Pongola Township Development Environmental Management Programme

Prepared for uPhongolo Municipality

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GLOSSARY

EMPr:

Environmental Management programme (EMPr): A detailed plan of action prepared to ensure that recommendations for enhancing or ensuring positive impacts and limiting or preventing negative environmental impacts are implemented during the life cycle of a project. This Environmental Management Programme underpins uPhongolo Municipality's (herein referred to as the developer) approach, methodology and management of the Pongola Township Development, herein referred to as the Township.

ENVIRONMENT:

In terms of the National Environmental Management Act (NEMA) (No 107 of 1998), "environment" means the surroundings within which humans exist and that are made up of:

- the land, water and atmosphere of the earth;
- micro-organisms, plant and animal life;
- any part or combination of (i) of (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 wellbeing.

PROJECT MANAGER:

The person appointed by the developer from time to time to act in the capacity and notified, by name and in writing by to the Contractor (s), to act as required in the contract. The contractors' responsibility is limited to the Construction Phase.

ENVIRONMENTAL CONTROL OFFICER: (ECO)

An independent individual appointed by the developer to be present on site on a regular basis to act on behalf of the Project Manager in matters concerning the implementation and day to day monitoring of the EMPr. The Environmental Control Officer is recommended to be a third party with no vested interest in the development. The ECO's responsibilities are limited to (unless otherwise agreed) the Construction Phase.

CONTRACTOR:

A person or company appointed by the developer to carry out stipulated activities. The Contractors' responsibility is limited to the Construction Phase.

REHABILITATION:

Rehabilitation is defined as the return of a disturbed area to a state that approximates the state (where possible) which it was before disruption. Rehabilitation for the purposes of this specification is aimed at post-reinstatement re-vegetation of any disturbed area and the insurance of a stable land surface. Re-vegetation should aim to accelerate the natural succession processes so that the plant community develops in the desired way, i.e. promote rapid vegetation establishment.

SITE MANAGER:

The person, representing the Contractor, responsible for all the Contractor's activities on the site including supervision of the construction staff and activities associated with the construction Phase. The Site Manager will liaise with the Project Manager in order to ensure that the project is conducted in accordance with the Environmental Management Programme. The Site Manager's Responsibilities are limited to the Construction Phase.

THE TOWNSHIP:

The Pongola Township Development. May also be referred to as "the site" or "the development" in the body of this report.

1. INTRODUCTION

uPhongolo Local Municipality is proposing a township development on Portion 419 of Farm No. 61, Pongola. The site is 19 hectares in area and is approximately 7 km (by road) from Pongola town. The development aims to address the dire need for low income housing in the area.

The township development will be comprised of:

- High density housing (280 units)
- Public open spaces;
- A crèche;
- A place of worship (church);
- A business centre;
- Associated infrastructure (roads, stormwater, sanitation, electricity)

2. COMMITMENT BY THE DEVELOPER

A principle for land development as outlined in the uPhongolo Municipality's Integrated Development Plan, is that; land development should take place effectively and in an integrated manner by "ensuring a sustainable natural environment." As such, the township development should include a sustainable philosophy, from the design phase and throughout the life span of the development. Managing environmental impacts and risks is integral to ensuring the municipality's sustainable land development objective is met.

The following principles will be enforced:

- No development or potentially detrimental activity will take place outside the boundary of the designated property.
- The geology and soil on the site has been identified as susceptible to collapse and soil erosion. The development shall therefore strictly adhere to the recommendations of the geotechnical investigation to ensure the development is structurally sound and to prevent environmental degradation.
- Managing stormwater run-off is an important consideration for the township development due to the soil conditions, scale of the development and the fact that there is a season loss in ground cover (vegetation). The stormwater infrastructure (as per the Stormwater Management Plan) is to be constructed in the early stages of the development phase to mitigate risks associated with stormwater during construction (namely, erosion).
- The developer must recognize the importance of alien invasive plant control during and after development. Keeping the site and surrounds clear of alien invasive plants is important for the long term biodiversity and ecological health of the area and health of the residents of the township.
- The developer will strive to implement utilize renewable energy technology where possible.
- Landscaping and plants to be used in public open spaces must be indigenous wherever feasible.
- This EMPr includes management regimes for maintaining the ecological integrity of the site, including keeping the site free of invasive alien plants, ensuring sufficient waste management, ensuring no development or activities will be allowed out of the permitted footprint.

3. APPLICABLE DOCUMENTATION

The following documentation is applicable for the project, and should be read in conjunction with this EMPr:

- Basic Assessment Report for the proposed Pongola Township Development, along with associated specialist studies/management reports (Geotechnical Report and Stormwater Management Plan).
- Environmental Authorisation issued by the KZN Department of Economic Development, Tourism and Environmental Affairs (once issued).

4. LOCATION

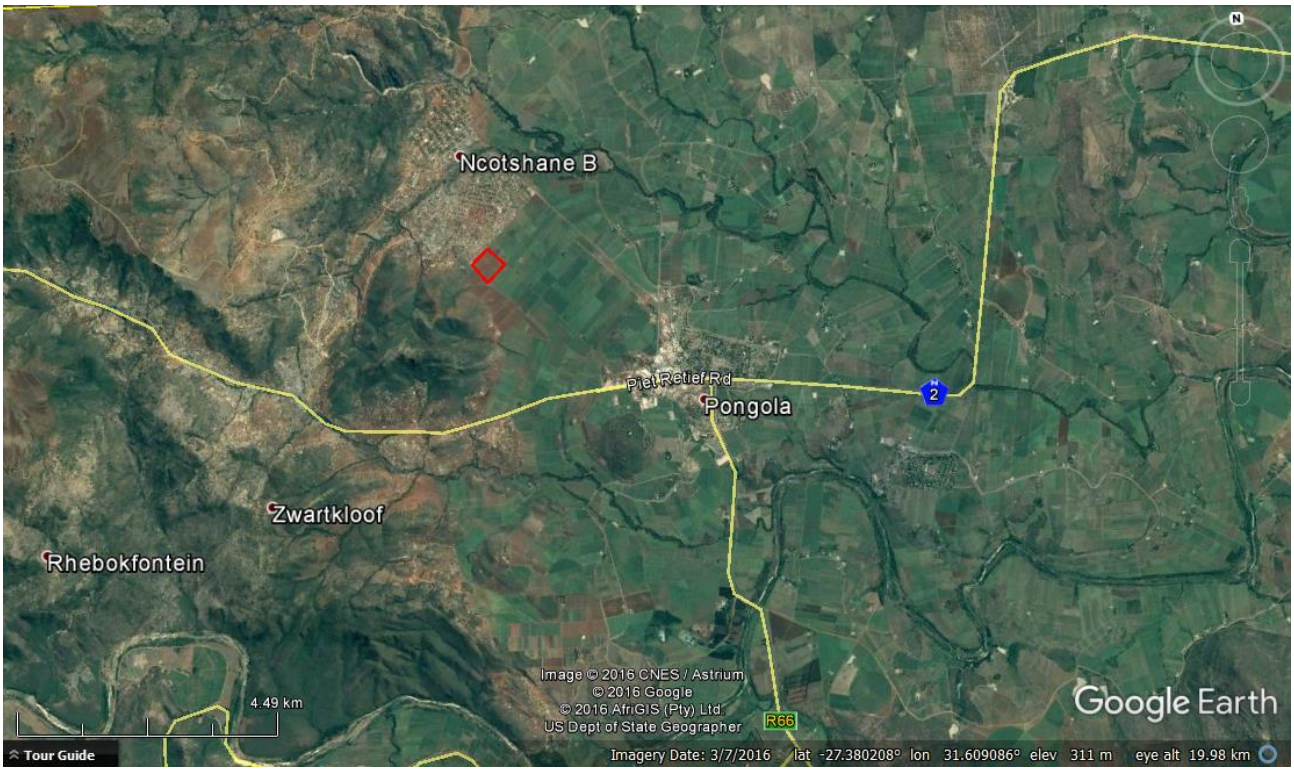

Figure 1: Location Map (site in red)

5. PROJECT RESPONSIBILITIES

Several professionals will form part of the project team. The most important, from an environmental perspective, are the Project Manager, the Environmental Control Officer (ECO), and the appointed contractors.

- The Project Manager is responsible for the implementation of the EMPr on the site during the Construction phase of the project.
- The ECO is responsible for monitoring the implementation of the EMPr during the construction phase of the project.
- The contractor is responsible for abiding by the mitigation measures of the EMPr which are implemented by the Project Manager during the construction phase.
- The developer is responsible for the implementation of the EMPr during the Construction Phase.
- The developer and Environmental Control Committee (if applicable) will be responsible for the operational phase of the project.

