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**TYPE OF DOCUMENT:**  
**DRAFT ENVIRONMENTAL MANAGEMENT PLAN FOR**  
**THE PROPOSED HOUSING DEVELOPMENT AND**  
**SHOPPING MALL CONSTRUCTION IN VOSLOORUS**  
**EXT 24, 41 AND 43 ON REMAINDER OF PORTION 144 OF**  
**THE FARM VLAKPLAATS 138 IR.THE SITE FALLS**  
**WITHIN THE JURISDICTION OF EKURHULENI LOCAL**  
**MUNICIPALITY OF THE SEDIBENG DISTRICT**  
**MUNICIPALITY.**

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# **1. Introduction**

## **1.1 The purpose of the Environmental Management Program**

The purpose of compiling an Environmental Management Programme (EMPr) for the proposed housing development and Shopping Mall Construction on the Remainder of portion 144 of the farm Vlakplaats 138IR is to describe the methodology for the managing, rehabilitation and monitoring of potential negative environmental impacts and to maximise positive impacts.

This Environmental Management Program aims to:

- Provide the necessary protection of potentially sensitive areas and
- Provide environmental responsibility and a management framework, within which all future construction and operation will occur.

During our site visit, various impacts were identified and mitigation and management measures designed and proposed for these impacts. These mitigation measures have been organized and co-ordinate into the Environmental Management Program, which will remain in force during the implementation of the project and will be a subject of regular audits and updates.

The following are the objectives of the Environmental Management Program:

Describe the implementation of the project proposal in its three phases namely:

- Phase 1 –Pre-construction,
- Phase 2 – Construction
- Phase 3 – Operational
- Record the control measures that will exist for the three phases of the project.
- Outline the mandatory mitigation measures.
- Show the methodology for implementation of environmental restoration/ rehabilitation, where applicable.

The Environmental Management Program will guide the pre-construction, construction, operation and maintenance phases of the proposed project. It is a dynamic guideline document that will be updated regularly as the project proceeds, once approval has been granted.

The mitigation and management measures described in the Environmental Management Plan will be incorporated into the contract agreements with the contractors to ensure their environmental compliance.

## 1.2 Objectives of the EMPr

The primary objectives of the EMPr are as follows:

- To describe action plans for achieving the mitigation measures.
- To indicate responsibilities, schedules and staff resources regarding the Implementation of these action plans.
- To describe a monitoring programme, this will enable review of the success of the EMPr and the provision of such information to the relevant decision-makers.

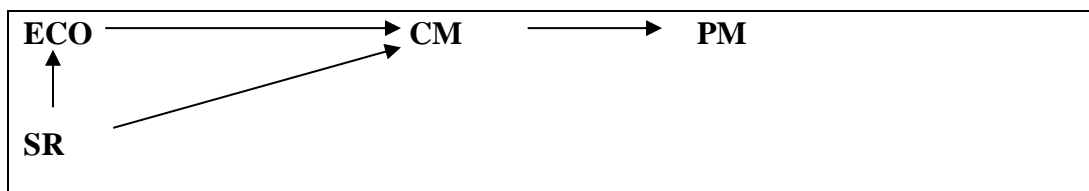
## 1.3 Implementation of the Environmental management Plan

A hard copy of the Environmental Management Plan will be kept on site during construction. Two hard copies will be kept at the Local Community Councils when the development is occupied, operational and in the maintenance phase. Electronic copies will be available at the developers' office. All copies of the EMPr will contain the latest version of the document together with all amendments.

The Environmental Management Plan is a dynamic document that will be updated when necessary and used to guide decisions regarding the potential impacts. Regular audits will be carried out to ensure that the mitigatory and management measures are being implemented as recommended or as required by the legislation.

## 2. Implementation of Environmental management Plan

### 2.1 Reporting Structure



**ECO:** Environmental Control Officer  
**CM:** Contract Manager  
**SR:** Safety Rep (Dedicated person)  
**PM:** Project Manager

## 2.2 Responsibility Matrix

<b>Function</b>	<b>Name / Cell Number</b>	<b>Responsibility</b>
Project Manager (PM)		Overall management of project and EMP implementation
Site Supervisor/ Contract Manager (CM)		Oversees site works, liaison with Contractor, PM and ECO
Environmental Control Officer (ECO)		Implementation of EMP and liaison between GDARD, Department of Housing, Contractor and Landowners/stakeholders
Contractor (C)		Implementation and compliance with recommendations and conditions of the EMPr, Appoints dedicated person (CECO) to work with ECO
Contractor Environmental Control Officer (CECO)		Interaction with ECO, landowners and labourers. Must understand the EMP

(Table to be completed upon Contract award)

## 2.3 Responsibility

### 2.3.1 Environmental Control Officer

A suitable qualified Environmental Control Office will be responsible to undertake site evaluation, monitoring and monitoring the implementation of the EMPr. The Environmental Site Officer will conduct regular site visits to ensure the success of the EMPr.

The Environmental Control Officer will:

- Know the contents and implications of the environmental report, and monitor the implementation of the findings using the EMP.
- Act as a guide, advisor and consultant to the contractor and client on environment issues during construction. This will be achieved by continuous auditing of the

- project, identification of problem areas and provisioning of action plans to avoid costly stoppages and /or environmental damage.
- Compile regular site inspection reports for the inclusion in the EMP as an addendum if necessary.
  - Ensure that a ‘hotline’ exists for reporting incidents and resolving any problems rapidly.
  - Upgrade the EMP as necessary, and inform the relevant parties of the changes.

Feedback of the findings, changes to this document as well as all reported incidents will be reported at the monthly progress meetings between the Engineer, Contractor and Client Representative. A summary of these reports will also be forwarded to the Gauteng Department of Agriculture and Rural Development.

Any findings or non-compliance will be highlighted, and the measures to rectify the issue stated. Any previous findings must be audited to confirm the successful implementation thereof. At the end of the project a summary document will be prepared and presented to the Gauteng Department of Agriculture and Rural Development.

The ECO’s will oversee that the work carried out by the contractor is compliant with the conditions set out in the Environmental Management Plan for this project and will conduct environmental audits for the duration of the project, which will include:

- Inspection of working sites and activities to ensure compliance with the Provisions of this EMP,
- Updating the EMP if it is necessary,
- Remaining current with regulatory and legal requirements,
- Monitoring and auditing the project at the end of the activity in terms of the set Provisions,
- Compiling the monthly compliance reports.

### **2.3.2 Project Manager**

The primary responsibility of the Project Manager is to ensure that the Contractor complies with the environmental specifications in this document. In addition the Project Manager shall:

- Assume overall responsibility for the effective implementation and administration of the EMP;
- Ensure that the EMP is included in the Contractor’s contract;



- Ensure that the EMP is given to the applicable Construction Supervisor and the contractors;
- In conjunction with the Construction Supervisor; undertake regular inspections of the Contractor's site as well as the installation works in order to check for compliance with the EMP in terms of the specifications outlined in this document. Inspections shall take place at least once a week and copies of the monitoring checklist contained in the file;
- Keep a register of all incidents (spills, injuries, complaints, legal transgressions, etc) and other documentation related to the EMP;
- Implement recommendations of possible audits; and
- Ensure that construction staff is trained in accordance with requirements of the EMP.

### **2.3.3 Construction Contractor**

The Contractor shall:

- Ensure that the environmental specifications of this document (including any revisions, additions or amendments) are effectively implemented. This includes the on-site implementation of steps to mitigate environmental impacts;
- Discuss implementation of and compliance with this document with staff at routine site meetings;
- Preserve the natural environment by limiting any destructive actions on site;
- Monitor environmental performance and conformance with the specifications contained in this document during site inspections;
- Report progress towards implementation of and non-conformances with this document at site meetings with the Project Manager;
- Ensure that suitable records are kept and that the appropriate documentation is available to the Project Manager;
- Advise the Project Manager of any incidents or emergencies on site, together with a record of action taken;
- Report and record all accidents and incidents resulting in injury or death
- Take into consideration the legal rights of the individual Landowner and Communities.
- Ensure quality in all work done, technical and environmental;
- Resolve problems and claims arising from damage immediately to ensure a smooth flow of operations;
- Underwrite Environmental Policy at all times; and

- Use this Environmental Management Plan for the benefit of all involved.

### **2.3.4 Inspection**

Periodic inspections will be performed by the ECO. These will consist of formal reviews of conformance against policies and procedures stated in this document. Inspections will occur on a monthly basis (or as required). Supervisors in all work areas will conduct performance and compliance reviews, using the EMP as guideline to ensure compliance.

### **2.3.5 Record Keeping**

Documents to be maintained by the designated representative/ site agent and are to include:

- Training records
- Inspection records
- Records of non-conformance and corrective action
- Records of all complaints, concerns or issues and corrective action
- Environmental Management Plan
- All incidents reports

All records will be kept for up to a year after the completion of the project or in accordance with other legal requirements as they apply.

## 2.4 Particulars of applicant and a site

**Table 1. Contact details of applicant.**

<b>Name of applicant :</b>	Lubbe Constructions
<b>Name of contact person :</b>	Mr S Lubbe
<b>Postal Address :</b>	P O Box 20369 SPRUITVIEW 1425,
<b>Telephone number :</b>	(011) 825 1886

**Table 2. Particulars of site for development**

<b>Full name of property 1 to be developed:</b>	Remainder of portion 144 of Vlakplaats
<b>Name of the land owner</b>	Mr S Lubbe
<b>Magisterial district:</b>	Sedibeng District Municipality
<b>Name of registered owner of property:</b>	Mr S Lubbe
<b>Current use of surrounding areas:</b>	Vacant land
<b>Name of closest town:</b>	Spruitview

## 3. Project description

### 3.1 Locality Project description

The proposed development is located on Remainder of portion 144 of the farm Vlakplaats 138 IR

. The proposed area falls under Ekurhuleni Local Municipality. The area of the project covers a surface area of approximately 21,4133 hectares in total. The scope of work comprises the provision of all supervision, constructional and all other requirements to execute the proposed construction activities. Approximately 1500 town houses will be established with basic service provided such as water supply, sewage system, access roads, storm water management pipelines, and electricity infrastructure.

