prior to construction.

The Environmental Control Officer: To be appointed

Responsibility:

- ❑ To ensure that Nala Local Municipality implements the EMPr for the duration of the project from pre-construction to post-construction (decommissioning).
- ❑ To review the method statements with the resident engineer.
- ❑ To maintain a direct open line between the residents and the municipality.
- ❑ 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 Environmental Authorisation and undertake construction activities in an environmentally sensitive manner and rehabilitation of the proposed site post-development
- ❑ 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: To be appointed

Responsibility:

- ❑ To implement the Environmental Management Programme.
- ❑ To maintain records of environmental queries for the duration of the construction.
- ❑ To resolve environmental issues during the construction phase of the project.

The Project Steering Committee (Environmental Forum): A committee that comprises of representatives of the Engineers, Local Community and Contractor.

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.

5.4 METHOD STATEMENT

A method statement outlines construction activities to be undertaken with mitigation measures. The contractor must give a written statement to the Nala Local Municipality at least two weeks

before the activity so that any irregularities can be handled before construction commences and communicated to the workforce. The format of the method statement must 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 layout and establishment
- Handling of accidental spillages of hazardous substances
- Cement mixing
- Waste management procedures
- Wastewater management procedures
- Stormwater Management
- Erosion Remediation
- Traffic accommodation
- Fire control and emergency procedures

5.5 ENVIRONMENTAL AWARENESS TRAINING

Nala Local Municipality, 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 designated Environmental Officer prior to construction in the form of an on-site talk (toolbox talks). 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 basic rules of conduct, which must be considered for the duration of the project, are tabulated below.

Table 1: Basic conduct rules during construction

Do	Do Not
Use of toilet facilities provided and report	Make open fires for cooking, dedicated areas must 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 petroleum 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	Enter any fenced off neighbouring areas without consent
Use all safety equipment and comply with all safety procedures	Dump any waste substance into the donga
Prevent excessive dust and noise	Dump any hazardous material into the watercourses.

5.6 RECORD KEEPING

There must 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 must be taken pre-, during and post-construction as a visual reference. These records must be kept for a minimum of 2 years after completion of the project.

5.7 PENALTIES

In cases of transgressions and non-compliance regarding the EMPr by the contractor, they must be liable to a penalty fine. 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 2* below may be used as a guideline.

Table 2: 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 Environmental Management Programme is outlined in *Table 3* 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 during pre-construction and post-construction. It is therefore

imperative that there be a file dedicated for Environmental Documentation. The penalty could be donated to an environmental charity in the area or any need for environmental protection.

5.8. COMPLIANCE WITH ENVIRONMENTAL LEGISLATION

The compliance to the applicable Environmental Legislation must be undertaken before commencement of construction activities as shown in *Table 3* below.

Table 3: Applicable Environmental Legislation

LEGISLATION	APPLICABLE			OBTAINED	
	YES	NO	N/A	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		

Table 4: Environmental Management Programme

ASPECT	POSSIBLE IMPACT	MITIGATION PLAN	RESPONSIBLE PERSON (S)	OBJECTIVES	FREQUENCY
1. PRE-CONSTRUCTION PHASE					
Project Contract and Programme	Adherence to the EMPr	<ul style="list-style-type: none"> ◇ The environmental responsibilities must be formalized, and environmental awareness must be taught to the labourers in their preferred language as part of the toolbox talks. 	RE & CONTRACTOR	Ensure that EMPr is adhered to	<u>Frequency</u> Prior to
Location of Camp and Depot	Environmental damage	<ul style="list-style-type: none"> ◇ The camp depot must be in an area where the Monyakeng residents will not be inconvenienced outside the pans and drainage line. ◇ The contractor must provide the RE with the layout plan of the camp depot for approval before commencement of the construction phase. The plan must include site offices, temporary fencing boundary, sanitation facilities, waste, stockpiling areas, etc. The parking of vehicles, storage of equipment and materials must strictly be confined to designated areas. ◇ If located on the surrounding undeveloped areas, the area must be rehabilitated once the project is completed. 	RE & CONTRACTOR	Prevent environmental damage and disturbance of neighboring land users	<u>Frequency</u> Once off
MANAGEMENT ACTION		A camp depot must be approved by the Resident Engineer. Agreement should be in place between contractor and the landowner prior to commencement of construction phase. Photographs of the approved area prior to establishment and after.			