Project Manager

The Project Manager is responsible for overall management of project and EMPr implementation. The following tasks will fall within his / her responsibilities:

- Be familiar with the recommendations and mitigation measures of this EMPr, and implement these measures.
- Monitor site activities on a daily basis for compliance.
- Conduct internal audits of the construction site against the EMPr.
- Confine the construction site to the demarcated area.
- Rectify transgressions through the implementation of corrective action.

Environmental Control Officer

The Environmental Control Officer is responsible to monitor the implementation of the EMPr during the construction phase as well as liaison and reporting to the developer, contractors, Landowners and relevant Authorities. The following tasks will fall within his / her responsibilities:

- Be familiar with the recommendations and mitigation measures of this EMPr.
- Conduct monthly audits of the construction site according to the EMPr.
- Educate the construction team about the management measures of the EMPr.
- Regular liaison with the construction team and the project leader.
- Recommend corrective action for any environmental non-compliance incidents on the construction site.
- Compile a regular report highlighting any non-compliance issues as well as good compliance with the EMPr.
- All negotiations for any reason shall be between the ECO, The developer, affected parties (landowners) and the Contractor. No verbal agreements shall be made. All agreements shall be recorded in writing and all parties shall co-sign the documentation.
- The affected parties shall always be kept informed about any changes to the construction programme should they be involved. If the ECO is not on site the Contractor should keep the affected parties informed. The contact numbers of the Contractor and the ECO shall be made available to the affected parties. This will ensure open channels of communication and prompt response to queries and claims.

Contractor

The contractor is responsible for the implementation and compliance with recommendations and conditions of the EMPr. Ensure compliance with the EMPr at all times during construction activities. Maintain an environmental register that keeps a record of all incidents that occur on the Subject Site during construction of the Township. These incidents include but not limited to:

- Public involvement / complaints Health and safety incidents.
- Incidents involving Hazardous materials stored on site
- Non-compliance incidents
- All incidents are to be reported to the Environmental Control Officer as per reporting procedures.

6. THE ENVIRONMENTAL MANAGEMENT PROGRAMME

This EMPr seeks to manage and keep to a minimum the negative impacts of a development and at the same time, enhance the positive and beneficial impacts. The EMPr will guide the developers and residents in terms of minimizing and managing any potentially negative environmental impacts the Township may have.

7. OBJECTIVES OF THE EMPr

The objectives of the EMPr are to:

- Identify a range of mitigation measures that could reduce and mitigate the potential impacts to minimal or insignificant levels.
- To identify measures that could optimize beneficial impacts.
- To create management structures that addresses the concerns and complaints of I&APs with regards to the construction that will take place.
- To establish a method of monitoring and auditing environmental management practices during all phases of the construction.
- Ensure that the construction and operational phases of the project continues within the principles of Integrated Environmental Management.
- Detail specific actions deemed necessary to assist in mitigating the environmental impact of the Township
- Ensure that the safety recommendations are complied with.
- Propose mechanisms for monitoring compliance with the EMPr and reporting thereon.
- Specify time periods within which the measures contemplated in the final Environmental Management Programme must be implemented, where appropriate.
- Act as a resource for guiding the ongoing management of the Township.

8. EMPHASIS OF THE EMPr

- Avoiding impacts by not performing certain actions.
- Minimising impacts by limiting aspects of an action.
- Rectifying impacts through rehabilitation, restoration, etc… of the affected environment.
- Compensating for impacts by providing substitute resources or environments
- Minimising impacts by optimising processes, structural elements and other design features.
- Provide ongoing monitoring and management of environmental impacts of a development and documenting of any digressions /good performances.
- The EMPr is a legally binding document that all parties involved in the project must be aware of.

9. LAYOUT OF THE EMPr

The EMPr is separated into two phases. Each phase has specific issues unique to that period of the construction and operation of the Township. It's important to note that in the unlikely event of decommissioning of Pongola Township, the environmental actions, procedures and responsibilities specified for the construction phase apply. The impact is identified and given a brief description. The two phases of the development are then identified as below:

Construction Phase

This section of the EMPr provides management principles for the construction phase of the project. Environmental actions, procedures and responsibilities as required within construction phase are specified. These specifications will form part of the contract documentation and therefore all contractors will be required to comply with these specifications to the satisfactory of the Project Manager and Environmental Control

Officer in terms of the construction contract.

Operational and Maintenance Phase

This section of the EMPr provides management principles for the operation and maintenance phase of the Township. Environmental actions, procedures and responsibilities with regards to the operation and maintenance phase are specified.

10. TRAINING OF CONSTRUCTION WORKERS

The construction workers must receive basic training in environmental awareness, including the minimisation of disturbance to sensitive areas, management of waste, identification of protected biodiversity and prevention of erosion and water pollution.

11. CONTRACTOR PERFORMANCE

The contractor must ensure that the conditions of the EMPr are adhered to. Should the contractor require clarity on any aspect of the EMPr the Contractor must contact the ECO for advice.

12. ENVIRONMENTAL REGISTER

The Environmental Register comprises of the following documents and they must be kept on site in order to record compliance with the EMPr:

- Record of Complaints
- Monitoring Results
- Notification of emergencies and incidents

13. LEGISLATIVE FRAMEWORK

Act	Year
Constitution of South Africa	Act No 108 of 1996
National Environmental Management Act	Act No 107 of 1998
Environmental Conservation Act	Act No 73 of 1989
National Heritage Resources Act	Act No 25 of 1999
KZN Heritage Act	Act No 4 of 2008

National Water Act	Act No 36 of 1998
Hazardous Substances Act	Act No 15 of 1973
National Environmental Management: Protected Areas Act	Act No 57 of 2003
National Environmental Management: Biodiversity Act	Act No 10 of 2004
National Environmental Management: Air Quality Act	Act No 39 of 2004
Occupational Health and Safety Act	Act No 85 of 1993
Natal Nature Conservation Ordinance	Act No 15 of 1974
National Building Regulations and Building Standards Act	Act 103 of 1977
Subdivision of Agricultural Land Act	Act No 70 of 1970
Conservation of Agricultural Resources Act	Act No 43 of 1983
National Forests Act	Act No 84 of 1998

THE CONSTITUTION OF THE REPUBLIC OF SOUTH AFRICA ACT (108 OF 1996)

The Constitution of the Republic of South Africa is the legal source for all law, including environmental law, in South Africa. The Bill of Rights is fundamental to the Constitution of South Africa and in, section 24 of the Act, it is stated that:

Everyone has the right (a) to an environment that is not harmful to their health or well- being; and (b) to have the environment protected, for the benefit of present and future generations through reasonable legislative and other measures that (i) prevent pollution and ecological degradation; (ii) promote conservation; and (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

Given that environmental management is founded partly on the principles of public participation, Section 195 of the Constitution is of primary relevance:

(1) Public administration must be governed by the democratic values and principles enshrined in the constitution, including the following principles: (a) (b) (c) (d) (e) Peoples needs must be responded to, and the public must be encouraged to participate in policy making. (f) Public administration must be accountable. (g) Transparency must be fostered by providing the public with timely, accessible and accurate information (Government Gazette, 1996)

ENVIRONMENTAL CONSERVATION ACT (73 OF 1989)

The primary objective of the ECA is to provide for the effective protection and control of the environment. Subsequent to the promulgation of the Act in 1989, a number of key regulations governing EIA's and identified activities that may be detrimental to the environment have also been promulgated. Section 8 of the

Regulations regarding activities identified under section 21(1) of the Environmental Conservation Act (73 of 1989) – General EIA Regulations states that:

After a plan of study for the environmental impact assessment has been accepted, the applicant must submit an environmental impact report to the relevant authority, which must contain (a) A description of each alternative including particulars on (i) The extent and significance of each identified environmental impact; and (ii) The possibility for mitigation of each identified impact. (b) A comparative assessment of all the alternatives; and (c) Appendices containing descriptions of (i) The environment concerned; (ii) The activities to be undertaken; (iii) The public participation process followed, including a list of interested parties and their comments; (iv) Any media coverage given to the proposed activity; and (v) Any other information included in the accepted plan of study.

