Environmental Management Programme

Madiba Community Hall, Ward 34, Msunduzi Local Municipality

March 2020

Document Information

Project Name:	Msunduzi Community Hall Ward 34		
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Report Title:	Msunduzi Community Hall Ward 34, Environmental Management Programme		
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Report Reference:	2005/EMPr

Purpose of this Report

The aim of this Environmental Management Programme is to provide the environmental controls for the development of the Madiba Community Hall in Ward 34 of the Msunduzi Municipality. The EMPr establishes the acceptable environmental outcomes to be achieved and actions to be implemented.

The EMPr has been prepared in accordance with the requirements of Section 24(N) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2014 (as amended).

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Acronyms and Abbreviations

Amafa	Amafa aKwaZulu-Natali Heritage
BA	Basic Assessment
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EDTEA	KZN Department of Economic Development, Tourism and Environmental Affairs
EIA	Environmental Impact Assessment
EM	Environmental Manager
EMPr	Environmental Management Programme
Mariswe	Mariswe (Pty) Ltd
Msunduzi LM	Msunduzi Local Municipality
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEM:AQA	National Environmental Management: Air Quality Act, 2003 (Act No 39 of 2003)
NFEPA	National Freshwater Ecosystem Priority Area
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
NWA	National Water Act, 1998 (Act No. 36 of 1998)
SANS	South African National Standards
WULA	Water Use Licence Application

1. Introduction

1.1 Background

iNhlaba Consulting has been appointed by Mariswe (Pty) Ltd (Mariswe), on behalf of the Msunduzi Local Municipality (Msunduzi LM) to provide environmental consultancy services for the proposed development of the Madiba Community Hall in Ward 34, east of the Pietermaritzburg Central Business District, in KwaZulu-Natal (See Figure 1-1 for the project locality).