The purpose of Environmental Management Plan is to provide practical measures to either avoid or minimize negative environmental impacts, using recommended mitigation measures that are specific, measurable and defined in terms of timing, duration and responsibility. Management is required to ensure that all these measures are properly implemented and effective.

### **3.2 Justification of Proposed Project**

It is Mr Lubbe's intension to develop formal settlement that will benefit the community of vosloorus. The housing development will assist in eliminating criminal activities by bringing jobs and security for ordinary law abiding citizens in the area. The township establishment in Remainder of portion 144 of the farm vlakplaats 138 IR will be of great importance in the area. As community basic needs delivery become a challenge to Municipalities,

### **3.3 Benefits of the Proposed Project**

The proposed project is of great value to the community since it will improve their lifestyle. The Housing development and shopping mall construction will supply decent shelter and Shops to the community

- Temporally Job opportunity will be created for unemployed members of the community in the process of housing development and shopping mall construction in the area.
- Increase sales from nearby small businesses during construction and operational phase.
- Improvement of housing infrastructure.
- Improving the quality of living standard to the community

## **4. Environmental mitigation and management measures**

These guidelines will form the basis for environmental management on site. The Environmental Control Officer will ensure that any modifications are communicated, explained to and discussed with all affected parties (i.e. the authorities, contractor, the proponent and any directly affected party who requests this information).

- ❖ Mitigation of the potential impact in regard to the
  - Potential to mitigate any negative impacts
  - Potential to optimize any positive impacts
  - The likelihood of successful mitigation
  
- ❖ Overall assessment and general comments as to the predicted impacts of the development after mitigation in terms of such criteria as may be relevant to a particular impact, and which may include the following aspects :
  - The severity and permanence of the impact on either local biota or surrounding human communities
  - The size of the affected communities and their relative significance
  - The general ecological and socio – economic context within which a particular impact would occur
  - The final balance of between positive and negative impacts, and related costs and benefits to society.

### **4.1 Pre-construction phase**

#### **4.1.1 Establishment of environmental governing bodies**

- Establishment of Environmental Monitoring Committee(EMC)

An Environmental Monitoring Committee needs to be established with representatives of the I&APs, relevant authorities and the holder of an Environmental Authorisation. The role of this EMC is to monitor the environmental compliance during all phases of the project and satisfy as far as possible the issues and concerns of all parties involved in or affected by the project.

- Appointment of Environmental Control Officer (ECO)

An Environmental Control Officer will fulfil the responsibility of assuring that environmental performance is achieved by the developer and its contractors during all phases of the project. It is the responsibilities of the ECO's to audit compliance with the commitments set out in this EMP, and assist with the implementation of mitigation

measures. The contractor and / the clients representative (ECO) will inspect all the construction activities on a monthly basis. All issues highlighted in this Environmental Management Plan will be investigated and compliance with the mitigation measures audited. Preceding complaints, concerns or incidents reported in the logbook will also be monitored.

Feedback of the findings, changes to this document as well as all reported incidents will be reported at the monthly progress meetings between the Consulting Engineer, Contractor and Client Representative. A summary of these reports will also be forwarded to the Gauteng Department of Agriculture and Rural Development, and Environment.

Any findings or non-compliance will be highlighted, and the measures to rectify the issue stated. Any previous findings must be audited to confirm the successful implementation thereof. At the end of the project a summary document will be prepared and presented to the Gauteng Department of Agriculture and Rural Development.

The ECO's will oversee that the work carried out by the contractor is compliant with the conditions set out in the Environmental Management Plan for this project and will conduct environmental audits for the duration of the project, which will include:

- Inspection of working sites and activities to ensure compliance with the Provisions of this EMP,
- Updating the EMP if it is necessary,
- Remaining current with regulatory and legal requirements,
- Monitoring and auditing the project at the end of the activity in terms of the set Provisions,
- Compiling the monthly and six monthly compliance reports.

#### **4.1.2 Establishment of baseline information**

- Baseline water monitoring

As there are no natural water courses in the proximity or along the length of the proposed project, there is no need for the establishment of a baseline water quality status as well as maintenance of this quality as close to the baseline as possible.

### 4.1.3 Establishment of complaints register

- Complaints Register

A complaints register is to be established and kept onsite to address complaints in a timorous fashion, which will be reported to the EMC.

### 4.1.4 Responsibilities and time timeframes for the pre-construction phase

Number	Establishment of environmental governing bodies	Responsibility	Timeframe
1.	<b>Establishment of Environmental Monitoring Committee(EMC):</b> <ul style="list-style-type: none"> <li>• Establish an Environmental Monitoring Committee with Representatives of I&amp;APs, authorities and Environmental Authorisation holder.</li> <li>• Formal agreement regarding the frequency of meetings, agenda, etc., to be reached between the parties represented in the EMC.</li> </ul>	Environmental consultant to set up the EMC and arrange initial meeting. Environmental consultant to draft agreement and distribute to the different parties. Appointed representatives of the different parties.	During the lifetime of the project (from pre-construction through operation and maintenance phases).
2.	<b>Appointment of Environmental Control Officer (ECO)</b> -Developer to appoint an ECO for the project.	Developer	Pre-construction, construction and operation and maintenance phases.

Number	Establishment of rainfall information	Responsibility	Timeframe
3..	<b>Rainfall monitoring</b> -rainfall monitoring at site office of the proposed roads development.	Site Engineer& Environmental control officer to undertake rainfall records.	Pre-construction, construction and operation and maintenance phases.

Number	Establishment of complaints register	Responsibility	Time frame
4.	<p><b>Environmental complaint register to be maintained:</b></p> <ul style="list-style-type: none"> <li>• All complaints with regards to environmental non-compliance on the construction site need to be recorded and addressed accordingly.</li> <li>• Establish an Environmental complaints register.</li> <li>• Address complaints timorously and report back to EMC meetings.</li> <li>• Open liaison channels should be identified and developed to ensure that all queries, complaints from affected individuals/ parties may be addressed with the shortest possible delay.</li> </ul>	<p>The Site Engineer (Contracts Manager) will be responsible for maintaining the register and reporting any complaints received to the ECO.</p>	<p>During construction, operation and maintenance phases.</p>

#### 4.1.7 EMP updates

The EMP will be subject to ongoing review throughout the course of the project to ensure its continued suitability, adequacy and effectiveness. This review may include, but will not be limited to monitoring and measuring information, performance data, assessment and audit results and other relevant information and data. Any revisions to the EMP will be submitted to the Gauteng Department of Agriculture and Rural Development.



## **4.2 Assessment Approach to Environmental Issues during Construction phase**

The assessment and description of identified environmental issues were conducted according to the structure and approach detailed below. The following is a brief description of how these impacts were identified and rated. The approach may be tailored and altered where required to deal adequately with the description and assessment of a specific impact. The definition or of terms used in this section are in the pages **50-53 (section 10)**

- ❖ A description of the nature of the potential issues as to its :
  - General background and context within this application
  - Causes and effect
  - Who or what will be affected
  - How it will be affected
  
- ❖ Assessment of the impact as to
  - Probability
  - Extent
  - Duration
  - Magnitude
  - Reversibility

The table below shows how each impact was assessed and is an elaboration of the approach used in identifying rate these impacts.

Potential issue	Criteria	Description of elements that are central to each issue
Description	Nature	What causes the effect?
		Who will be affected?
		What will be affected?
		How will it be affected?
	Probability	Certain / may not occur with mitigation
	Status	Positive, negative or neutral.
Assessment	Extent	Is the impact site specific
		Does the impact extend locally, i.e. to the site and its nearby surroundings?
		Does the impact extend regionally, i.e. have an impact on the region.
		Does the impact extend nationally, i.e. have an impact on a national scale.
	Duration	Short term, i.e. 0-5 years.
		Medium term i.e. 5-11 years
		Long term, i.e. impact ceases after the construction or operational life cycle.
		Permanent, i.e. mitigation either by natural process or by human intervention will not occur in such a way or in such a time span that the impact can be considered transient.
	Magnitude	Low, i.e. natural and social functions and processes are not affected or minimally affected.
		Medium, i.e. affected environment is notably altered. Natural and social functions and processes continue albeit in a modified way.
		High, i.e. natural or social functions or processes could be substantially affected or altered to the extent that they could temporarily or permanently cease.
	Reversibility	Impact is reversible or irreversible.
	Cumulative or non-cumulative	Potential of two or more impacts to combine to form cumulative or synergistic impacts.