NATIONAL ENVIRONMENTAL MANAGEMENT ACT (107 OF 1998)

NEMA is South Africa's overarching environmental legislation and has, as its primary objective to provide for co-operative governance by establishing principles for decision making on matters affecting the environment, institutions that will promote co-operative governance and procedures for coordinating environmental functions exercised by organs of state and to provide for matters connected therewith (Government Gazette,1998)

The Act provides for the right to an environment that is not harmful to the health and well-being of all South Africans; the equitable distribution of natural resources, sustainable development, environmental protection and the formulation of environmental management frameworks (Government Gazette, 1998).

Section 30 (1, 3 and 4) of NEMA states that:
(1) (a) ''incident'' means an unexpected sudden occurrence, including a major emission, fire or explosion leading to serious danger to the public or potentially serious pollution of or detriment to the environment, whether immediate or delayed. (b) ''responsible person'' includes any person who; (i) Is responsible for the incident; (ii) Owns any hazardous substance involved in the incident; or (iii) Was in control of any hazardous substance involved in the incident at the time of the incident;

(3) The responsible person or, where the incident occurred in the course of that person's employment, his or her employer must forthwith after knowledge of the incident, report through the most effective means reasonably available (a) the nature of the incident; (b) any risks posed by the incident to public health, safety and property; (c) the toxicity of substances or by-products released by the incident; and (d) any steps that should be taken in order to avoid or minimise the effects of the incident on public health and the environment to; (i) the Director-General; (ii) the South African Police Services and the relevant fire prevention service; (iii) the relevant provincial head of department or municipality; and (iv) all persons whose health may be affected by the incident.

(4) The responsible person or, where the incident occurred in the course of that person's employment, his or her employer, must, as soon as reasonably practicable after knowledge of the incident; (a) take all reasonable measures to contain and minimise the effects of the incident, including its effects on the environment and any risks posed by the incident to the health, safety and property of persons; (b) undertake clean-up procedures; (c) remedy the effects of the incident; (d) assess the immediate and long- term effects of the incident on the environment and public health.

NATIONAL WATER ACT (36 OF 1998)

Section 19 of the National Water Act states that the person responsible for land upon which any activity is or was performed which causes, has caused or is likely to cause, pollution of a water resource, must take all reasonable measures to prevent any such pollution from occurring, continuing or recurring.

Chapter 3 of the National Water Act (36 of 1998), deals with pollution of water resources following an emergency incident, such as an accident involving the spilling of a harmful substance that finds or may find its way into a water resource. In terms of Section 30 of NEMA and Section 20 of the National Water Act the responsibility for remedying the situation rests with the person responsible for the incident or the substance involved. If there is a failure to act, the relevant Catchment Management Agency may take the necessary steps and recover the costs from every responsible person.

SUSTAINABLE DEVELOPMENT

The principle of Sustainable Development has been established in the Constitution of the Republic of South Africa (108 of 1996) and given effect by NEMA and the ECA. Section 1(29) of NEMA states that sustainable development means the integration of social, economic and environmental factors into the planning, implementation and decision-making process so as to ensure that development serves present and future generations.

Thus Sustainable Development requires that:

- The disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied; That pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied;
- That the disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied;
- That waste is avoided, or where it cannot be altogether avoided, minimised and re- used or recycled where possible and otherwise disposed of in a responsible manner
- That a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions;
- Negative impacts on the environment and on people's environmental rights be anticipated; and, prevented and where they cannot altogether be prevented, are minimised and remedied.

ADDITIONAL NATIONAL LEGISLATION

Other National Legislation which has implications for environmental control on the site include:

- Occupational Health and Safety Act (85 of 1993)
- Hazardous Substance Act (15 of 1973)
- Conservation of Agricultural Resources Act (43 of 1983)
- National Forests Act (84 of 1998)

ENVIRONMENTAL MANAGEMENT PROGRAMME: CONSTRUCTION PHASE

a. Phases of construction

All construction will be limited to the footprint of the intended building and no construction activity should be permitted beyond an imaginary 10 meter from the edge of the intended excavation for the building/platform and or specific authorized activity, which activity includes specific site clearing. No construction activity is to occur within the 1:100 year flood line, even if it is within 10 meters of the edge of the excavation/platform.

b. Site Clearing

Site clearing for the development must be kept to a minimum. Clearing any protected trees (e.g. marula tree, *Sclerocarya birrea*) must be avoided. Prior to clearing each erf, a botanist, ecologist or other suitably qualified ECO must inspect the site to;

a) Ensure no protected ground cover/herbaceous species were overlooked during the vegetation assessment.
b) Earmark any species that are protected.
c) Relevant licenses must be obtained prior to any destruction of protected species.

Site clearing must take place only on authorized specific areas and not prior to building plans being approved by the local authority and construction being authorized for building activities and full funding for the complete building operation for the specific building entity guaranteed to the Township. Areas which are not to be actively utilised for construction within two months of time, must not be cleared to reduce erosion risks and alien plant invasion risks. The area to be cleared must be clearly demarcated and this footprint strictly maintained. Removed soil is to be stockpiled on site and top-soil is to be stockpiled separately from sub-soil and the topsoil is to be reuse in the landscaping of the specific site area, if needed. Sub-soil and rubble that is removed from the site must be removed to an approved spoil (i.e. building rubble, stripped vegetation, etc) site or licensed landfill site as per the National Environmental Management: Waste Act, 2008. The necessary silt fences and erosion control measures must be implemented in areas where these risks are more prevalent. These include wetlands / drainage lines and steep areas.

c. Site establishment

Site establishment shall take place in an orderly manner and all required amenities shall be installed at Camp sites before the main workforce move onto site. The Construction camp shall have the necessary ablution facilities with at least chemical toilets at commencement of construction activities. The contractor shall inform all site staff to make use of supplied ablution facilities and under no circumstances shall indiscriminate sanitary activities be allowed other than in supplied facilities.

The contractor shall supply waste collection bins where such is not available and all solid waste collected shall be disposed of at a registered landfill as per the National Environmental Management: Waste Act, 2008. A certificate of disposal shall be obtained by the contractor and kept on file. Where a registered waste site is not available close to the construction site, the contractor shall provide a method statement with regard to waste management. The disposal of waste shall be in accordance with all relevant legislation. Under no circumstances may solid waste be burnt on site.

d. Environmental Monitoring

A monitoring programme will be implemented for the duration of the construction and operation of the Township

- To ensure compliance to the EMPr conditions, and where necessary make recommendations for corrective action. During the construction phase, monthly audits will be conducted by the Environmental Control Officer.
- Compilation of an audit report with a rating of compliance with the EMPr. The ECO shall keep a photographic record of any damage to areas, within and outside the demarcated site area. The date, time of damage, type of damage and reason for the damage shall be recorded in full to ensure the responsible party is held liable. All claims for compensation emanating from damage should be directed to the ECO for appraisal.
- The developer (through the project manager) shall be held liable for all unnecessary damage to the environment. A register shall be kept of all complaints from the Landowner or community. All complaints / claims shall be handled immediately to ensure timeous rectification by the responsible party.

- Upon completion of the construction phase, the quarter-yearly audits and compliance requirements will be overseen and managed by the developer.

e. Compliance with the EMPr

A copy of the EMPr must be kept on site, at the main Construction Camp, during the construction period at all times. The EMPr will be made binding on all contractors operating on site and must be included within the Contractual Clauses. It should be noted that in terms of the Environment Conservation Act, and the National Environmental Management Act No 107 of 1998 (Section 28) those responsible for environmental damage must pay the repair costs both to the environment and human health and the preventative measures to reduce or prevent further pollution and/or environmental damage (The polluter pays principle).

14. Traffic and Access

IMPACT	CONSTRUCTION TRAFFIC AND ACCESS (This section deals with the impact of construction traffic and access has on the site and surrounds)	RESPONSIBILITY	FREQUENCY MONITORING REQUIREMENTS
PHASE	CONSTRUCTION	Contractor, ECO	Weekly
MITIGATION	**Construction traffic** • Construction routes must be clearly defined. • Access to all construction and material delivery vehicles should be strictly controlled, especially during wet weather to avoid Compaction, erosion and damage to the topsoil structure. • The construction trucks routes and times of operation should be carefully planned. • Wheel washing and damping down of un-surfaced roads must be implemented to reduce dust, if deemed necessary by the ECO at any given time. • Vehicles and equipment shall be serviced regularly to avoid the contamination of soil from oil and hydraulic fluid leaks etc. and vehicles with oil or hydraulic liquid leaks may not operate on the site. • Servicing of vehicles must be done off-site. • Oil changes must take place on a concrete platform or on a drip tray on an area suitably designed and developed for such purpose. **Access** • Temporary access roads that might be required must be rehabilitated prior to Contractors leaving the site. • Strategic positioning of entry and exit points to ensure as little impact/ effect as possible on the traffic flow. **Road maintenance** • The contractors should ensure that access roads are maintained in good condition by attending to potholes,		

corrugations and stormwater damage as soon as these develop.
- If necessary, staff must be employed to clean surfaced roads adjacent to construction sites where materials have spilt.