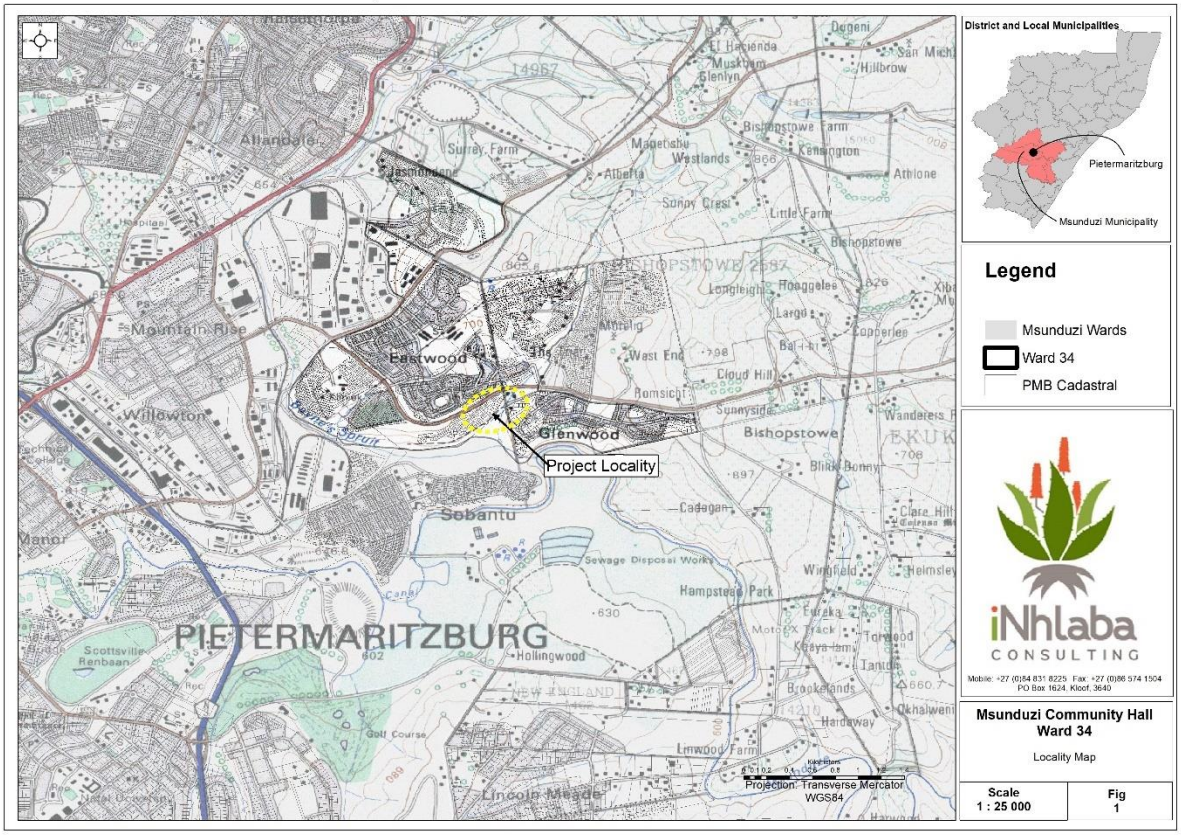

Figure 1-1: Locality of the Proposed Project

The proposed development entails undertaking activities listed in the Environmental Impact Assessment (EIA) Regulation Listing Notices, 2014 and as a result is subject to the application and obtaining Environmental Authorisation prior to commencement.

An EMPr can be defined as "an environmental management tool used to ensure that undue or reasonably avoidable adverse impacts of the construction, operation and decommissioning of a project are prevented; and that the positive benefits of the projects are enhanced". EMPrs are therefore important tools for ensuring that the management actions arising from Environmental Impact Assessment (EIA) processes are clearly defined and implemented.

1.2 Details of the Environmental Assessment Practitioner

As noted previously, iNhlaba Consulting has been appointed by Mariswe to undertake the Basic Assessment (BA) process for the development of the Madiba Community Hall, in Ward 34, Pietermaritzburg. As part of this process, iNhlaba Consulting has prepared this EMPr to be implemented during the development of the project.

Details of the qualified Environmental Assessment Practitioner (EAP) involved in undertaking the BA Process are noted in Table 1-1 along with a Curriculum Vitae attached as Appendix 1.

Table 1-1: Details of the EAP

General		
Company.	iNhlaba Consulting	
Postal address.	PO Box 1624, Kloof, 3640	
Tel No.	Mobile: +27(0)84 831 8225	
Fax No.	Fax: +27(0)86 574 1504	
Email.	warren@inhlabaconsulting.com	
Details of the Environmental Assessment Practitioner		
Name	**Qualification and affiliation**	**Years of experience**
Warren Hale	BSc, BSc (Hons) IAIAsa	12 years

iNhlaba Consulting has no vested interest in the proposed project other than fair payment for consulting services rendered as part of the BA process and has declared its independence as required by the EIA Regulations, 2014.

2. Activity Description

2.1 Details of the Applicant

The applicant for the project is Msunduzi LM. Details are provided in Table 2-1 below.

Table 2-1: Name and Contact Details of the Applicant

Name.	Msunduzi Local Municipality
Address.	Private Bag X321, Pietermaritzburg, 3200
Responsible person.	Nombali W. Ndaba
Tel.	033 392 3000
Fax.	033 392 2397
Email.	Nombali.Ndaba@msunduzi.gov.za

2.2 Project Description

2.2.1 *Property Details*

Details of the project site are provided in Table 2-2 below.

Table 2-2: Property Details

Property description	Erf 9011 of Pietermaritzburg
SG Code	NOFT02580000901100000
Coordinates	29°35'25.80"S 30°25'47.15"E
Land use	Less Formal Township Establishment Act (LFTEA)

2.2.2 Design or Layout of the Activity

The layout of the proposed Madiba Community Hall is illustrated in Figure 2-1 and consists of:

- A main auditorium;
- Male and female ablutions;

- Two (2) storerooms;
- Two (2) change rooms;
- An office;
- A kitchen; and
- Infrastructure supporting the community hall includes:
    - Asphalt and gravel parking;
    - Loffelstein retaining wall upslope of the hall and a reinforced concrete wall downslope;
    - Waterborne sanitation connecting to the Umgeni Water sewer main;
    - Electrical connection to the Msunduzi Municipal electrical reticulation;
    - Water mains connection the uMgungundlovu District water supply;
    - Storm water connection to the Msunduzi Municipal infrastructure.