ASPECT	POSSIBLE IMPACT	MITIGATION PLAN	RESPONSIBLE PERSON (S)	OBJECTIVES	FREQUENCY
Water Supply	Source of water during the construction phase.	<ul style="list-style-type: none"> ◇ Potable water must be available at the camp depot, office site and construction site. ◇ No boreholes should be established without DWS approval. ◇ No water must be abstracted from the pans without a Water Use License 	RE, CONTRACTOR & MUNICIPALITY OR WATER SUPPLIER	Prevent borehole establishment without DWS approval and unauthorized water abstraction from the neighbouring pans. To have clean water for the workforce.	<u>Frequency</u> Duration of the project
MANAGEMENT ACTION		A written agreement between the contractor and water supplier must be in place. Container marked potable water must be placed at the construction site.			
Access Control	Hazards to livestock and stealing of construction materials	<ul style="list-style-type: none"> ◇ A Fenced or suitably secure main site office and material storage area must be established. ◇ Unauthorized entry must be prohibited. 	RE & CONTRACTOR	Keep the site secure from trespassing or theft and keep the surrounding livestock out.	<u>Frequency</u> Duration of the project
MANAGEMENT ACTION		Site access register and complaints book must be in place.			
Access route	Erosion and dilapidation of the access route	<ul style="list-style-type: none"> ◇ Upgrade the current access roads used during construction to an acceptable condition. ◇ Proper maintenance must be done to ensure the quality of the access road is improved. 	RE, CONTRACTOR, & ECO	Prevention of dilapidation of the existing access routes	<u>Frequency</u> Duration of the Project Implementation
MANAGEMENT ACTION		ECO Audit checklist, Photographs depicting road condition pre- and post-construction			

ASPECT	POSSIBLE IMPACT	MITIGATION PLAN	RESPONSIBLE PERSON (S)	OBJECTIVES	FREQUENCY
Power Supply	Safety Impacts	<ul style="list-style-type: none"> ◇ A Safety Officer must be appointed to undertake safety audits. 	RE CONTRACTOR &	Implement safety measures	<u>Frequency</u> Duration of the Project Implementation
MANAGEMENT ACTION		Appointment Letter of a Safety Officer			
Solid Waste	Littering/ Pollution of environment with waste materials	<ul style="list-style-type: none"> ◇ Refuse bins with lids must be provided for different waste streams. ◇ System for regular waste removal must be set up. ◇ A Serviced Provider with the necessary accreditation to transport and dispose waste must be appointed. 	RE CONTRACTOR &	Implement proper handling of different streams of waste.	<u>Frequency</u> Once Off
MANAGEMENT ACTION		Method Statement for storing, handling, and disposal of waste and Record keeping of all records. Letter of Agreement for Handling of Hazardous Waste between Contractor and Service Provider.			
Sewage	Pollution of environment by waste materials	<ul style="list-style-type: none"> ◇ Provide adequate sanitation facilities ◇ Letter of consent from a registered waste facility to allow the contractor to empty the toilets in their sewer system must be in the environmental document. 	RE CONTRACTOR &	Prevent environmental pollution	<u>Frequency</u> Duration of the project
MANAGEMENT ACTION		Record keeping copies for emptying of chemical toilets. Written agreement between contractor and facility.			
Social & Socio-Economic Aspects	Dissatisfaction	<ul style="list-style-type: none"> ◇ A project steering committee (PSC), which comprises of the municipality, Engineers, contractor, Farmers/Beneficiaries and community representatives must be convened and details of the project discussed. ◇ Community Liaison Officer appointed, and PSC established 	RE, CONTRACTOR, WARD 4 COUNCILLOR, NLM	Ensure satisfaction of workers and neighbouring land users	<u>Frequency</u> Monthly
MANAGEMENT ACTION		CLO appointed and PSC in place prior to commencement of construction activities.			