General

- The contractor shall meet safety requirements under all circumstances. All equipment transported shall be clearly labelled as to their potential hazards according to specifications. All the required safety labelling on the containers and trucks used shall be in place.
- All vehicles passing through Ncotshane Township must pay close attention to speed limits, particularly when passing schools, where limits must be restricted to 40 km/h.
- Construction vehicle access should be limited to working hours on week days only.
- The contractor shall ensure that all the necessary precautions against damage to the environment and injury to persons are taken in the event of an accident.

15. Construction Camp

IMPACT	CONSTRUCTION CAMP (This section deals with the impacts relating to the construction camp)	RESPONSIBILITY	FREQUENCY / MONITORING REQUIREMENTS
PHASE	CONSTRUCTION	Contractor, ECO	Weekly
MITIGATION	**Site of construction camp** • Choice of site for the contractors' camp requires the ECOs permission and must take into account location of ecologically sensitive areas, including high erosion risk zones, sensitive biodiversity, unstable zones and the possible drainage lines. A site plan must be submitted to the ECO and project manager for approval. The construction camp should be no larger		

than 0.5 ha.
- The construction camp may not be situated on slopes greater that 1:3.
- The size of the construction camp should be minimized (especially where natural vegetation has had to be cleared for its construction
- The contractor must attend to drainage of the camp site to avoid standing water and / or any erosion.
- Suitable control measures over the Contractor's yard, plant and material storage to mitigate any visual impact of the construction activity must be implemented.

Storage of materials (including hazardous materials)

- Choice of location for storage areas must take into account prevailing winds, distances to water bodies, general onsite topography and water erosion potential of the soil. Impervious surfaces must be provided where necessary. Storage areas must be designated, demarcated and fenced.
- Storage areas should be secure so as to minimize the risk of crime. They should also be safe from access by unauthorised persons and/or animals.
- Fire prevention facilities must be present at all storage facilities.
- Proper storage facilities for the storage of oils, paints, grease fuels, chemicals and any hazardous materials to be used must be provided to prevent the migration of spillage into the ground and groundwater regime around the temporary storage area(s). These pollution prevention measures for storage should include a bund wall high enough to contain at least 110% of any stored volume, and this should be sited away from drainage lines in a site with the approval of the ECO.
- These storage facilities (including any tanks) must be on an impermeable surface that is protected from the ingress of storm water from surrounding areas in order to ensure

that accidental spillage does not pollute local soil or water resources.

- Clear signage must be placed at all storage areas containing hazardous substances / materials.
- Staff dealing with these materials / substances must be aware of their potential impacts and follow the appropriate safety measures.
- A Waste Disposal Contractor must be employed to remove any waste oil or similar hazardous substances. These wastes should only be disposed of at Department of Water and Sanitation (DWS) licensed landfill sites designed to handle hazardous wastes. A disposal certificate must be obtained from the Waste Disposal Contractor.
- The contractor must ensure that its staff is made aware of the health risks associated with any hazardous substances used and has been provided with the appropriate protective clothing/equipment in case of spillages or accidents and have received the necessary training.
- Any spillage, which may occur, shall be investigated and immediate action must be taken. This must also be reported to the ECO and DWS, as well as local authorities if so required.

Drainage of construction camp

- Run-off from the campsite must NOT discharge into the site or into adjacent wetlands, rivers or streams.

End of construction

- Once construction has been completed on site and all excess material has been removed, the storage area shall be rehabilitated. If the area was badly damaged, re-seeding shall be done.
- Such areas shall be rehabilitated to their natural state. Any spilled concrete shall be removed and soil compacted during construction shall be ripped, levelled and re-vegetated.

General

- Only designated areas must be used for storage of construction materials, soil stockpiles, machinery and other equipment.
- The construction camp must be kept clear of litter at all times.
- Any spillages within the construction camp needs to be cleaned up immediately and disposed of in the hazardous skip bin for correct disposal.
- No open fires are allowed within the construction camp and no wood from surrounding vegetation may be used to create a fire unless wood is secured from approved bush encroachment clearing programs.

16. Environmental Awareness and Training

IMPACT	ENVIRONMENTAL TRAINING AND AWARENESS (This section deals with the impacts relating to environmental education)	RESPONSIBILITY	FREQUENCY / MONITORING REQUIREMENTS
PHASE	CONSTRUCTION	Contractor, ECO	Weekly
MITIGATION	**Environmental Training** Ensure that all site personnel have a basic level of environmental awareness training. Topics covered should include; • What is meant by "Environment." • Why the environment needs to be protected and conserved. • How construction activities can impact on the environment. • What can be done to mitigate against such impacts. • Awareness of emergency and spills response provisions. • Social responsibility during construction of the Township e.g. being considerate to local residents. • Identification of protected, rare or other significant fauna and flora. • Identification of alien or undesirable fauna and flora.		

It is the contractor's responsibility to provide the site foreman with environmental training and to ensure that the foreman has sufficient understanding to pass this information onto the construction staff.

Training should be provided to the staff members in the use of the appropriate fire-fighting equipment. Translators are to be used where necessary.

Use should be made of environmental awareness posters on site.

The need for a "clean site" policy also needs to be explained to the workers.

Staff operating equipment (such as excavators, loaders, etc.) shall be adequately trained and sensitized to any potential hazards associated with their tasks.

Staff should be aware of what to do when encountering any forms of wildlife or protected biodiversity.

Monitoring of environmental training

The contractor must monitor the performance of construction workers to ensure that the points relayed during their introduction have been properly understood and are being followed.

17. Soil Management

IMPACT	SOILS (This section deals with the impact that the construction activities will have on soils)	RESPONSIBILITY	FREQUENCY / MONITORING REQUIREMENTS
PHASE	CONSTRUCTION	ECO, Contractor	Monthly

MITIGATION **Topsoil**

- The contractor should, prior to the commencement of earthworks determine the average depth of topsoil, and agree on this with the

ECO. The full depth of topsoil should be stripped from areas affected by construction and related activities prior to the commencement of major earthworks. This should include the building footprints, working areas and storage areas. Topsoil must be stockpiled separately from sub-soil and rubble and reused where possible to rehabilitate disturbed areas.
- Care must be taken not to mix topsoil and subsoil during stripping.
- Removed polluted topsoil should be transported to a licensed landfill site.

Soil Stripping

- No soil stripping must take place on areas within the site that the contractor does not require for construction works or areas of retained vegetation.
- Subsoil and overburden should, in all construction and lay down areas, be stockpiled separately to be returned for backfilling in the correct soil horizon order.
- Construction vehicles must only be allowed to utilise existing tracks or pre-planned access routes.

Stockpiles

- Stockpiles should not be situated such that they obstruct natural water pathways and drainage channels. Stockpiles should not exceed 2m in height. If stockpiles are exposed to windy conditions or heavy rain, they should be covered either by vegetation or cloth. Stockpiles may further be protected by the construction of berms or low brick walls around their bases.
- Stockpiles should be kept clear of weeds and alien vegetation growth by regular weeding. Where contamination of soil is expected, analysis must be done prior to disposal

	of excess soil to determine the appropriate disposal route. • Topsoil and subsoil to be protected from contamination. Fuel and material storage must be away from stockpiles. • Cement, concrete and chemicals must be mixed on an impermeable surface and provisions should be made to contain spillages or overflows into the soil. • Any storage tanks containing hazardous materials must be placed in bunded containment areas with sealed surfaces. The bund walls must be high enough to contain 110% of the total volume of the stored hazardous material. • Contaminated soil must be contained and disposed of off-site at an approved landfill site.		

18. Erosion Management

IMPACT	EROSION CONTROL (This section deals with the impact construction activities will have on potential erosion risk)	RESPONSIBILITY	FREQUENCY / MONITORING REQUIREMENTS
PHASE	CONSTRUCTION	ECO, Contractor	Bi-Monthly
MITIGATION	• Wind screening (i.e. erection of barriers, shade nets etc) should be used if and when deemed necessary by the ECO • Stormwater control (i.e. gabions, sandbags etc) should be undertaken to prevent soil loss from the site if and when deemed necessary by the ECO. • The use of silt fences and sand bags must be implemented in areas that are susceptible to erosion if and when deemed necessary by the ECO. • All erosion control mechanisms need to be regularly maintained. • Seeding of topsoil and subsoil stockpiles to prevent wind and water		

erosion of soil surfaces.