## 4.2.1 Identified Impacts

No.	Impact	Description		Assessment					
		Nature	Probability	Status	Extent	Duration	Magnitude	Reversibility	Cumulative / non cumulative
1.	<b>Noise:</b> It is expected that the construction activities will create noise pollution in the area during working hours.	The current site is a disturbed land surrounded by a residential area. Noise experienced in the area does not exceed the allowable ambient noise limit.	The probability of change is certain with regard to the potential sources of noise pollution during construction, if the development were to go ahead.	An increase in noise pollution would be a negative impact to the surrounding environment.	Impacts would be site specific and in the local environment.	Increase in noise would be during the construction phase due to construction vehicles and machinery.	Medium	When the construction is completed the noise level would return to the initial state. Reversible.	Cumulative. The noise level would increase due to the construction activity or vehicle.
2.	<b>Dust:</b> The creation of dust will be evident in the area during construction.	The current site is an open space field. Dust pollution at site is at moderate level. Increasing of dust level during construction phase could have an impact to the air quality.	During construction period dust level could rise as a result of heavy construction vehicles movement and the construction itself.	An increase in dust would be a negative impact to the surrounding environment.	Impact would be site specific and in the local environment.	The impact would only result during construction phase.	Medium.	When the construction is completed the dust level will be lower than the initial state. Reversible.	Non-Cumulative.
3.	<b>Soil erosion:</b> The construction activities for the development of housing and shopping mall at Farm vlakplaats 138 IR have the potential to create soil erosion.	The current environmental site is a disturbed land, with vegetations.	The probability of change is uncertain during construction.	The current site infrastructure does not cater for the storm water management. If it is not addressed in the proposed development it could increase the impact.	The impact would be site specific.	Might occur only during construction phase. Short term	Medium The surrounding might be negatively affected	When the construction is completed, the storm water management in the area is improved, in turn soil erosion issue could be addressed. reversible	Non-cumulative if the proposed development design addresses the storm water management issue.
4.	<b>Waste disposal:</b> Uncontrolled and random disposal of waste has a negative effect on the health status of the local environment.	The existing current site is disturbed and affected by poor waste disposal on some parts of the proposed site. .	The probability of change is uncertain.	An increase in waste and improper disposal might result in an encouragement of illegal dumping site establishment that could	Impacts would be site specific and in the local environment.	Only during construction phase. Short term	Medium	If well managed can be reversed or even avoided.	Non cumulative

				later pose serious environmental health hazard to the environment.					
5.	<b>Mixing of concrete:</b> Concrete residue when left to harden can create areas, which will be difficult to remove or rehabilitate.	The current site is free from concrete slabs, proper measures need to be implemented to avoid adverse impacts	The probability of change is uncertain which may rise as a result dry concrete mixture left during construction.	If concrete mixing is not well managed and left to dry it may result into concrete slab formation or negatively impact to the surrounding.	Impacts would be site specific and in the local environment.	This might permanently affect the soil.	Medium. The soil character might be changed.	Reversible.	Non-cumulative.
6.	<b>Storage of equipment and materials:</b> Equipment and materials if not stored in an appropriate manner could be a source of pollution.	Materials and equipments storage should be done properly to eliminate injuries and accidents.	The probability of change is uncertain.	Equipment and materials if not stored in an appropriate manner could be sources of pollution.	Impacts would be site specific and in the local environment.	Short term	Low	If well managed can be reversible.	Non cumulative.
7.	<b>Waste generation and disposal:</b> Waste generation and inappropriate disposal could lead to wide array of environmental problems such as soil, surface and ground water contamination, among others.	The current state of the site is affected by illegal waste disposal	The probability of change is uncertain.	Generated waste and disposal method could be sources of pollution.	Impacts would be site specific and in the local environment.	if waste management plans are not in place, this could be a long term effect	high	If well managed can be reversible	Cumulative
8.	<b>Hazardous waste:</b> Various hazardous materials, construction waste and by-products as thinners, and oils used during construction could become sources of pollution if not disposed of in an appropriate manner.	The current state of the site at Vosloorus ext 24 41 and 43 is free from toxic chemicals.	The probability of change is uncertain, depend on the management.	Hazardous substances if not managed or used in an appropriate manner can be sources of pollution.	Impacts would be site specific and could extend to regional environment. As a result of the rock type of the site	Short term if early managed.	high.	If well managed can be reversible.	Cumulative
9.	<b>Vehicle Maintenance and Refuelling:</b> Spillages of hazardous liquids such as fuel, engine oil and other liquids used during vehicle maintenance and equipment	Due to the magnitude of the project, a lot of mobile equipments are expected.	The probability of change is uncertain.	Oil/Hydrocarbons spillages would be a negative impact to the current environment.	Impacts would be site specific and in the regional environment. As a results of the	Short term.	Medium.	When the construction is completed could be reversed.	Could be cumulative. Soil characteristic could change and species and plant could be

	handling, on the ground surface could result into contamination of soil, surface water and ground water.				highly soluble rock type of the area.				destroyed in the area.
10.	<b>Vehicle and Equipment Washing:</b> Spillages of washing detergents and wash water containing detergents and oils could impact the environment negatively.	The site is not contaminated by any spillage of washing detergents or oil.	The probability of change is uncertain.	An increase in washing detergents would have a negative impact. This has to be avoided.	Impacts would be site specific and extend to national environment as a results of the rock type of that area	Short term. If well managed	high.	If appropriately managed could be reversed.	Non-cumulative.
11.	<b>Visual impacts:</b> Building material waste will have an unpleasant visual impact. Careless dumping of waste by workers anywhere leading to littering of ground surface will also produce a negative visual impact within the immediate surrounding.	The site is currently clean and well taken of. The current state of the site does not pose negative visual impact to the surrounding environment.	The probability of change is certain regarding the potential visual impact, if the development were to go ahead.	The presence of construction could pose visual impact and the operational phase could also pose visual impact to the current owners of the existing residential.	Impacts would be site specific and in the local environment.	Temporary. Waste generation only during construction	Low	Impact is reversible	Cumulative
12.	<b>Endemic flora and fauna:</b> Endemic flora and fauna in and around the construction site should be protected as much as possible. However this is not applicable in this regard because this is already a disturbed environment with less or no endemic flora and fauna issues.	The site is a virgin land, disturbance to the vegetation is expected during construction, and however ecological management plan was recommended .	The probability of change is certain, if the development were to go ahead.	The current states of the site pose impact to flora and fauna through exotic vegetation.	Impacts would be site specific and in the local environment.	Permanent	Low	It could be reversible or rehabilitated	Cumulative
13.	<b>Labour force:</b> Environmentally unfriendly actions and a lack of good social behaviour of the labour force can create various problems such as crime, pollution, to some	The targeted site is situated amongst residential, agricultural areas, and accessed by near-by locals .	The probability of change is uncertain.	The current local communities is faced with high unemployment rate, reckless behavior from the construction employees could lead to	Impacts would be site specific and in the local community however could extend.	Permanent	Not applicable	Not applicable	To some extent cumulative.

	extend lead to a spreading of HIV.			negative impacts to the vulnerable communities					
14.	<b>Temporary job:</b> It is important for the well being of the local community to use local labour where possible, and comply with the public requirement for the proposed development.	A place/site where development is to be located, job seekers are always making ups and downs around the area for employment.	The probability of change is uncertain.	Un-employment is a negative effect in and around the local community. Not employing the local labours could impact the project negatively.	Impacts could be site specific and in the local community however could extend national.	Permanent	Not applicable	Not applicable	Not applicable
15.	<b>Security and crime:</b> Security on the construction site needs to be maintained. Construction work and related activities are usually associated with an increase in criminal incidents in the area where development occurs.	The site is currently not adequately protected since there is no light and fence for security purposes.	The probability of change is uncertain.	Crime is currently a problem, escalated by un-employment in the area. Construction site could invite more criminal elements hence construction material would be on site.	Impacts could be site specific and in the local community however it could extend.	Permanent	Medium	Low	Non-cumulative
16.	<b>Fire Prevention and Control:</b> The activities that take place in the contractor's camp may pose the threat of the creation of fires. Therefore appropriate measures are to be taken.	The site currently does not have any activities that may pose fire threats except out of natural course.	The probability of change is uncertain.	The presence of construction operation could pose fire hazards.	Impacts could be site specific and in the local environment.	Short term	Medium	Low	Cumulative
17.	<b>Environmental complaint register:</b> It is expected that there could be complaints with regards to environmental non-compliance during the construction phase of the project. The environmental compliant register should make available to the entire community.	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
18.	<b>Safety and Access Control:</b> Sufficient safety measures should be taken to avoid unnecessary accidents and or injuries.	Safety in areas of high unemployment rate is always a concern.	The probability of change is certain.	Safety is currently a big concern to the community members as they are affected by crime. The construction	Impacts would be site specific and in the local environment.	Short term	Medium	Non reversible	Non cumulative. But could cumulate if not managed.

				could be affected by criminal elements which would in turn increase crime statistics in the area.					
19.	<b>Borrow pits and spoil areas:</b> Any spoil areas or borrow pits established on site must be rehabilitated to the satisfaction of the onsite environmental officer. The site is not affected by borrow pit and spoil areas.	The current site has quarry which seem to be there for storm water management purpose, .	The probability of change is not certain.	The possibility of borrow pit establishment is possible in the construction phase. Open trenches and manholes could pose negative impact towards the existing environment.	Impacts would be site specific and in the local environment.	Short term	Low	Reversible	Non-cumulative
20.	<b>Materials Handling:</b> Handling of materials such as fuel, grease and oils must be supervised daily on a continuous basis.	The site is currently without material such as fuel, grease storages.	The probability of change is certain during construction period.	The hydrocarbon materials if not stored in an appropriate manner can be sources of pollution.	Impacts would be site specific and also extend to regional environment.	Short term if not well managed	Low, if well managed	If well managed can be reversible	Non cumulative
21.	<b>Storm water Runoff:</b> Uncontrolled storm water runoff could create various problems such as soil erosion and disturbance of wetland areas catchments.	A wetland exist on a lower slope of the targeted site, poor storm water management could lead to the wetland accumulating the waste water.	The probability of change is certain.	If storm water is not properly managed, during rainy season water could be stagnant or erode soil and that could also lead to the environment being unhygienic.	Impacts would be site specific and in the local environment.	Short term	Low	Not applicable	Non-cumulative
22.	<b>Survey Points:</b> The surrounding environment must be taken into consideration when survey operations are to be performed.	The site boundaries are given and need to be clearly pegged.	The probability of change is certain.	If boundaries are not clearly demarcated, construction activity can have impact on neighboring site.	Impacts would be site specific and in the local environment.	Short term	Low	Reversible	Non-cumulative
23.	<b>Construction Camps:</b> The choice of site for the contractors' camp requires the Environmental Control Officer and Engineers permission, and must take into account location of	Location of site camps is significant, To avoid unnecessary negative impacts	The probability of change is uncertain.	Construction camps are associated with environmental impacts, if not properly selected and managed.	Impacts would be site specific and in the local environment.	Medium term	Medium	Irreversible	Non-Cumulative