ASPECT	POSSIBLE IMPACT	MITIGATION PLAN	RESPONSIBLE PERSON	OBJECTIVES	FREQUENCY
Health & Safety	Danger to the workforce, Vergenoeg Residents, neighboring Monyakeng, especially children and other landusers in the vicinity	<ul style="list-style-type: none"> ◇ The Contactor must 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. ◇ An emergency preparedness plan should be compiled and approved by the resident engineer and ECO before construction commences. A list of all emergency telephone numbers, i.e. fire, ambulance, ECO, engineers, etc. should be available all the time at various construction sites. ◇ A medical first aid kit should be available on site for duration of the project. ◇ Construction methods must adhere to the Occupational Health and Safety Act (Act 85 of 1993). 	RE, CONTRACTOR, SAFETY OFFICER	To avoid endangering of the people who works on site or live in the vicinity of the construction site.	<u>Frequency</u> Duration of the project
MANAGEMENT ACTION		Signed records for issuing of PPE to the workforce. Risk register must be in place			
2. CONSTRUCTION PHASE					
Sewerage	Pollution of the receiving environment.	<ul style="list-style-type: none"> ◇ Adequate sanitation facilities <i>i.e.</i>, 15 employees per facility must be provided with 50m from construction site. ◇ They must always be kept clean and hygienic. ◇ Effluent must not be discharged into the natural environment and defecating in the bush is prohibited. ◇ No chemical toilets must be placed within 32m of the drainage line or pan 	RE, CONTRACTOR, DEO, & ECO	Provide facilities for adequate and accessible sanitation facilities, Prevent soil and water pollution.	<u>Frequency</u> Weekly

ASPECT	POSSIBLE IMPACT	MITIGATION PLAN	RESPONSIBLE PERSON	OBJECTIVES	FREQUENCY
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.	RE, CONTRACTOR, DEO & ECO	To provide the workforce with clean water.	<u>Frequency</u> Daily
Health & Safety	Increase chances of HIV/Aids transmission	◇ ◇ HIV/Awareness Training must be provided for the workforce by an accredited service provider.	RE, CONTRACTOR, SAFETY OFFICER	To decrease the risk of HIV/Aids transmission	<u>Frequency</u> Once-off
Power Supply	Safety Impacts	◇ Limit the power supply cables & ensure the safety of the workers.	RE, CONTRACTOR, DEO & ECO	Avoid safety impacts	<u>Frequency</u> Daily
Energy Efficiency	Conserving of fossil fuels	◇ Manual labour must be used as much as is feasible in order to conserve fossil fuels.	RE, CONTRACTOR, DEO & ECO	Conserving fossil fuels by using manual labour.	<u>Frequency</u> Daily
Solid Waste	Littering/ Pollution	◇ Toolbox talks must include a component of waste management. ◇ All waste must be appropriately separated, contained and disposed of and be removed from the site to the registered landfill site in Wesselsbron. ◇ Reduction, reuse and recycling of waste must be introduced. ◇ Illegal dumping must be forbidden. ◇ No dumping of builders' rubble or other materials within the surrounding areas including the drainage lines and plans. ◇ Good housekeeping practices.	RE, CONTRACTOR, DEO & ECO	Prevent littering and visual impact. Safeguard a healthy working environment.	<u>Frequency</u> Weekly