- Retention of vegetation where possible to avoid soil erosion.
- Vegetation clearance should be phased to ensure that the minimum area of soil is exposed to potential erosion at any one time.
- Re-vegetation of disturbed surfaces should occur immediately after the construction activities are completed.
- No impediment to the natural water flow other than approved erosion control works is permitted.
- Stockpiles that are not to be used within three (3) months after stripping must be seeded to prevent dust and erosion.
- Erosion prevention structures should be constructed at all pipes / flow points where there is a risk of high storm water.
- Where necessary and according to risks in terms of bank erosion, gabions or storm water control structures should be to disperse storm water flows and prevent erosion.

19. Groundwater Management

IMPACT	GROUNDWATER AND SURFACE WATER POLLUTION (This section deals with the impact construction activities could have on ground and surface water pollution)	RESPONSIBILITY	FREQUENCY / MONITORING REQUIREMENTS
PHASE	CONSTRUCTION	Contractor, ECO	Weekly
MITIGATION	**Sanitation** • Adequate sanitary facilities and ablutions must be provided for construction workers. • The facilities must be regularly serviced and emptied to reduce the risk of surface or groundwater pollution. **Hazardous materials** • Use and or storage of materials, fuels and chemicals that could potentially		

leak into the ground must be controlled.

- All storage tanks containing hazardous materials must be placed in bunded containment areas with sealed surfaces. The bund wall must be high enough to contain 110% of the total volume of the stored hazardous material with an additional allocation for potential stormwater events.
- Any hazardous substances must be stored at least 20m from any of the water bodies on site.
- The Environmental Control Officer should be responsible for ensuring that potentially harmful materials are properly stored in a dry, secure, ventilated environment, with concrete or sealed flooring and a means of preventing unauthorised entry.
- Contaminated wastewater must be managed by the contractor to ensure existing water resources on the site are not contaminated. All wastewater from general activities in the camp shall be collected and removed from the site for appropriate disposal at a licensed commercial facility.

Water resources

- Site staff shall not be permitted to use any other open water body or natural water source adjacent to or within the designated site for the purposes of bathing, washing of clothing or for any construction or related activities.
- Municipal water or water from a registered borehole (or another source approved by the ECO) should instead be used for all activities such as washing of equipment or disposal of any type of waste, dust suppression, concrete mixing, compacting, etc.
- The Department of Water and Sanitation and the ECO as well as other Emergency contact numbers provided by the Municipality should be contacted in order to deal with

spillages and contamination of aquatic environments.
- Ensure that surface/storm water is diverted away from any excavation or trenches
- Silt traps should be installed in the stretch of the drainage lines / rivers downstream of the construction works to trap any silt that is mobilised by the construction activities.

20. Hydrology and Stormwater Management

IMPACT	HYDROLOGY AND STORMWATER (This section deals with the impact construction activities could have on hydrology and stormwater)	RESPONSIBILITY	FREQUENCY / MONITORING REQUIREMENTS
PHASE MITIGATION	**CONSTRUCTION** • All the sites must be managed in order to prevent pollution of drains, downstream watercourses or groundwater, due to suspended solids, silt or chemical pollutants. • Temporary cut of drains and berms may be required to capture stormwater and promote infiltration. • Promote water saving mind set with construction workers in order to ensure less water wastage. • New stormwater infrastructure construction must be developed strictly according to specifications from the Stormwater Management Plan in order to ensure efficiency. • Hazardous substances must be stored at least 20m away from the buffer area surrounding any water bodies on site to avoid pollution. • The installation of the stormwater system must take place prior to the commencement of the construction activities, to attenuate stormwater from the construction as well as the operational phase. • Earth, stone and rubble is to be properly disposed of so as not to obstruct natural water path ways over	ECO, Contractor	Weekly

the site (i.e. these materials must not be placed in stormwater channels, drainage lines or rivers unless part of an approved anti erosion program.
- There should be a periodic checking of the site's drainage system to ensure that the water flow is unobstructed.

21. Air Quality

IMPACT	AIR POLLUTION (This section deals with the impact from air pollution)	RESPONSIBILITY	FREQUENCY / MONITORING REQUIREMENTS
PHASE	CONSTRUCTION	Contractor, ECO	Daily

MITIGATION **Dust control**

- Damping down of un-surfaced and un-vegetated areas should be undertaken in dry or windy conditions.
- Retention of vegetation where possible will reduce dust travel.
- Excavations and other clearing activities must only be done during agreed working times and permitting weather conditions to avoid drifting of sand and dust into neighbouring areas.
- The contractor shall be responsible for dust control on site to ensure no nuisance is caused to the Landowners or neighbouring Communities.
- A speed limit of 20km/h must not be exceeded on any roads around the site.
- The Contractor shall attend to any complaints or claims emanating from the lack of dust control immediately.
- Vehicles transporting building materials (e.g. sand, stone, cement) must ensure truck bins are suitably covered to prevent dust pollution during transport.

Odour control

- Regular servicing of vehicles in order to limit gaseous emissions (to be done off-site).
- Regular servicing of on-site toilets to

avoid potential odours.
- Allocated cooking areas must be provided; no open fires will be permitted.
- The contractor must make alternative arrangements (other than fires) for cooking and / or heating requirements. LP gas cookers may be used provided that all safety regulations are followed.

22. Noise Management

IMPACT	NOISE (This section deals with the impact increased noise will have on surrounding areas	RESPONSIBILITY	FREQUENCY / MONITORING REQUIREMENTS
PHASE	CONSTRUCTION	Contractors, ECO	Daily and Continuously
MITIGATION	• The construction phase must aim to adhere to the relevant noise regulations and limit noise to within standard working hours in order to reduce disturbance of people close to the site. Construction site yards, workshops, and other noisy fixed facilities should be located well away from noise sensitive areas. • Once the contractor makes the proposed final layouts available, the sites must be evaluated in detail and specific noise pollution limitation measures designed into the system. • Noise levels must be kept within acceptable limits. • Noisy operations should be combined so that they occur where possible at the same time. • Construction activities are to be contained to reasonable hours during the day and early evening. Night-time activities should not be allowed. • With regard to unavoidable very noisy construction activities the contractor and ECO should liaise with local residents on how best to minimise impact, and the local population should be kept informed of the nature		

	and duration of intended activities. • As construction workers operate in a very noisy environment, it must be ensured that their working conditions comply with the requirements of the Occupational Health and Safety Act (Act No 85 of 1993). • Where necessary ear protection gear should be worn. • Noisy activities to take place during allocated construction hours only as per section 25 of the Noise Control Regulations of the Environment Conservation Act, 1989 (Act No. 73 of 1989) • Noise from labourers must be controlled. • Noise suppression measures must be applied to all construction equipment. • Construction equipment must be kept in good working order and where appropriate fitted with silencers which are kept in good working order. • Should the vehicles or equipment not be in good working order and unnecessarily noisy, the contractor may be instructed to remove the offending vehicle or machinery from site. • The contractor must take measures to discourage labourers from loitering in the area and causing noise disturbance. Where possible labour shall be transported to and from the site by the contractors own transport.		

23. Flora Management

IMPACT	FLORA (This section deals with the impact construction activities will have on flora on site and in the surrounding areas)	RESPONSIBILITY	FREQUENCY / MONITORING REQUIREMENTS
PHASE	CONSTRUCTION	ECO	Weekly
MITIGATION	• During the construction phase workers must be limited to areas under		

construction and access to the undeveloped areas must be avoided.

- Surrounding open areas deemed sensitive by the ECO must be strictly regulated ("no-go" areas during construction activities).
- A suitably qualified individual must carry out a site visit prior to construction to mark plant species that are protected.
- Signs/marking of protected flora should be visible on site to ensure minimal disturbance.
- No pruning, removal of translocation of legally protected species will take place unless under supervision of the ECO and only following obtaining of relevant licenses to do so from Ezemvelo KZN Wildlife (for provincially protected species) or Department of Agriculture, Forestry and Fisheries (for nationally protected species)
- Collection of firewood and traditional medicinal plants or any plant material is strictly prohibited, unless with written consent by the ECO.
- Disturbed areas of natural vegetation as well as cut and fills must be rehabilitated immediately to prevent soil erosion.
- Any post-development re-vegetation or landscaping exercise should use species indigenous to the region.
- The developer of the Township (uPhongolo Municipality) should implement an ongoing monitoring and eradication programme for all invasive and weedy plant species growing around the proposed Township, especially category 1 invasives that one is legally obliged to remove.