	local villagers and or ecological sensitive areas.								
24.	<b>Worker's conduct on site:</b> A general regard for the social and ecological well-being of the site and adjacent areas is expected of the site staff. The presence of construction employees in the area could impact negatively to the social life of the local community.	The site is currently not used.	The probability of change is uncertain depending on the workers behavior.	Workers conduct could have a negative impact on the surrounding neighbors and town.	Impacts would be site specific and in the local environment.	The duration of the impact is project term related.	Low	Reversible	Non-cumulative
25.	<b>Lighting:</b> Lighting on site is to be set out to provide maximum security and to enable easier policing of the site, without creating a visual nuisance to local residents or business.	The site is currently situated at Farm Vlakplaats 138IR. Electricity facilities will be implemented should the project go forward	The probability of change is certain.	If lighting is placed without creating a visual nuisance to local residents or business.	Impacts would be site specific and in the local environment.	Short term	Low	Reversible	Non-cumulative
26	<b>Dolomite:</b> dolomite is a highly soluble rock with a high tendency to contaminate groundwater and create sink holes through leached process.	The area is situated on a dolomite aquifer, that has deadly consequences if poorly managed	Uncertain depending on the workers behavior	if poorly managed could lead to disastrous consequences	Impacts would be site specific and extend to a national environment.	Long term, impacts could still emerge even when construction had finished	High	Reversible	
27	<b>Road Moagi drive:</b> traffic always pose a threat to any activity near by	The development activity is taking place in a closed proximity of the Moagi Road	Uncertain,	During the construction a lot of activity will be taking place, which will incorporate the R29 for transportation, risk management plan must be in place.	Impact would be site specific	For the duration of the construction period	high	Reversible, with proper remedial measures	cumulative



## 4.2.2 Proposed mitigation and management

The table below is an illustration of the criteria utilised to identify proposed mitigation and the management of the mitigation. The table below further illustrate the period of mitigation and the responsible party.

No	Mitigation	Impact and proposed mitigation and management actions	Responsibility	Timeframe
	Potential to mitigate negative impact	Description of mitigation measures. Extent to which mitigation measures could influence the significance and status of impact.	The responsible person to ensure that the mitigation measures are taken.	Implementation period for the mitigation
	Potential to enhance positive impacts	Where ever possible a description of the optimization measures. Extent to which they could influence the significance of impact.		
	Significant rating of impact after mitigation	Low, i.e. natural and social functions and processes are not affected or minimally affected.		
		Medium, i.e. affected environment is notably altered. Natural and social functions and processes continue albeit in a modified way.		
		High, i.e. natural or social functions or processes could be substantially affected or altered to the extent that they could temporarily or permanently cease.		
	Comment on the overall assessment and conclusion.	Overall Assessment and concluding comments as to the predicted impacts after mitigation and their : <ul style="list-style-type: none"> <li>○ Severity and permanence</li> <li>○ Size and relative significance</li> <li>○ Ecological and socio – economic context</li> <li>○ Balance between positive and negative aspect</li> <li>○ Cost and benefits</li> <li>○ Acceptability / Unacceptability</li> </ul>		

No.	Impact	Mitigation		Responsibility	Time frame	Significant rating of impact after mitigation	Comment on the overall assessment and conclusion
		Potential to mitigate negative impacts	Potential to enhance positive impacts				
1.	<b>Noise:</b>	<ul style="list-style-type: none"> <li>Construction and other noise generating activities should be restricted to between 06h00 and 18h00 Monday to Friday, unless otherwise approved by the appropriate competent person in consultation with adjacent landowners/affected persons and ECO.</li> <li>During the operational phase all activities must take place in a manner that will allow as little noise as possible.</li> <li>Activities, which are deemed to generate high levels of noise, will be restricted to normal working hours.</li> </ul>	It is not applicable.	Contractor  Contractor  Contractor	During construction	Low	If construction vehicles are serviced and properly maintained the level of noise should be less.
2.	<b>Dust:</b>	<ul style="list-style-type: none"> <li>The liberation of dust into the surrounding environment shall be effectively controlled by the use of, water spraying</li> <li>The speed of haul trucks and other vehicles must be strictly being controlled to avoid dangerous conditions, excessive dust or deterioration of the road being used.</li> <li>Site clearance to be done only as needed in phases.</li> </ul>	Not applicable	Contractor  Contractor  Contractor	During construction	Low	The level of dust should be reduced to minimal as the result of water spraying during working hours and pilling of soil should be avoided where ever possible.
3.	<b>Soil:</b>	<ul style="list-style-type: none"> <li>Submission of an operational plan for the construction phase indicating technical and management measures to prevent soil erosion.</li> <li>Stock piled topsoil should not be compacted and should be replaced as final soil layer.</li> <li>Soil should be exposed for the minimum time possible once cleared of vegetation, i.e. the timing of clearing and grubbing should be co-ordinate as</li> </ul>	Not applicable	Contractor.  Contractor.  Contractor	During construction phase.	Low	The design lay out plan should address all issues relating to storm water management and soil erosion. This could be a complete mitigation of this soil erosion.

		<p>much as possible to avoid prolonged exposure of soils to wind and water erosion.</p> <ul style="list-style-type: none"> <li>The A-horizon will be removed and used for rehabilitation purposes. The lower soil horizons will be used for construction activities. The A-horizon will be stockpiled in a responsible manner and replaced during rehabilitation.</li> </ul>		Contractor			
4.	<b>Disposal of sewage:</b>	<ul style="list-style-type: none"> <li>The contractor to install adequate portable chemical toilets to meet the sanitation needs on the construction site (14 people per toilet).</li> </ul>	Not applicable	Contractor	During construction	Low or completely mitigated	Ablution facility should be made available during construction phase for the employee to able to use this facility. All type of waste should be classified and disposed in an appropriate registered waste disposal site.
5.	<b>Mixing of concrete:</b>	<ul style="list-style-type: none"> <li>Where concrete has been mixed, especially in the natural environment, all residues must be removed and disposed of in an environmentally responsible manner approved by the ECO.</li> </ul>	Not applicable	Contractor	During construction	Low	Unused cement should not be left to dry on the ground. If proper housekeeping rules are complied with, most impacts should not affect the environment.
6	<b>Storage of Equipment and Materials:</b>	<ul style="list-style-type: none"> <li>Choice of location for storage areas must take into account prevailing winds, exposure sun, distance to water bodies and general onsite topology.</li> <li>All equipment and materials must be stored in a designated area in an appropriate manner as to prevent pollution.</li> <li>Storage areas must be designated, demarcated and fenced as effective as possible.</li> <li>Fire prevention facilities must be present and accessible at all times.</li> </ul>	Not applicable	Contractor  Contractor  Contractor  Contractor	Through-out the life cycle of a project.	Low	If employees on site shall practice good house keeping behavior, the work condition will be free of injuries and every thing would be in its place and there will be space for every thing.
7.	<b>Waste generation and disposal:</b>	<ul style="list-style-type: none"> <li>A waste management plan to be developed for the construction site.</li> <li>Plan to ensure that all waste is</li> </ul>	Not applicable	Contractor  Contractor	During construction	Low	Waste removal should be done regularly and that could make the environment free from any hazards. There could

		<p>contained in suitable containers to prevent waste being washed into water bodies.</p> <ul style="list-style-type: none"> <li>Containers for waste to ensure that any fluids generated by waste are trapped and can be disposed of in a suitable.</li> </ul>		Contractor			completely mitigate this impact.
8.	<b>Hazardous Substances:</b>	<ul style="list-style-type: none"> <li>Hazardous materials to be stored correctly, marked, labelled, without the risk of contamination and hazardous waste to be disposed of correctly with the necessary certificates issued.</li> <li>All oils, hydraulic fluids and other hazardous materials will be stored in suitable containers in a structure or facility designated for this purpose.</li> <li>Material Safety Data Sheets (MSDSs) shall be readily available on site for all chemicals and hazardous substances to be used on site.</li> <li>Storage areas containing hazardous substances must be clearly signed and the designated person contact and names should be displayed.</li> <li>Residents living adjacent to the construction site must be notified of the existence of the hazardous storage area.</li> <li>Staff dealing with these materials/substances must be aware of their potential impacts and follow the appropriate safety measures.</li> </ul>	Not applicable	<p>Contractor in co-operation with ECO.</p> <p>Contractor</p> <p>Contractor</p> <p>Contractor</p> <p>Contractor</p>	During construction	Low	Employees dealing with hazardous substances should be trained and be competent to do so. This could completely mitigate reduce the risk posed by this impact.
9.	<b>Vehicle Maintenance &amp; Refueling:</b>	<ul style="list-style-type: none"> <li>Vehicle maintenance and equipment handling to be carried out in areas especially equipped for this purpose in order to prevent spillage and contamination.</li> <li>All oil changes, lubrication and maintenance will take place only at the designated areas.</li> <li>Refueling of vehicles will and must take place at the designated refueling</li> </ul>	Not applicable	<p>Contractor</p> <p>Contractor</p> <p>Contractor</p>	During construction	Low	The impact should be completely mitigated or reduced form posing danger to the environment.

		area. This area will have a sufficiently impermeable surface to prevent seepage into ground water. The refueling area will be bounded to prevent any surface water from running over this area.					
10.	<b>Visual impacts:</b>	<ul style="list-style-type: none"> <li>Waste (construction and domestic) must be disposed of in a proper manner and not allowed to be strewn around on site and surrounding areas.</li> <li>Storage facilities elevated tanks and other temporary structures on site should be located such that they have as little visual impact on local residents as possible.</li> <li>Special attention should be given to the screening of highly reflective materials on site.</li> <li>The soil extracted from the furrows should be dumped in a designated area.</li> </ul>	The new construction should have less visual impact.	Contractor.  Contractor  Contractor  Contractor	During construction	Low	The current existing area will be less impacted visually.
11.	<b>Endemic flora and fauna:</b>	<ul style="list-style-type: none"> <li>No endemic flora and fauna species will be deliberately destroyed or permanent alienated from their natural habitat during construction.</li> <li>Excavations left open during construction should be checked periodically such that animals falling in can be safely removed and released away from construction activities. All excavations should be filled as soon as possible.</li> <li>Construction staff should be advised not to chase, kill or catch animals found or encountered during construction.</li> <li>Only vegetation falling in directly in demarcated in operational area should be removed where necessary.</li> <li>No exotic/invasive plants are to be planted on common ground of the site.</li> <li>No vegetation will be removed without prior permission from ECO.</li> </ul>	Not applicable	Contractor and ECO.  Contractor  Contractor and ECO  Contractor and ECO	During construction	Low	Identified indigenous plants and species existing in the area will be protected by all means.