ASPECT	POSSIBLE IMPACT	MITIGATION PLAN	RESPONSIBLE PERSON	OBJECTIVES	FREQUENCY
Traffic Impact	Safety/ Traffic Impacts	<ul style="list-style-type: none"> ◇ Vehicle speed on the site must be limited speed to 40km/h. ◇ Only drivers with valid licenses must be allowed to drive on the site. ◇ In the event of abnormal vehicles, a permit must be obtained from the local Department of Traffic. 	RE, CONTRACTOR, DEO, ECO & SAFETY OFFICER	Minimize the disruption to road users	<u>Frequency</u> Duration of the project
Flora	Loss of vegetation	<ul style="list-style-type: none"> ◇ The area is completely transformed by the informal settlement. ◇ No Red Data or Protected/Threatened Species on site. ◇ All declared alien plant species must be effectively cleared. ◇ Construction activities must be confined to the development footprint. ◇ No clearance of vegetation must be undertaken within 32m of a watercourse. 	RE, CONTRACTOR, DEO & ECO	Prevent impacts on flora and destruction of Red Data Listed Species Prevent destruction of areas not included in the development footprint.	<u>Frequency</u> Once off
Fauna	Disturbance to fauna in the area	<ul style="list-style-type: none"> ◇ No hunting, snaring, shooting, nest raiding or egg collection by the construction staff must be allowed. ◇ Toolbox talks must include handling of animals. 	RE, DEO & ECO	Prevent killings of animals and	<u>Frequency</u> Duration of the contract

ASPECT	POSSIBLE IMPACT	◇ MITIGATION PLAN	RESPONSIBLE PERSON	OBJECTIVES	FREQUENCY
Topsoil	Loss of Topsoil	<ul style="list-style-type: none"> ◇ Exposure of bare ground will be minimized. ◇ Topsoil stripping must be limited to the development footprint. ◇ It must be stored separately from the subsoil, i.e. no mixing of soils. ◇ In situ material must be removed to an average depth of 1000mm. ◇ Cleared and grubbed topsoil must be stockpiled as a top layer of at least 150mm thickness for the backfilling of monopole holes and rehabilitation purposes. ◇ Soil conservation measures such as berms, gabions and mats must be used on-site to help reduce erosion. ◇ No stockpiling of topsoil in the drainage line and pan nearby. ◇ No topsoil stripping must be done on open space ervens. ◇ Topsoil stockpiles must be kept free of weeds and litter free. ◇ Topsoil stockpiles must not inconvenience the residents from accessing their properties without informing them prior if necessary. 	RE, CONTRACTOR, DEO & ECO	Conserve and protect topsoil from erosion and deterioration	<u>Frequency</u> Weekly

ASPECT	POSSIBLE IMPACT	MITIGATION PLAN	RESPONSIBLE PERSON	OBJECTIVES	FREQUENCY
Topography	Disturbing the natural topography	<ul style="list-style-type: none"> ◇ Minimize the amount of excavation and earthworks needed by fitting the building or landscape design to the site topography rather than flatten the site to fit the building or landscape. ◇ Restrict construction vehicle traffic to designated accesses to reduce damage to soils and vegetation. 	RE, CONTRACTOR DEO & ECO	Minimize the disturbance of topography	<u>Frequency</u> Duration of the project
Cement mixing	Pollution of soils, surface and groundwater	<ul style="list-style-type: none"> ◇ Mixing of cement must be done on mortar boards or similar structures to contain surface run-off. ◇ Cleaning of cement mixing equipment must be done on proper cleaning trays. ◇ No cement or cement containers must be left lying around. 	RE, CONTRACTOR, DEO & ECO	Avoid polluting the topsoil soil and water bodies around the designated servitude.	<u>Frequency</u> Duration of project
Storm water	Contamination of storm water	<ul style="list-style-type: none"> ◇ Stormwater Management Plan approved by DWS must be implemented ◇ 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 must be allowed to flow freely into the drainage channels. 	RE, CONTRACTOR, DEO & ECO	Avoid contamination of stormwater	<u>Frequency</u> Duration of project