Rehabilitation

- Any post-development re-vegetation or landscaping exercise should use species indigenous to the region.
- Where the removal of alien species may leave spoil exposed, alternative indigenous species should be established before eradication takes place.
- All areas damaged as a result of

construction shall be rehabilitated upon completion of the contract in accordance with EMPr

- All natural areas impacted during construction must be rehabilitated with locally indigenous grasses typical of the representative botanical unit.
- Fragmentation of floral communities must be kept to a minimum.
- Rehabilitation must take place as soon as construction is complete to avoid the edge effect, the infiltration of alien species and soil erosion within the servitude.

Demarcation of construction area

- The construction area must be well demarcated and no construction activities must be allowed outside of this demarcated footprint.
- Signposts must be erected in areas which are identified by the ECO as being ecologically sensitive and which are adjacent to any construction work to prevent damage by labour and equipment. These areas must be demarcated with branded tape to limit access and indicate to construction staff that these areas are sensitive.
- Only vegetation within the construction area may be removed.
- Vegetation removal must be phased in order to reduce impact of construction i.e. vegetation should only be removed for each unit prior to building on that unit as opposed to clearing vegetation on all units at once.
- The construction site office and laydown areas must be clearly demarcated and no encroachment must occur beyond demarcated areas.
- Soils must be kept free of petrochemical solutions that may be kept on site during construction. Spillage can result in a loss of soil functionality thus limiting the re-establishment of flora.
- Sensitive area mitigation measures and Intensive environmental compliance monitoring must be conducted during this construction period with regards to disturbance of any flora.

24. Fauna Management

IMPACT	FAUNA (This section deals with the impact construction activities will have on fauna in the area)	RESPONSIBILITY	FREQUENCY / MONITORING REQUIREMENTS
PHASE	CONSTRUCTION	ECO	Weekly
Mitigation	• The contractor must ensure that no faunal species are disturbed, trapped, hunted or killed during the construction phase • Care should be taken when removing stumps, logs or rock material. • Any scorpions encountered on the site should be left alone and allowed free access away from the activity or safely removed from the area. No scorpions should be intentionally killed. • Snakes should not be harmed or killed and allowed free movement away from the area. • Safety precaution measure must be implemented especially during the vegetation clearance phase which could result in encounters with several venomous snake species. • All necessary mitigation measures must be implemented to minimise impacts on the fauna and the general environment / habitat. • Contact details for snake handlers should be kept on site and staff are aware of procedures should they encounter any wildlife.		

25. Wetland / Drainage Line Management

IMPACT	WETLANDS / DRAINAGE LINES (This section deals with the impact that the construction will have on wetlands and other surface water features in the study area)	RESPONSIBILITY	FREQUENCY / MONITORING REQUIREMENTS

PHASE	CONSTRUCTION	Contractor, ECO,	Weekly
MITIGATION / METHOD STATEMENT	**General** • Where possible, construction activities should occur during dry (winter months) when rainfall is lower. • If deemed necessary by the ECO, silt traps / silt curtains must be installed downstream of the construction works to trap any silt that is mobilised by the construction activities. • After construction, the silt and the traps / curtains must be removed. • Disturbance to any wetlands during construction should be minimized. • Should cement mixing need to occur on a steep slope leading to a watercourse, this should be done on impervious lined material. Any spillage of cement must be immediately cleared up. • No hazardous materials (such as oil) should be kept within 50m of the edge of a wetland buffer zone. **Erosion Control** • The Stormwater Management Plan must be strictly adhered to during construction and operational phases to reduce the risk of erosion. • Where possible, silt fences / barriers or other relevant measures should be installed along the edge of streams and wetlands to prevent soil erosion and ingress of runoff water carrying silt from the catchment of the wetland (i.e. the slopes surrounding the wetland) to enter the water body. • If required, installation of gabions and/or geotextiles can be implemented. The ECO can be consulted for erosion control and rehabilitation measures.		

26. Waste Management

IMPACT	WASTE MANAGEMENT	RESPONSIBILITY	FREQUENCY	/

	(This section deals with the impact from waste produced by the construction activities)		MONITORING	
			REQUIREMENTS	
PHASE	CONSTRUCTION	Contractors, ECO	Weekly	

MITIGATION

Construction rubble

- Construction rubble shall be disposed of in pre – agreed, demarcated spoil dumps that have been approved by the relevant Municipality. All building rubble must be removed to a registered landfill site.

Litter management

- Refuse must be placed at strategic positions to ensure that litter does not accumulate within the construction site.
- A housekeeping team should be appointed to regularly maintain the litter and rubble situation on the construction site.
- Waste disposal will need to take place in terms of Section 20(6) of the Environmental Conservation Act (Act No. 73 of 1989). Subject to the provisions of any other law no person shall discard waste or dispose of it in any other manner, except- (a) at a disposal site for which a permit has been issued in terms of subsection (1); or such conditions as the Minister may prescribe.
- If possible and feasible, all waste generated on site must be separated into glass, plastic, paper, metal and wood and recycled.
- An independent contractor can be appointed to conduct this recycling.
- Littering by the construction workers shall not be allowed under any circumstances. The ECO shall monitor the neatness of the work sites as well as the contractors

campsite.

- Skip waste containers should be maintained on site. These should be kept covered and arrangements made for them to be collected regularly from the site by the local council.
- All waste must be removed from the site and transported to a landfill site as approved by the relevant Municipality.
- Waybills providing disposal at each site shall be provided to the ECO's inspection.

Hazardous waste

- All waste hazardous materials must be carefully stored as advised by the ECO, and then disposed of off-site at a licensed landfill site.
- Contaminants to be stored safely to avoid spillage
- Machinery must be properly maintained to keep oil leaks in check.

Sanitation

- The contractor shall install mobile chemical toilets on the site.
- Staff shall be sensitised to the fact that they should use these facilities at all times. No indiscriminate sanitary activities on site shall be allowed.
- Ablution facilities shall be within 100m from workplaces but not closer than 100m from any natural water bodies. There should be enough toilets available to accommodate the workforce. Male and females must be accommodated separately where possible.
- Toilets should be no closer than 100m or above the 1:100 year flood line from any natural or manmade water bodies or drainage lines or alternatively located in a place approved of by the ECO.
- Potable water must be provided for

all construction staff.

27. Health and Safety

IMPACT	HEALTH AND SAFETY (This section deals with the safety of workers and the public exposed to construction activity hazards)	RESPONSIBILITY	FREQUENCY / MONITORING REQUIREMENTS
PHASE	CONSTRUCTION	Project Manager, Contractor, ECO	Daily

MITIGATION **Workers safety**

- Implementation of safety measures, work procedures and first aid must be implemented on site.
- Compliance with the Occupational Health and Safety Act (Act No. 85 of 1993) is required to ensure worker safety.
- Workers should be thoroughly trained in using potentially dangerous equipment.
- Contractors must ensure that all equipment is maintained in a safe operating condition.
- A safety officer must be appointed.
- A record of health and safety incidents must be kept on site.
- Any health and safety incidents must be reported to the project manager immediately.
- First aid facilities must be available on site at all times.
- A record shall be kept of drugs administered or precautions taken and the time and dates when this was done. This can then be used as evidence in court should any claims be instituted against the developer or the contractor
- Contractors must ensure that all construction workers are well educated about HIV/ AIDS and the risks surrounding this disease.

- Material stockpiles or stacks, such as, pipes must be stable and well secured to avoid collapse and possible injury to site workers.

Worker facilities

- Eating areas should be regularly serviced and cleaned to ensure the highest possible standards of hygiene and cleanliness
- Open Fires are not to be allowed.

Protective gear

- Personal Protective Equipment (PPE) must be made available to all construction staff and must be compulsory. Hard hats and safety shoes must be worn at all times and other PPE worn were necessary i.e. dust masks, ear plugs etc.
- No person is to enter the site without the necessary PPE

Site safety

- The construction camp (if required) must remain fenced for the entire construction period.
- Potentially hazardous areas such as trenches are to be demarcated and clearly marked
- Uncovered pits/holes and excavations must be clearly demarcated
- Emergency numbers for local police and fire department etc must be placed in a prominent area.
- Fire fighting equipment must be placed in prominent positions across the site where it is easily accessible. This includes fire extinguishers, a fire blanket as well as a water tank.
- Suitable conspicuous warning signs in English and all other applicable languages must be placed at all entrances to the site.
- All speed limits must be adhered to.