		<ul style="list-style-type: none"> <li>Trees that are not to be cleared should be marked beforehand with danger tape. The ECO must be given a chance to mark vegetation that is to be conserved before the contractor begins clearing the site.</li> </ul>					
12.	<b>Maintenance of access roads:</b>	<ul style="list-style-type: none"> <li>Access roads to be maintained with an acceptable surface, free of erosion and no surface water ponding.</li> <li>All access routes will be planned to make optimal use of existing roads.</li> </ul>	Not applicable	Contractor maintains roads.  ECO to audit status of roads.	During construction & maintenance phase.	Low	The roads will be in good condition and safe.
13.	<b>Labor force:</b>	<ul style="list-style-type: none"> <li>Laborers to be restricted to construction area.</li> <li>Access to the site should be restricted to employees of the contractor.</li> <li>Temporary ablution facilities to be provided at appropriate sites (one toilet for 14 laborers).</li> <li>Such ablution facilities to be kept away from natural water bodies.</li> <li>Cooking facilities to be provided in demarcated areas.</li> <li>All informal traders to be discouraged.</li> <li>All labor will undergo basic induction, where safety, health and environmentally issues will be discussed.</li> <li>Construction staff should be educated, prior to commencement of construction, as to the need to refrain from destruction or killing of animals and plants, as well as from indiscriminate defecation, waste disposal and / or pollution of local soil and water sources.</li> <li>The contractor should ensure proper supervision of employees at all times.</li> </ul>	If local labour is used, the local community will benefit.	Contractor to identify suitable areas for the said facilities.  Contractor to maintain the above facilities.	During construction	Not applicable	Skills and knowledge should be gained by these employees who assist in building local communities.

14.	<b>Temporary jobs:</b>	<ul style="list-style-type: none"> <li>Local labor and contractors must be used wherever possible. Basic skills development and capacity development must be incorporated with this. It will be a specific condition in the contractors' agreements that local labor be used wherever possible. All reasonable attempts will be made to appoint people from the local communities as temporary laborers for non-specialize tasks and they will be subject to the necessary basic skills training.</li> </ul>	Not applicable	Contractor	During construction	Low	Local laborers should be given priorities.
15.	<b>Construction Workers:</b>	<p>The following restriction will be placed on the construction workers:</p> <ul style="list-style-type: none"> <li>No use of wetland areas, rivers or dams for washing;</li> <li>No collection of sand for construction purposes;</li> <li>No indiscriminate disposal of rubbish, construction waste;</li> <li>No collection of firewood;</li> <li>No damage to vegetation;</li> <li>No use of open field as toilet facility;</li> <li>No burning of waste and cleared vegetation.</li> </ul>	Skilled or labors with more experience will train community laborers employed to acquire skill. Train course should be made to ensure that a quality product is produced	Contractor	During construction	Low	If construction workers could be well managed and given induction that will include HIV awareness that should assist in alleviating the impact that could result from the workers.
16.	<b>Security and crime:</b>	<ul style="list-style-type: none"> <li>A security company to be appointed for the duration of the construction contract. Allowance must be made for the EMC to have access to the site as well as for relevant stakeholders.</li> <li>The access of unauthorized individuals must be minimized.</li> </ul>	Safety on site will be enhanced	Contractor	During construction	Low	Crime could be reduced or completely eradicated by the improvement of security system.
17.	<b>Fire protection:</b>	<ul style="list-style-type: none"> <li>Contractor must make sure that there is supervision for all fires that are used in the construction camp.</li> <li>Smoking should be prohibited in the vicinity of flammable substances.</li> <li>The contractor should ensure that fire-fighting equipment is available on site,</li> </ul>	Not applicable	Contractor Contractor Contractor	During construction	Low	Every public structure has to have fire prevention measures in place the presence of this facility is a necessity.

		<p>in particular where flammable substances are stored.</p> <ul style="list-style-type: none"> <li>• Fires started for comfort(warmth) should be discouraged by the contractor, due to the risk of vegetation fires and risk to adjacent property</li> <li>• Fire-fighting equipment and emergency plans must be in place prior to the construction phase.</li> <li>• The contractor will plan and implement a fire prevention programs and develop a contingency plan in the event of any fire.</li> <li>• No refuse or waste may be burn.</li> <li>• The contractor will be responsible for all damages caused by the outbreak of a fire originating from a site where work is undertaken. Damage to adjacent properties will be to his account.</li> <li>• The contractor is to provide cooking areas where fire risks will be minimized and controllable.</li> </ul>					
18.	<b>Environmental complaint register to be maintained:</b>	<ul style="list-style-type: none"> <li>• All complaints with regards to environmental non-compliance on the construction site need to be recorded and addressed accordingly.</li> <li>• Address complaints timorously and report back to the ECO.</li> </ul>	Not applicable	The Site Manager (Contacts Manager) Will be responsible for maintaining the register and reporting any complaints received to the ECO.	During construction phase	Not applicable	In order to keep trace of any compliance or non compliance acts on the site register is required.
19.	<b>Safety and Access Control:</b>	<ul style="list-style-type: none"> <li>• Safety equipment must be provided to all employees to prevent personal injury during construction activities. This includes equipment such as protective eye and ear wear and protective clothing where necessary.</li> <li>• Staff should be appropriately trained in all assigned activities.</li> <li>• Access to dangerous excavations and materials, must be controlled by the site manager.</li> </ul>	Safety on site will be enhanced	Contractor  Site Manager  Contractor	During construction	Low	Safety and Access control will be management according to the requirement.



		<ul style="list-style-type: none"> <li>All personnel and vehicles used for transportation and/or construction purposes should remain within these demarcated areas.</li> <li>Excavations should only remain open of a minimum period of time and during this time they must be clearly demarcated so as to prevent accidental ingress of people and animals.</li> </ul>		Contractor  Contractor			
20.	<b>Furrows and spoil areas:</b>	<ul style="list-style-type: none"> <li>Any spoil areas established must be rehabilitated to the satisfaction of the environmental officer.</li> <li>Any spoil generated during the construction process, which cannot be re-used elsewhere should be discarded in a site identified by the Environmental Control Officer and then shaped, trimmed and re-vegetated once construction is completed.</li> <li>Any excavations on site are to be backfilled as soon as possible, where appropriate.</li> </ul>	Not applicable	Contractor  Contractor  Contractor	During construction	Low	Rehabilitation of spoiled areas should be an immediate act. An environmental practitioner should be consulted for an appropriate rehabilitation measures.
21.	<b>Materials handling:</b>	<ul style="list-style-type: none"> <li>Re-fuelling and maintenance of vehicles must take place off site.</li> <li>No oils, chemicals or other hazardous materials used during construction are to be stored on site.</li> </ul>	Not applicable	Contractor.  Contractor	During construction	Not applicable	If employees will be properly trained to handle material this could avoid any incidents from occurring.
22.	<b>Storm water runoff:</b>	<ul style="list-style-type: none"> <li>To prevent storm water damage, the increase in storm water run-off resulting from construction activities must be estimated and the drainage systems assessed accordingly.</li> <li>A drainage plan must be submitted to the Engineer for approval and must include the location and design criteria of any temporary stream crossing.</li> <li>All storm water runoff from compacted materials must be monitored if signs of erosion become apparent.</li> </ul>	Not applicable	Contractor  Contractor  Contractor	During construction	Low	This should be able to address soil erosion as well as the design of the site should have appropriate storm water management as well as drainage system that should have oil trap/ filters if necessary.

23.	<b>Survey Points:</b>	<ul style="list-style-type: none"> <li>Roads or trails that are cut to provide temporary access for survey work must be minimized.</li> <li>Vegetation clearing must be kept to a minimum during survey operations.</li> </ul>	Not applicable	Contractor	During construction	Low	Construction will only take place on the proposed or demarcated area.
24.	<b>Construction Camp:</b>	<ul style="list-style-type: none"> <li>The choice of the site for the contractors' camp requires the Engineers permission and must take into account location of villagers and or ecological sensitive areas, including flood zones and unstable zones.</li> <li>The size of the construction camp should be kept to a minimum.</li> <li>The contractor must attend to the drainage of the camp to avoid standing water and or sheet erosion.</li> </ul>	Not applicable	Contractor and Engineers  Contractor  Contractor	During construction	Low	The site will be accessible and pose less impact on the environment if chosen in a correct place. The engineers should be responsible to ensure that the chosen place has less or no environmental impact.
25.	<b>Worker Conduct on Site:</b>	<ul style="list-style-type: none"> <li>A general regard for the social and ecological well-being of the site and adjacent areas is expected of the site staff.</li> <li>Workers need to be aware of the following general rules:</li> <li>No alcohol / drugs to be present on site.</li> <li>No firearms are allowed on site or in vehicles transporting staff to or from the site (Unless used by the security personnel).</li> <li>Prevent excessive noise.</li> <li>No harvesting of firewood from the site or from the areas adjacent to it.</li> <li>Other than per-approved security staff, no workers shall be permitted to live on site.</li> </ul>	Not applicable	Contractor	During construction	Not applicable	Workers will be provided sufficient SHERQ awareness training.
26	<b>Dolomite</b>	<ul style="list-style-type: none"> <li>Storm water management plan must be in place. The plan must entail effective method to prevent water from ponding, develop surface drainage of the site after heavy downfall. Surface drainage should take place in open, lined</li> </ul>	Plantation of vegetation to open spaces	contractor	During construction	low	Dolomite has deadly consequences; its impacts could extend to as much as the regional environment, precautionary and remedial measures must be taken seriously. All mentioned