ASPECT	POSSIBLE IMPACT	MITIGATION PLAN	RESPONSIBLE PERSON	OBJECTIVES	FREQUENCY
Air Quality	Nuisance and reduction in visibility	<ul style="list-style-type: none"> ◇ Occasional wetting of the access routes and construction site must be done by means of a water tanker to keep the dust levels low and vehicles must be driven at 40km/h maximum speed. 	RE, CONTRACTOR, DEO & ECO	To minimize the generation of dust from excavation work and associated visual impacts	<u>Frequency</u> Twice a day
Water Quality	Impact of watercourses due to accidental spillages and poorly serviced equipment during construction	<ul style="list-style-type: none"> ◇ No fuel to be stored at or near the drainage line and pan. ◇ Equipment to be properly maintained and serviced. ◇ Fuel storage and pump areas to be bunded to avoid accidental leakage; ◇ Accidental spills must be reported and cleaned immediately. ◇ Contaminated soils must be removed and collected in a clearly marked container before being disposed of at a registered disposal site. 	RE, CONTRACTOR, DEO & ECO	<p>To protect watercourses.</p> <p>To prevent contamination of the watercourses nearby.</p>	<u>Frequency</u> Duration of the project
Noise	Nuisance	<ul style="list-style-type: none"> ◇ Construction must be limited to normal contractors' working days and working hours. ◇ Ensure that employees and staff conduct themselves in an acceptable manner while on site, both during work hours and after hours. ◇ Limit working hours of noisy equipment to daylight hours, ◇ Fit silencers to the noisier construction equipment. 	RE, CONTRACTOR, DEO & ECO	To avoid excessive noise generation from site operations	<u>Frequency</u> Duration of Construction

ASPECT	POSSIBLE IMPACT	MITIGATION PLAN	RESPONSIBLE PERSON (S)	OBJECTIVES	FREQUENCY
Soil erosion	Erosion	<ul style="list-style-type: none"> ◇ Exposure of bare ground must be minimized, and topsoil stripping limited to the development footprint, excluding open spaces and they must be cordoned off. ◇ Vehicular activities to be confined to the development footprint and access roads. ◇ No construction activities within 32m of the drainage line. ◇ Adequate stormwater and erosion management measures must be implemented for the entire assessment area. This must be done in order to sufficiently manage storm water runoff and clean/dirty water separation in order to prevent any significant erosion from occurring. 	RE. CONTRACTOR, DEO AND ECO	Prevent Soil Erosion	<u>Frequency</u> Weekly
Alien Invasive Species	Prevent the spreading of alien invasive species	<ul style="list-style-type: none"> ◇ Implement an adequate Alien Invasive Species Establishment Management and Prevention Plan compiled by a suitably qualified and experienced ecologist must be implemented. ◇ A designated person must be appointed to keep the construction site weed-free. ◇ All Category 1b and 2 alien invasive species individuals currently within the project area, must be actively eradicated and adequately disposed of in accordance with the National Environmental Management: Biodiversity Act (Act 10 of 2004); Alien and Invasive Species Regulations, 2014. ◇ Construction vehicles must be cleaned before entering the construction site. 	RE, CONTRACTOR, DEO & DEO	Prevent unnecessary dissemination of alien invasive species	<u>Frequency</u> Duration of the Project

Fire Hazard	Risk of veld fires	<ul style="list-style-type: none"> ◇ 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 workforce must be informed and advised on the associated risks, dangers and damage of property caused by accidental fires and how to prevent them. ◇ Fire extinguishers must be made available at the construction site, and the laborers must be informed of their location and trained to use them. ◇ Restrict smoking activities to demarcated smoking activities. 	RE, CONTRACTOR, DEO & ECO	Prevent veld fires.	<u>Frequency</u> Daily
Vehicle Servicing Areas	Pollution	<ul style="list-style-type: none"> ◇ Vehicle servicing must 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 must 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 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 drainage lines or the ground. 	RE, CONTRACTOR, DEO & ECO	Prevent pollution Soil	<u>Frequency</u> Daily

Areas of Paleontological, Cultural and/or Historical Importance	Disturbance of important scientific artefacts	<ul style="list-style-type: none"> ◇ Should fossil remains be discovered, these must not be disturbed further and South African Heritage Resources Agency (SAHRA) must be consulted for guidance on how to deal with the remains. ◇ Must any human skeletal remains be found during excavations; work must stop in the area. The findings must be reported immediately to SAHRA. 	RE, CONTRACTOR, DEO & ECO	Prevent disturbance of scientific heritage and/or cultural artefacts.	<u>Frequency</u> Duration of the Contract
MANAGEMENT ACTION		Photographic History Inspection Reports of the DEO Environmental Compliance Monitoring Reports of the ECO			