Hazardous Material Storage

- Staff that will be handling hazardous materials must be trained to do so.
- Any hazardous materials (apart from fuel) must be stored within a lockable store with a sealed floor.
- All storage tanks containing hazardous materials must be placed in bunded containment areas with sealed surfaces. The bund walls must be high enough to contain 110% of the total volume of the stored hazardous material.
- The provisions of the Hazardous Chemical Substances Regulations promulgated in terms of the Occupational Health and Safety Act 85 of 1993 and the SABS Code of Practice must be adhered to. This applies to solvents and other chemicals possibly used in the construction time.

Fire management

- Fire fighting equipment should be present on site at all times as per OHSA.
- All construction staff must be trained in fire hazard control and fire fighting techniques.
- All flammable substances must be stored in dry areas which do not pose an ignition risk to the said substances.
- No open fires will be allowed on site.

28. Safety and Security

IMPACT	SECURITY (This section deals with issues associated with security during construction for workers and surrounding land users)	RESPONSIBILITY	FREQUENCY / MONITORING REQUIREMENTS
PHASE	CONSTRUCTION	Contractors, ECO	Weekly
MITIGATION	• Access to the construction site should be strictly controlled by a security company.		

- No person shall enter the site unless authorised to do so by either the contractors, project manager or ECO
- Trespassing on private / commercial properties adjoining the site is forbidden.
- Secure the site in order to reduce the opportunity for criminal activity in the locality of the construction site.

29.

30. Social Impacts

IMPACT	SOCIAL ENVIRONMENT (This section deals with the social impacts of construction activities will have on the site and surrounds)	RESPONSIBILITY	FREQUENCY / MONITORING REQUIREMENTS
PHASE	CONSTRUCTION	The developer, Contractor, ECO	Bi-Monthly
ENVIRONMENTAL MANAGEMENT PROGRAMME			
MITIGATION	• All contact with the affected parties shall be courteous at all times. The rights of the affected parties shall be respected at all times. • A complaints register should be kept on site. Details of complaints should be incorporated into the audits as part of the monitoring process. This register is to be tabled during monthly site meetings. • No interruptions other than those negotiated shall be allowed to any essential services. • Damage to infrastructure shall not be tolerated and any damage shall be rectified immediately by the		

contractors. A record of all damage and remedial actions shall be kept on site.
- Appointment of contractors will firstly be sourced from local contractors registered with the Local Municipality and thereafter from other areas where possible specialist services are not provided locally.

Influx of Job Seekers

- Ensure that employment procedures / policy are communicated to local stakeholders, especially community representative organisations and ward councillors.
- Construction workers should be clearly identifiable by wearing proper construction uniforms displaying the logo of the construction company. Construction workers could also be issued with identification tags.

Outflow of labourers

- Payment should comply with applicable Labour Law legislation in terms of minimum wages.

Direct formal employment opportunities

- Unskilled job opportunities should be afforded to local residents. Local trade unions and the local authority could assist with the recruitment process to counteract the potential for social mobilisation.
- Equal opportunities for employment should be created to ensure that the local female population also has access to these opportunities.
- Females should be encouraged to apply for positions.

31. Cultural and Heritage Management

IMPACT	CULTURAL AND HERITAGE ARTEFACTS (This section deals with the impact that the construction has on potential archaeological artefacts of the site)	RESPONSIBILITY	FREQUENCY / MONITORING REQUIREMENTS

PHASE	CONSTRUCTION	Contractors, ECO	Monthly
MITIGATION	• Any heritage/historical artefacts encountered must remain protected under the National Heritage Resource Act (Act NO 25 of 1999) and the KZN Heritage Act (Act NO 4 of 2008). • Any finds must be reported to the nearest National Monuments office to comply with the National Heritage Resources Act (Act No 25 of 1999) • Local museums as well as Amafa / Heritage KwaZulu Natal (the provincial heritage conservation agency for KwaZulu Natal) should be informed if any artefacts are uncovered in the affected area. • Contractors must ensure that his/her workforce is aware of the necessity of reporting any possible historical or archaeological finds to the ECO so that appropriate action can be taken. • Any discovered artefacts shall not be removed under any circumstances. • Sites with archaeological or historical significance will be demarcated and declared no go areas and fenced and maintained by the developer.		

ENVIRONMENTAL MANAGEMENT PROGRAMME: OPERATIONAL PHASE

During the operational Phase the developer will be responsible for the EMPr. The measures outlined in this EMPr for the purposes of managing the Township should be built into the Municipal framework.

In addition to the requirements of this EMPr, the Township will be required to develop a long term Land Management Programme which will include invasive plant control and alien invasive species control.

32. Traffic and Access

IMPACT	TRAFFIC AND ACCESS (This section deals with the impact of cars, traffic and access has on the site and surrounds)	RESPONSIBILITY	FREQUENCY MONITORING REQUIREMENTS
PHASE	OPERATIONAL	Municipality	Monthly
MITIGATION			

Access

- All residents and approved visitors shall be made aware of the directions and speed limits through road signage.

Road maintenance

- The developer Investments should ensure that access roads are maintained in good condition by attending to potholes, corrugations and stormwater damage as soon as these develop.

General

- The Municipality must regularly review road conditions and assess impacts for ongoing management.
- Residents or visitors accessing the site with heavy vehicles or towing trailers of any sort requires prior approval of by the Municipality.
- The Municipality shall ensure that all the necessary precautions against damage to the environment and injury to persons from traffic on site are taken in the event of an accident.

33. Environmental Awareness and Training

IMPACT	ENVIRONMENTAL TRAINING AND AWARENESS (This section deals with the impacts relating to environmental education)	RESPONSIBILITY	FREQUENCY / MONITORING REQUIREMENTS
PHASE	OPERATIONAL	Municipality	Annually
MITIGATION	**Environmental Training** • Training shall be provided to any staff and management working on site with regards to environmental management and sensitivity. • Use should be made of environmental awareness posters and information boards on site around sensitive areas of habitats.		

34. Erosion Management

IMPACT	EROSION CONTROL (This section deals with the impact the township's activities will have with regards to potential erosion)	RESPONSIBILITY	FREQUENCY / MONITORING REQUIREMENTS
PHASE	OPERATIONAL	Municipality	Monthly
MITIGATION	• The site shall be inspected on a monthly basis for the formation of or early signs of potential erosion dongas (gullies). • Municipal framework shall include measures to ensure residents do not unnecessarily clear land of vegetation or dispose of large volumes of water, (ie: uncontrolled backwashing of swimming pools) which could cause erosion at any time. • Residents shall not be allowed to create new paths, roads or potential erosion hazards without explicit written permission of the relevant authority. • No off road driving, quad bikes or similar activities will be allowed on site by residents or visitors unless on routes and tracks explicitly approved by the relevant authority. • Stormwater control (i.e. gabions, sandbags etc) should be undertaken timeously to prevent soil loss from the site where erosion is identified. Other erosion control measures that can be implemented are as follows • All erosion control mechanisms need to be regularly maintained. • Retention of vegetation where possible to avoid soil erosion • The developer will be required to revegetate any disturbed surfaces around their properties. • No impediment to the natural water flow will be allowed • Erosion prevention structures should be constructed and monitored at all pipes / flow points where there is a risk of high storm water.		

35. Groundwater Management

IMPACT	GROUNDWATER AND SURFACE WATER POLLUTION (This section deals with the impact the township's activities could have on ground and surface water pollution)	RESPONSIBILITY	FREQUENCY / MONITORING REQUIREMENTS
PHASE	OPERATIONAL	Municipality	Monthly

MITIGATION

Sanitation

- All waste water from Pongola Township Development shall be diverted into the municipal sewerage network.
- Other methods of sanitation during the operational phase are not permitted unless prior permission is obtained from the relevant authority.
- All wastewater from general activities in the township shall be collected and removed from the site for appropriate disposal at a licensed commercial facility. This is the responsibility of the developer.

Hazardous materials

- Use and or storage of materials, fuels and chemicals which could potentially leak into the ground must be controlled.
- Any hazardous substances must be stored at least 100m from any of the water bodies/ watercourses.
- Harmful materials that will be stored in the township be properly stored in a dry, secure, ventilated environment, with concrete or sealed flooring and a means of preventing unauthorised entry.