		<p>channels that discharge into the storm water system.</p> <ul style="list-style-type: none"> <li>• Monitoring of infrastructure which entails the inspection of water bearing bulk services, communal building, roads and public open spaces within the site,</li> <li>• Monitoring of ground surface which entails the inspection of any signs of cracks on the ground which indicate movement of the ground, maintenance of the ground such as mixing of cement on impermeable surfaces, disposing of liquid waste in the prescribed manner, repair after damage.</li> <li>• Rehabilitation must be done immediately to the damaged land.</li> <li>• Rubbles must always be covered to prevent polluted run-off and dust generation</li> </ul>					aspects must be adhered to
27	<b>Road R29</b>	<ul style="list-style-type: none"> <li>• Road R29 is in close proximity of the development site and it's a farming area therefore transportation of goods is certain to take place. The disturbance of the traffic through construction vehicle is expected, over speeding should at all cost be avoided to prevent Road accidents.</li> <li>• Road users must be more vigilant when using the road</li> <li>• Road signs must be put in place notifying motorist about the development that is in progress</li> </ul>	Not applicable	contractor	During construction	low	The impact is reversible if road signs are obeyed

### **4.3 Management objectives and measurable targets for the proposed development site.**

The below management of identified impacts and measurable targets are similar to those identified during construction therefore the information below is a summary of management of these impacts which is in essence mitigation measures. The method used is the same and the information will not vary.

#### **4.3.1 Physical issues: Objectives and Measurable targets.**

##### **4.3.1.1. Access roads**

###### 4.3.1.1.1 Objectives

- Minimise damage to existing access roads
- Minimise damage to environment due to construction and rehabilitation of new access roads
- Minimise loss of topsoil and enhancement of erosion

###### 4.3.1.1.2 Measurable Targets

- No claims due to damage on existing access roads
- No visible erosion on access roads six months after completion of construction
- No loss of topsoil due to runoff water on access roads

##### **4.3.1.2. Rubble and Refuse Disposal**

###### 4.3.1.2.1 Objectives

- To keep the substation site servitude neat and clean
- Disposal of rubble and refuse in an appropriate manner
- Minimise litigation
- Minimise Landowner complaints

###### 4.3.1.2.2 Measurable targets

- No rubble or refuse lying around on site
- No incidents of litigation
- No complaints from Landowners
- No visible concrete spillage on the servitude

### **4.3.1.3. Fire prevention**

#### 4.3.1.3.1 Objectives

- Minimise risk of veld fires
- Prevent runaway fires

#### 4.3.1.3.1 Measurable targets

- No veld fires started by the Contractor's work force
- No claims from Landowners for damages due to veld fires
- No litigation

### **4.3.1.4. Servicing of Vehicles**

#### 4.3.1.4.1 Objectives

- Prevention of pollution of the environment
- Minimise chances of transgression of the acts controlling pollution

#### 4.3.1.4.2 Measurable targets

- No pollution of the environment
- No litigation due to transgression of pollution control acts
- No complaints from Landowners

### **4.3.1.5. Claims for damages**

#### 4.3.1.5.1 Objectives

- Minimise complaints from Landowners
- Prevent litigation due to outstanding claims
- Successful completion of the contract and all Landowners signing release forms

#### 4.3.1.5.2 Measurable targets

- All claims investigated and settled within one month
- No litigation due to unsettled claims
- All Landowners signing release forms within six months after completion of the contract

#### **4.3.1.6. Gate installation and Gate control**

##### 4.3.1.6.1 Objectives

- To keep the substation site servitude neat and clean
- Disposal of rubble and refuse in an appropriate manner
- Minimise litigation
- Minimise Landowner complaints

##### 4.3.1.6.2 Measurable targets

- No transgressions of the fencing act and therefore no litigation
- No damage to fences and subsequent complaints from Landowners
- All gates equipped with locks and kept locked at all times to limit access to key holders
- All fences properly tied off to the gate posts
- All gates properly and neatly installed according to specifications
- No complaints or claims due to open gates

#### **4.3.1.7. Batching plants**

##### 4.3.1.7.1 Objectives

- To ensure all agreements with Landowners are adhered to
- Prevention of complaints from stakeholders
- Successful rehabilitation of disturbed areas

##### 4.3.1.7.2 Measurable targets

- No complaints from stakeholders
- All disturbed areas successfully rehabilitated three months after completion of the contract

#### **4.3.1.8. Wet areas**

##### 4.3.1.8.1 Objectives

- Avoid wet areas to prevent damage

##### 4.3.1.8.2 Measurable targets

- No damage to wet areas
- No complaints from landowners and litigation

#### **4.3.1.9. River crossing sites**

##### 4.3.1.9.1 Objectives

- Minimise damage to river and stream embankments
- Minimise erosion of embankments and subsequent siltation of rivers, streams and dams

##### 4.3.1.9.2 Measurable targets

- No access roads through river and stream banks
- No visible erosion scars on embankments once construction is completed

#### **4.3.1.10. Clearance of vegetation**

The object of vegetation clearing is to trim, cut or clear the minimum number of trees and vegetation necessary for the safe mechanical construction and electrical operation of the substation and associated infrastructure. Vegetation clearing shall be done in accordance with the Vegetation Management Guideline. Only an 8m strip may be cleared flush with the ground to allow vehicular passage during construction. No scalping shall be allowed on any part of the servitude road unless absolutely necessary. The removal of all economically valuable trees or vegetation shall be negotiated with the Landowner before such vegetation is removed. All trees and vegetation cleared from the site shall be cut into manageable lengths and neatly stacked at regular intervals along the line. No vegetation shall be pushed into heaps or left lying all over the servitude.

Vegetation clearing on tower sites must be kept to a minimum. Big trees with large root systems shall be cut manually and removed, as the use of a bulldozer will cause major damage to the soil when the root systems are removed. Stumps shall be treated with herbicide. Smaller vegetation can be flattened with a machine, but the blade should be kept above ground level to prevent scalping. Any vegetation cleared on around the substation site shall be removed or flattened and not be pushed to form an embankment around the substation.

Protected or endangered species of plants shall not be removed unless they are interfering with a structure. Where such species have to be removed due to interference with a

structure, the necessary permission and permits shall be obtained from Provincial Nature Conservation. All protected species not to be removed must be clearly marked and such areas fenced off if required. The use of herbicides shall only be allowed after a proper investigation into the necessity, the type to be used, the long-term effects and the effectiveness of the agent.

It is recommended that a contractor for vegetation clearing should comply with the following parameters:

- The contractor must have the necessary knowledge to be able to identify protected species as well as species not to be interfering with;
- The operation of the line due to their height and growth rate;
- The contractor must also be able to identify declared weeds and alien species that can be totally eradicated; and
- The contractor must be in possession of a valid herbicide applicators license.

#### 4.3.1.10.1 Objectives

- Minimise damage to vegetation
- Keep servitude as natural looking as possible
- Minimise interference by vegetation to flow of electricity
- Minimise possibility of erosion due to removal of vegetation
- Minimise removal of plant material on river and stream embankments
- Eradication of alien invader and densifier species that cause a fire hazard

#### 4.3.1.10.2 Measurable targets

- No vegetation interfering with structures and statutory safety requirements upon completion of the contract
- No de-stumping of vegetation on river and stream embankments
- All alien invaders and densifiers removed to limit the fire hazard



- No visible herbicide damage to the vegetation along the servitude one year after completion of the contract due to incorrect herbicide use
- No litigation due to unauthorised removal of vegetation

### **4.3.2 Social issues: Objectives and Measurable targets.**

#### **4.3.4.1. Sanitation**

The Contractor shall install mobile chemical toilets on site. Staff shall be sensitised to the fact that they should use these toilets at all times. No use of the veld shall be allowed, as this always creates problems with the landowners and may lead to claims for problems with stock diseases. Toilet paper is also a source of littering, and the Contractor shall be forced to clean up any litter.

##### 4.3.2.1.1 Objectives

- Ensure that proper sanitation is achieved

##### 4.3.2.1.2 Management objectives

- No complaints received from Landowners regarding sanitation

#### **4.3.4.2. Interaction with adjacent landowners**

The successful completion of the project depends a lot on the good relations with the adjacent landowners. It is therefore required that the Contractor will supply one person to be the liaison officer (CECO) for the entire contract, and that this person shall be available to investigate all problems arising on the work sites concerning adjacent landowners. All negotiations for any reason shall be between the Department of Local Government and Housing, the landowners and the Contractor. No verbal agreements shall be made. All agreements shall be recorded properly and all parties shall co-sign the documentation. It is proposed that a photographic record of access roads be kept. This will then be available should any claims be instituted by any Landowners. Any claims instituted by the Landowners shall be investigated and treated promptly. Unnecessary delays should be avoided at all costs.

The Landowners shall always be kept informed about any changes to the construction program should they be involved. If Environmental Control Officer is not on site the Contractor's Environmental Control Officer should keep the Landowners informed. The contact numbers of the Contractor's ECO officer and the DoLG&H official shall be made available to the Landowners. This will ensure open channels of communication and prompt response to queries and claims. All contact with the Landowners shall be courteous at all times. The rights of the Landowners shall be respected at all times and all staff shall be sensitised to the effect that we are working on surrounding of private property.