ASPECT	POSSIBLE IMPACT	MITIGATION PLAN	RESPONSIBLE PERSON	OBJECTIVES	MONITORING ACTIONS AND FREQUENCY
3. POST CONSTRUCTION PHASE					
Aesthetic view of the area	Aesthetic pollution	<ul style="list-style-type: none"> ◇ The contractor must rehabilitate the site when construction is completed, thus a detailed rehabilitation plan must be provided by the contractor. ◇ The site must be kept clear of litter and all waste must be removed and disposed of at the registered landfill site. ◇ All stockpiles must be handled as directed by the engineers. ◇ Soil heaps must be flattened to match the adjacent ground and to help prevent soil erosion and encourage natural revegetation. ◇ All excavations must be backfilled, levelled and compacted. ◇ All surfaces hardened due to construction must be ripped and material imported thereto removed. ◇ The original site topography must be restored as much as possible. ◇ A final audit must be completed before the contractor may leave the site to determine whether all requirements were met. 	RE, CONTRACTOR, DEO, ECO AND NLM	Prevent pollution Restore pre-construction conditions to a greater extent.	<u>Frequency</u> Monthly

		<ul style="list-style-type: none"> ◇ A meeting must be held between the various stakeholders to ensure that the site has been restored to a satisfactory condition. 			
4. OPERATION PHASE					
Environmental Degradation	Impact on the environment	<ul style="list-style-type: none"> ◇ The municipality will provide basic services to the area, i.e. power supply, water provision, electricity and refuse removal. ◇ Prevent establishment of illegal dumping site. ◇ Monitoring and routine maintenance of proper stormwater drainage system should be in place. ◇ Routine maintenance of access and internal roads should be in place. ◇ Implement alien control measures. ◇ Implement erosion management measures. 	NALA LOCAL MUNICIPALITY	Maintenance of Bulk Infrastructure Prevent environmental degradation	<u>Frequency</u> Infinite

6 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 EMP are and determine whether the corrective actions undertaken are adequate and whether some modifications are required. The resident engineer (project manager) must monitor the overall aspects of the project, e.g. labor issues and complaints raised by the local community, so they can be addressed in conjunction with the Project Steering Committee (PSC). A designated Environmental officer must be on site for the duration of the project to ensure that the conditions of the Environmental Authorization and EMP are adhered to. The ECO must monitor construction activities at least once a month and the monthly reports must be compiled and presented to the PSC for discussion if needs be. On completion of the construction phase, post-rehabilitation, an environmental audit must be conducted by an experienced and qualified auditor.

APPENDIX A
LAYOUT OF THE PROPOSED DEVELOPMENT

APPENDIX B
CURRICULUM VITAE OF EAP

NAME: Lorato Tigedi Pr. Sci. Nat. (400161/09)



Name of Firm: NSVT Consultants

Present Position: Director/ Environmental Assessment Practitioner

Years with the Firm: 8 Years

Mailing Address: 1 Fourth Street, Office 1A, Arboretum, 9301

Date of Birth.: 1980-09-25

Phone: 051 430 1041/2

Cell: 082 784 8259

E-mail: lorato@nsvt.co.za

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
	Masters in Environmental Management (Mini-thesis Outstanding)	

Professional Membership:

MEMBERSHIP	MEMBERSHIP No.
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 (2010/ZA/FS0001)

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

Position: Director 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 amendments 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

Previous Employment:

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.

Reference:

CONTACT NAME	ORGANISATION	TELEPHONE NUMBERS
Mamofolo Matebele	Babereki Consulting Engineers	051 522 4865
Solomon Munthali	TS Consulting Engineers	071 875 8952
Piet De Bie	Phethogo Consulting	051 448 6006

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.

Signature

Date