Water resources

- Residents, visitors and staff shall not be permitted to use any other open water body or natural water source adjacent to or within the designated site for the purposes of bathing, washing of clothing or for any related

activities.

- Municipal water (or another source approved by the municipality) should instead be used for all water use in the township.
- The municipality must enforce a water saving mind set in order to ensure less water wastage.
- Educational resources (such as posters in public spaces) should be used to inform the public about conserving water.
- The Department of Water and Sanitation as well as other Emergency contact numbers provided by the Municipality should be contacted in order to deal with spillages and contamination of aquatic environments.

36. Hydrology and Stormwater Management

IMPACT	HYDROLOGY AND STORMWATER (This section deals with the impact the Township's activities could have on hydrology and stormwater)	RESPONSIBILITY	FREQUENCY / MONITORING REQUIREMENTS
PHASE MITIGATION	**OPERATION** • The Subject Site must be managed in order to prevent pollution of drains, downstream watercourses or groundwater, due to suspended solids, silt or chemical pollutants. • Earth, stone and rubble is to be properly disposed of so as not to obstruct natural water path ways over the site. (i.e. these materials must not be placed in stormwater channels, drainage lines or rivers unless part of an approved anti erosion program. • There should be a periodic checking of the site's drainage system to ensure that the water flow is unobstructed	Municipality	Monthly

37. Air Quality

IMPACT	AIR POLLUTION (This section deals with the impact from air pollution)	RESPONSIBILITY	FREQUENCY / MONITORING REQUIREMENTS
PHASE	OPERATIONS	Contractor, Municipality	Daily
MITIGATION	**Dust control** • Retention of vegetation where possible will reduce dust travel. • A speed limit of 20km/h must not be exceeded on dirt roads around the site. • The Municipality shall attend to any complaints or claims emanating from the lack of dust control immediately. **Odour control** • Regular servicing of vehicles and generators in order to limit gaseous emissions (to be done off-site). • Regular servicing of on-site toilets and septic tanks to avoid potential odors.		

38. Noise Management

IMPACT	NOISE (This section deals with the impact increased noise will have on surrounding areas)	RESPONSIBILITY	FREQUENCY / MONITORING REQUIREMENTS
PHASE	OPERATIONAL PHASE	Municipality	Daily
MITIGATION	• Residents must aim to adhere to the relevant noise regulations and limit noise on site order to reduce disturbance of neighbours/wildlife close to the site. • Municipality Rules shall ensure that loud music or other noise disturbance after 11pm are not permitted.		

39. Flora Management

IMPACT	FLORA (This section deals with the impact the Township's activities will have on flora on site and in the surrounding areas)	RESPONSIBILITY	FREQUENCY / MONITORING REQUIREMENTS
PHASE	OPERATIONAL	Municipality	Monthly
MITIGATION	• Specific surrounding open areas deemed sensitive by the Municipality must be strictly regulated. • Signboards and posters highlighting rare or protected flora should be visible on site to awareness ensure minimal disturbance. • No pruning, removal of translocation of legally protected species will take place unless under supervision of a suitably qualified individual and only following obtaining of relevant licenses to do so from Ezemvelo KZN Wildlife (for provincially protected species) or Department of Agriculture, Forestry and Fisheries (for nationally protected species) • Collection of firewood by residents, visitors or staff is strictly prohibited. No area should be cleared of trees, bushes and other vegetation unless it forms part of the Land Management Plan. • Any operation phase re-vegetation or landscaping exercise should use species indigenous to the region and approved by the Municipality. • Any landscaping activities must be approved the Municipality. • The Municipality should implement an ongoing monitoring and eradication programme for all invasive and weedy plant species growing around the proposed Township. • The developer or an appointed individual must familiarize themselves with the invasive alien plants (indicated in the Vegetation Assessment Report of the BAR) which could potential establish on disturbed land. • Sensitive area management measures and Intensive environmental compliance		

	monitoring must be conducted on an ongoing basis by the Municipality to ensure minimum impact on rare or endangered flora.		

40. Fauna Management

IMPACT	FAUNA (This section deals with the impact the Township's activities will have on fauna in the area)	RESPONSIBILITY	FREQUENCY / MONITORING REQUIREMENTS
PHASE	OPERATION	Municipality	Monthly
Mitigation	• Safe passages should be provided for fauna, especially in areas where roads bisect important corridors (i.e. roads parallel to rivers / drainage lies). Barriers that run parallel to roads may be constructed to prevent wildlife from crossing roads, thus reducing animal mortality and road hazards. • No faunal species may disturbed, trapped, hunted or killed on site • Any scorpions encountered on the site should be left alone and allowed free access away from the activity or safely removed from the area. No scorpions should be intentionally killed. • Snakes should not be harmed or killed and allowed free movement away from the area. • All necessary mitigation measures must be implemented to minimise impacts on the fauna and the general environment / habitat. • Contact details for snake handlers and other wildlife experts should be kept on site and residents, visitors and staff are aware of procedures should they encounter any wildlife.		

41. Waste Management

IMPACT	WASTE MANAGEMENT	RESPONSIBILITY	FREQUENCY	/
	(This section deals with the impact from		MONITORING	

	waste produced by the			
	Township's activities)		REQUIREMENTS	
PHASE	OPERATIONAL	Municipality	Weekly	

MITIGATION **Litter management**

- All wastewater from general activities in the Township shall be collected and removed from the site for appropriate disposal at a licensed commercial facility. This is the responsibility of the developer.
- A waste collection point must be
  - established away from the 1:100 year flood line
  - built on a hardstand surface (e.g. concrete)
  - Enclosed to prevent access by scavengers/vermin which may result dispersal of waste in the environment.
- Waste disposal will need to take place in terms of National Environmental Management: Waste Act 59 of 2008. Subject to the provisions of any other law no person shall discard waste or dispose of it in any other manner, except- (a) at a disposal site for which a permit has been issued; or such conditions as the Minister may prescribe.
- If possible and feasible, all waste generated in the Township must be separated into glass, plastic, paper, metal and wood and recycled.
- An independent contractor can be appointed by the Municipality to conduct this recycling.
- The Municipality is responsible for ensuring residents of the Township are educated about waste management and recycling.
- All waste must be removed from the site and transported to a registered landfill site as approved by the relevant Municipality.

42. Social Impacts

IMPACT	SOCIAL ENVIRONMENT (This section deals with the social impacts of the Township's activities will have on the site and surrounds)	RESPONSIBILITY	FREQUENCY / MONITORING REQUIREMENTS
PHASE	OPERATIONAL	Municipality	Monthly

ENVIRONMENTAL MANAGEMENT PROGRAMME

MITIGATION

- All contact with the affected parties shall be courteous at all times. The rights of the affected parties shall be respected at all times.
- A complaints register should be kept in the Township's municipal offices. Details of complaints should be incorporated into the audits as part of the monitoring process. This register is to be tabled during regular Municipal meetings.

Job Seekers and related opportunities

- Ensure that employment procedures / policy are communicated to local stakeholders, especially community representative organisations and ward councillors.

Direct formal employment opportunities

- Unskilled job opportunities should be afforded to local residents. Local trade unions could assist with the recruitment process to counteract the potential for social mobilisation.
- Equal opportunities for employment should be created to ensure that the local female population also has access to these opportunities.

43. Cultural and Heritage Management

IMPACT	CULTURAL AND HERITAGE ARTEFACTS (This section deals with the impact that the	RESPONSIBILITY	FREQUENCY / MONITORING

	Township's activities has on potential archaeological artefacts of the site)		REQUIREMENTS
PHASE	OPERATIONAL	Municipality	Monthly

ENVIRONMENTAL MANAGEMENT PROGRAMME

MITIGATION

- Any heritage/historical artefacts encountered must remain protected under the National Heritage Resource Act (Act NO 25 of 1999) and the KZN Heritage Act (Act NO 4 of 2008).
- Any finds must be reported to the nearest National Monuments office to comply with the National Heritage Resources Act (Act No 25 of 1999)
- Local museums as well as Amafa / Heritage KwaZulu Natali (the provincial heritage conservation agency for KwaZulu Natal) should be informed if any artefacts are uncovered in the affected area.
- The Municipality must ensure that residents and visitors are aware of the necessity of reporting any possible historical or archaeological finds to the Municipal office so that appropriate action can be taken.
- Any discovered artefacts shall not be removed under any circumstances.
- Sites with archaeological or historical significance will be demarcated and declared no go areas and fenced and maintained by the Municipality.