#### 4.3.2.2.1 Objectives

- Maintain good relations with Landowners

#### 4.3.2.2.2 Objectives

- No delays in the project due to Landowner interference
- Landowner signs final release form

### **4.3.4.3. Littering**

#### 4.3.2.2.1 Objectives

- Neat workplace and site

#### 4.3.2.2.2 Management objectives

- No complaints regarding littering

### **4.3.4.4. Noise**

In order to prevent noise impacts resulting from construction activities, working hours are to be limited to weekdays between 7h00 to 17h00. If certain construction requires work outside of these hours, all adjacent landowners have to be informed prior to any construction outside of the specified hours commencing.

### **4.3.3 Cultural issues: Objectives and Measurable targets.**

#### **4.3.4.1. Residential Property**

The Contractor shall under no circumstances interfere with the property of adjacent landowners. If water is required, the Contractor shall negotiate with the relevant Landowner and a written agreement shall be drawn up.

##### 4.3.3.1.1 Objectives

- Control over actions and activities in close proximity to inhabited areas

##### 4.3.3.1.2 Measurable targets.

- No complaints from Landowners
- No damage to private property

#### **4.3.4.2. Archaeology**

Should any archaeological sites be uncovered during construction, all work should stop and their existence be reported to an ECO immediately. An archaeologist will then take the necessary action so that construction can continue.

##### 4.3.3.2.1 Objectives

- Protection of archaeological sites and land considered to be of cultural value
- Protection of known sites against vandalism, destruction and theft
- The preservation and appropriate management of new archaeological finds should these be discovered during construction

##### 4.3.3.2.2 Management objectives

- No destruction of or damage to archaeological sites
- Management of existing sites and new discoveries in accordance with the recommendations of the Archaeologist

#### **4.3.4 Biological issues: Objectives and Measurable targets.**

##### **4.3.4.1. Fuana**

Construction activities must be planned carefully so as not to interfere with the calving and lambing season for most animal species. The Contractor's workforce will have to be very careful not to disturb the animals as this may lead to fatalities which will give rise to claims from the surrounding Landowners. The Contractor shall under no circumstances interfere with livestock (from the surrounding properties) without the Landowner being present. This includes the moving of livestock where they interfere with construction activities. Should the Contractor's workforce obtain any livestock for eating purposes, they must be in possession of a written note from the Landowner. Should any new sites or nests be found, during the construction process, that was not known or have been noted before, each site shall be assessed for merit and the necessary precautions be taken to ensure the least disturbance.

##### 4.3.4.1.1 Objectives

- Minimise disruption of farming activities
- Minimise disturbance of animals
- Minimise interruption of breeding patterns of birds

##### 4.3.4.1.2 Measurable targets

- No stock losses where construction is underway
- No complaints from Landowners or Nature Conservation
- No litigation concerning stock losses and animal deaths

##### **4.3.4.2. Flora**

##### 4.3.4.2.1 Objectives

- Minimal disturbance to vegetation where such vegetation does not interfere with construction and operation of the line
- Prevention of litigation concerning removal of vegetation

#### 4.3.4.2.2 Measurable targets

- No litigation due to removal of vegetation without the necessary permits

#### 4.3.4.3. Herbicide use

##### 4.3.4.3.1 Objectives

- Control over the use of herbicides

##### 4.3.4.3.2 Measurable targets

- No signs of vegetation dying due to leaching of herbicides one year after completion of the bush clearing
- No Landowner complaints and litigation

### 4.4 Operation and maintenance phase

The below identified impacts and mitigation that could occur during operational phase are similar to the identified during construction therefore the information below is a summary of these impacts and the mitigation. The method used is the same and the information will not vary.

No.	Impact and proposed mitigation and management actions	Responsibility	Timeframe
1.	<b>Storm water management:</b> <ul style="list-style-type: none"><li>• It is recommended that proper storm water drainage system be ensured during operation and maintenance phase.</li><li>• Storm water should not be allowed to discharge onto bare soil but must be diverted to the surrounding grasslands or to the landscaped gardens during the operational phase.</li></ul>	Operator.	During operation and maintenance.
2.	<b>Waste generation and disposal:</b> <ul style="list-style-type: none"><li>• Solid waste generated during operation and maintenance phase must be removed in a continuous and efficient manner to the satisfaction of the local municipality.</li><li>• A waste management plan to be developed and maintained for the construction site.</li><li>• No solid waste should be dumped on the site.</li><li>• All domestic waste generated on the site should be disposed of in a proper manner off site i.e. no burial on site.</li></ul>	Operator.	During operation and maintenance.

3.	<b>Clean-up action:</b> <ul style="list-style-type: none"> <li>In the event of incident or leakage of hazardous waste from storage site, a professional company to be appointed to remove and cleanup the waste as quickly as possible.</li> </ul>	Operator.	During construction.
4.	<b>Environmental complaint register to be maintained</b> <ul style="list-style-type: none"> <li>The environmental complaint register must be maintained during the operation and maintenance phase.</li> </ul>	Operator.	During operation and construction.
5.	<b>Maintenance of access roads</b> <ul style="list-style-type: none"> <li>Access/ alternate roads to be maintained with an acceptable free of erosion, and no surface water ponding.</li> </ul>		During operation and maintenance.
6.	<b>Traffic:</b> <ul style="list-style-type: none"> <li>Any traffic disruptions due to the movement of heavy machinery should be undertaken with the approval of all relevant authorities and in accordance with all relevant legislation.</li> </ul>	The local municipality.	During operation and maintenance.

## 5. Rehabilitation

- Once construction is completed, all redundant infrastructure, waste and construction materials should be removed immediately from site by the contractor and disposed of in an appropriate manner, i.e. at a registered site. This includes any wastes that may have been left at the site from previous activities on the site.
- Disturbed areas, which are to remain free of development, should be rehabilitated to a comparable state to the surroundings area. A need for this will be identified by the Environmental Control Officer.
- Stockpiled topsoil should be used as the final cover for all disturbed areas where revegetation is required. This is to take place as soon as possible after the civil work is complete.
- Stockpiles of material and waste will be removed after construction with the area fully rehabilitated.
- Rehabilitation and re-vegetation only to make use of indigenous and endemic species.

## **6. Monitoring**

- Regular monitoring of all the environmental management measures and components shall be carried out by the ECO.
- Inspections and monitoring shall be carried out on both the implantation of the EMP and the impact on plant and animal life.
- Visual inspections on erosion and physical pollution shall be carried out on a regular basis.
- During housing development and shopping mall construction in Vosloorus Ext 24,41 and 43, a massive dust will be produced in the construction phase as a result dust suppressing systems should be implemented.
- Continuous dust suppressing systems shall be monitored on a monthly basis to determine the impact on the proposed development.

## **7. Environmental audit**

An environmental audit will be conducted during housing development and shopping mall Construction in Vosloorus. This environmental audit will ensure that:

- The conditions stipulated in the Environmental Authorisation are adhered to;
- Mitigation measures are implemented as prescribed in the Environmental Management Program;
- The relevant authorities are kept informed about progress with the project and that they are given assurance that the project is implemented as prescribed by them, and
- The ECO will undertake monthly environmental audits during construction and operation of the upgrading of the internal roads. The ECO will be responsible for monthly environmental audits verifying compliance to the approval EMP. Every month a summary report will be completed by the ECO, which will summarise compliance and non-compliance to the regulations set out in the approved EMP.

## **8. Responsible Parties**

- Responsibility for the implementation of the EMP lies with Gauteng Department of Housing.
- This responsibility will be delegated to the contractor for practical purposes, but the Gauteng Department of Local Government and Housing will retain legal responsibility.
- On-site assistance, monitoring of construction (to ensure compliance with this EMP) and environmental reporting will be the responsibility of the site manager.
- The ECO will be responsible for monthly environmental audits verifying compliance to the approved EMP. In every month, site meeting and a summary

report will be given by the ECO, which will summarise compliance and non-compliance to the regulations set out in the approved EMP.

- The Gauteng Department of Agriculture and Rural Development (GDARD), is responsible for approving this document, as any amendments to it

## **8.1 Requirement during construction**

- Proper and continuous liaison between Stakeholders, the Contractor and Landowners to ensure everyone is informed at all times.
- A physical access plan shall be compiled and the Contractor shall adhere to this plan at all times. Proper planning when the physical access plan is drawn up by the Environmental Control Officer in conjunction with the Contractor shall be necessary to ensure access to all construction areas within the parameter.
- The adjacent landowners shall be informed of the starting date of construction as well as the phases in which the construction shall take place.
- The Contractor must adhere to all conditions of contract, including the Environmental Management Program.
- Proper planning of the construction process to allow for disruptions due to rain and very wet conditions.
- Where existing private roads are in a bad state of repair, such roads' condition shall be documented before they are used for construction purposes. If necessary, some repairs should be done to prevent damage to equipment and plant.
- All manmade structures shall be protected against damage at all times and any damage shall be rectified immediately.
- Proper site management and regular monitoring of site works.
- Proper documentation and record keeping of all complaints and actions taken.
- Regular site inspections and good control over the construction process throughout the construction period.
- Appointment of an Environmental Control Officer on behalf of the Contractor to implement this EMP as well as deal with all Landowner related matters.



- Environmental Audits to be carried out during and upon completion of construction (at least three for the project).
- The Contractor shall not be released from site until all Landowners have signed off the release documentation to the satisfaction of the Environmental Control Officer.

## 8.2 Legal content

A growing awareness of the environment and an increase in the number of environmental laws and regulations, present company management with a daunting task of monitoring, interpreting and implementing systems to produce a workable plan to comply with legal requirements.

The list below was compiled to ensure that the people responsible for the housing construction are aware of their legal responsibilities and liabilities. Complying with these laws and regulations will minimise the risks in terms of legal, financial (claims) and rehabilitation costs. Non compliance to environmental laws is a criminal offence and if prosecuted relevant parties will be for any environmental damage incurred.

ACT NAME	ACT NO	NOTES/REMARKS
<b>NATIONAL ENVIRONMENTAL MANAGEMENT ACT</b>	107 of 1998	<b>LIST OF ACTIVITIES AND COMPETENT AUTHORITIES IDENTIFIED IN TERMS OF SECTIONS 24 AND 24D</b>
Atmospheric Pollution Prevention Act	45 of 1965	<b>Control all forms of air pollution.</b> <i>Φ Smoke control zones</i> <i>Φ Dust control during construction</i> <i>Φ Fumes emitted by vehicles</i> <i>Φ Air pollution from waste</i>
Conservation of Agricultural Resources Act	43 of 1983	<b>Control of utilisation and protection of wetlands; soil conservation; control and prevention of veld fires; control of weeds and invader plants.</b>

Environment Conservation Act	73 of 1989	<p><b>Controls for the effective protection and utilisation of the environment, littering, waste disposal, noise and various other activities, which may have a detrimental effect on the environment.</b></p> <p><i>Φ Waste management</i>  <i>Φ Application of waste disposal permit</i>  <i>Φ Noise control regulations</i></p>
Fencing Act	31 of 1963	<p><b>Prohibition of damage to a property owner's gates and fences</b></p> <p><i>Φ Climbing or crawling over or through fences without permission</i>  <i>Φ Closing gates</i></p>
Forest Act	122 of 1984	<p><b>Control of veld, forest and mountain fires and the protection of biota ecosystems.</b></p> <p><i>Φ Protected trees</i>  <i>Φ Fire control areas</i>  <i>Φ Fire belts and maintenance</i></p>
Hazardous Substance Act	15 of 1973	<p><b>Sale of Group I,II,III and letting, use, operation, application and installation of Group III hazardous substances.</b></p>
Health Act	63 of 1977	<p><b>Control of health aspects of waste disposal and water treatment.</b></p> <p><i>Φ Regulates, rubbish, night soil, sewage, or other waste</i>  <i>Φ Regulations relating to nuisances</i></p>
Game Theft Act	105 of 1991	<p><b>Regulates ownership of game, combat theft and unlawful hunting, catching and taking into possession of game.</b></p>
National Monuments Act	28 of 1969	<p><b>Control for the protection of natural and historical monument, relics and antiques.</b></p> <p><i>Φ Notifying of authorities in discovering of above</i></p>
National Water Act	36 of 1998	<p><b>All aspects relating to pollution of surface and ground water.</b></p>

## **9. General**

This EMPr will be accepted by the applicant and its appointed representatives such as engineers, contractors, architects and project managers will be represented by their signatures herein under. All conditions and recommendations will be implemented and the necessary records kept for referral.

## 10. Definition of the terms used in the assessment

Where relevant, the following terms will be used in the assessment of the various issues and alternatives that have been identified in the scoping process.

### LEVEL OF CERTAINTY

This criterion applies to the confidence of the assessor in making the assessment.

**Low** : The present degree of confidence in the making the assessment is lower than about 40%.

**Moderate** : The present degree of confidence in making the assessment is between approximately 40% and 80%.

**High** : The present degree of confidence in the relevant statement is greater than 80%.

### IMPACT

This criterion refers to the impact in relation to its effect on a stipulated feature or environmental quality.

**No impact** : There will be no discernible impact on the feature under consideration.

**Low** : The impact on the feature under consideration will be limited in terms of its effect or duration.

**Moderate** : The impact on the feature is such that there will be some damage done, but the feature will not be totally destroyed or degraded, and that it will recover, or will retain an moderate amount of the relevant environmental quality concerned with it.

**High** : The impact on the feature is such that the damage done will be considerable and enduring. Recovery of the feature could, at best be only partial.

**Very High** : The impact on the feature is such that the feature will be totally destroyed and that no recovery is possible.

**Unknown** : The nature of the impact on the feature is not understood or cannot be predicted in any reliable fashion.

### SIGNIFICANCE

This criterion refers to the effect of the impact “in the larger scheme of things”. For example, if a proposed dam will inundate a particular patch of vegetation, then the impact on that patch of vegetation is very high as it will be totally destroyed. But, if the vegetation is of a common type which has a low conservation priority, then the significance of the impact is low.

**No significance** : The impact is so inconsequential that it is of no significance at all.

**Low** : The impact is of low intensity of consequence. It is probably local in effect on a feature that is common and / or widespread.

**Moderate** : The impact is of sufficient intensity to warrant concern. There will be considerable disturbance / lowering of environmental quality for natural biota and / or to humans. Ecological processes will only be slightly affected. The impact will also have a moderate length of duration.

**High** : The impact is of considerable intensity. There will be severe degradation of the environment and localized losses of entire plant and animal assemblages may occur. Ecological processes are strongly disrupted. Social impacts may be severe. Recovery will only be possible in the long term.

**Very high** : The impact is of potentially devastating intensity to both the natural environment and / or to the human residents of an area. There will be total or near total failure of ecological processes. It is unlikely that mitigation is possible in any reasonable human time scale and hence the full recovery from the impact may not be possible in any reasonable human time scale. This the impact may be regarded as irreversible / permanent.

**Unknown** : The consequences of the impact are not understood or cannot be predicted in any reliable fashion.

#### **LEVELS OF SIGNIFICANCE**

**Site level** : The physical impacts of the activity being assessed will not extend beyond the immediate site. If relevant, visual impacts will only be apparent to viewers on or close to the site.

**Local level:** The impacts of the development may be felt or be significant at the site of the activity or within a short distance from it (defined within the context of the feature being assessed), or restricted to a narrow viewscape in the case of visual impacts.

**Regional level:** The impacts of the development may be felt or significant at a distance which is well – removed from the site. In the case of visual impacts, the views cape may e increased to landscape width and breadth.

**Provincial level:** The impacts of the activity are sufficient so as to significant within the context of the whole province.

**National level** : The impacts of the activity are sufficient so as to be significant throughout the whole country.

**International level** : The impacts of the development are sufficient so as to be significant beyond the borders of the country.

## **TIME PERIODS**

**Construction Phase** : The time period during which preliminary surveys and or construction and or other work is done. It will extend to the end of the construction period and includes any associated rehabilitation work and / or landscaping that may be prescribed.

**Operational Phase** : The time period for which the operation of the activity continues to function. This of particular relevance for developments which have a very large footprint, such as timber plantations or urban expansion, or opencast mines which keep expanding as they operate.

**Short Term** : A period of time including the Construction Phase and up to two years further. Note : This time period is defined as it is considered that it covers the period in which the footprint of the construction operation will be sustainable regenerated and wildlife will return to the disturbed areas.

**Medium Term** : A period of up to five years from the end of the Construction Phase. Note : This time period includes the criteria described for the Short Term, but includes the time necessary for certain processes, for example the establishment of woody vegetation, to become established on the development area.

**Long Term** : A period of at least ten years, possibly more, from the end of the Construction Phase or the Operational Phase. Note : This time period includes the criteria described for the Medium Term but includes the time necessary for trees to reach sufficient size to soften and screen the appearance of a low rise development.

**Permanent** : The change which would be brought about by the development cannot in any way be reversed *in situ*. The only mitigation options which may be available will be those which are conducted off the site.

## **EFFECT**

**Positive** : The impact will have, on balance, predominantly beneficial effects.

**Negative** : The impact will have, on balance, predominantly detrimental effects.

**Neutral** : There will be a change, but it cannot be described as being of either a particular positive or negative nature.

## **NEED FOR MITIGATION**

**Low** : The need for mitigation is slight but the conditions / effects require that some effort is made.

**Moderate:** The need for mitigation is definite, but there is no requirement for major and / or costly works. Any proposed mitigatory measure must have good potential to reduce the impact.

**High :** The need for mitigation is such that major and costly works are justifiable. Any proposed mitigatory measures must have definite and demonstrable potential for reduction of the impact before the proposed development may be given authorization to proceed.

**Obligatory :** The nature of the impact is such that, unless mitigation can very largely nullify the consequences, it must be regarded as a potential fatal flaw which will halt the proposed development. If such mitigation cannot be achieved, it will be necessary to modify the development so that the impact will be reduced or even obviated.

#### **LOCALITY OF MITIGATION**

**On site :** the necessary mitigation must be undertaken at the site of the impact.

**Off site :** The necessary mitigation need not necessarily be at the site of the impact. Compensatory action may be undertaken at another, preferably similar, site on the property. For example, loss of a wetland due to construction or a dam may be mitigated by rehabilitation of a similar wetland in the vicinity.

## Appendix A: Locality Map



## **Appendix B: Proposed site documentation / Monitoring/ Reporting**

Site documentation shall be used to keep records on site. All documents shall be kept on site and be available for monitoring and auditing purposes. Site inspections by an Environmental Audit Team may require access to this documentation for auditing purposes. The documentation shall be signed by all parties to ensure that such documents are legitimate. Regular monitoring of all site works by the Environmental Control Officer is imperative to ensure that all problems encountered are solved punctually and amicably. When the Environmental Control Officer is not available, the Contract Manager/Site Supervisor shall keep abreast of all works to ensure no problems arise. The following checklist shall be used as an environmental performance monitoring tool.

<b>Person responsible for the construction site is:</b>
Name:
Designation:

<b>Reporting of environmental performance, problems and priorities is as follows:</b>

<b>7.3 Environmental monitoring of the construction site is according to the following schedule:</b>



<b>Problem</b>	<b>Solution as implemented</b>	<b>Has the solution worked, if not, what actions are still to be taken</b>

## Appendix C: Contact s

- Gauteng Department of Local Government and Housing Rap
- Contact person: ..... Tel/Cell .....
- Project Manager: Company Name .....
- Contact person: ..... Tel/Cell .....
- Contractor information
- Contact person: ..... Tel/Cell .....
- Environmental Control Officer: Company Name .....
- Contact person: ..... Tel/Cell .....
- Police 10111
- Ambulance 10177