Figure 2-1: Revised Layout of the Madiba Community Hall

3. Legislative Context

3.1 National Environmental Management Act, 1998 (Act No. 107 of 1998)

This EMPr has been compiled to meet the requirements of Section 24(N) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and the Environmental Impact Assessments (EIA) Regulations 2014 (as amended). These requirements are set out in the table below.

Requirement	Reference in this report
(a) details of– (i) the EAP who prepared the EMPr; and (ii) the expertise of that EAP to prepare an EMPr, including a curriculum vitae	Section 1.2 and Appendix A
(b) a detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;	Section 2
(c) a map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;	Figure 4-1
(d) a description of the impact management outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including— (i) planning and design; (ii) pre-construction activities; (iii) construction activities; (iv) rehabilitation of the environment after construction and where applicable post closure; and (v) where relevant, operation activities;	Section 6
(f) a description of proposed impact management actions, identifying the manner in which the impact management outcomes contemplated in paragraph (d) will be achieved, and must, where applicable, include actions to — (i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; (ii) comply with any prescribed environmental management standards or practices; (iii) comply with any applicable provisions of the Act regarding closure, where applicable; and (iv) comply with any provisions of the Act regarding financial provision for rehabilitation, where applicable;	Section 6
(g) the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 6
(h) the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 6
(i) an indication of the persons who will be responsible for the implementation of the impact management actions;	Section 6
(j) the time periods within which the impact management actions contemplated in paragraph (f) must be implemented	Section 6
(k) the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Section 6
(l) a program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	Section 6
(m) an environmental awareness plan describing the manner in which— the applicant intends to inform his or her employees of any environmental risk which may result from their work; and risks must be dealt with in order to avoid pollution or the degradation of the environment; and	Section 4.4
(n) any specific information that may be required by the competent authority.	TBC

3.2 Other Environmental Principles

In addition to meeting the regulatory requirements of NEMA and the EIA Regulations, 2014, the EMPr is designed to cater for the principles of the 'Duty of Care', which outlines that despite any provision of this EMPr, the developer remains responsible for any environmental degradation, and the 'Polluter Pays Principles' which instills a financial responsibility to compensate for rehabilitation.

The Duty of Care provides that:

"(1) *Every person who causes, has caused or may cause significant pollution or degradation of the environment, must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot be reasonably avoided or stopped, to minimise and rectify such pollution or degradation of the environment*."

(Section 28 of NEMA)

The Polluter Pays Principle provides that:

"the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimizing further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment."

Section 2 of NEMA)

4. Administration of the Environmental Management Programme

4.1 Roles and Responsibilities

The implementation of this EMPr requires the involvement of several stakeholders, each fulfilling a different, but vital role to ensure sound environmental management during the construction phase. The stakeholders are discussed below.

4.1.1 Department of Economic Development, Tourism and Environmental Affairs

The provincial Department for Environmental Affairs, the Department for Economic Development, Tourism and Environmental Affairs (EDTEA) is the competent authority responsible for granting Environmental Authorisation (EA) and approving the EMPr. EDTEA has overall responsibility for enforcing compliance with the conditions of EA and EMPr.

4.1.2 Applicant: Msunduzi Municipality

As the entity to whom the EA is granted, the Msunduzi Municipality is accountable for the potential impacts of the activities that are undertaken and is responsible for managing these impacts. Msunduzi Municipality therefore has overall environmental responsibility to ensure that the implementation of this EMPr complies with the relevant legislation and the conditions of the EA.

4.1.3 Contractor

This refers to the main contractor(s) appointed by the Employer for the construction of the project, or a portion of the project i.e. subcontractors. The main contractor(s) will be responsible for complying with the EMPr commitments and any other legislative requirements, as applicable to the contractors' appointment for the proposed development. The contractor/s will also be responsible for drafting method statements appropriate to activities under his direct control.

The contractor must ensure that all employees under their control receive appropriate training prior to the commencement of construction, taking cognisance of this EMPr and the conditions of the Environmental Authorisation.

4.1.4 Environmental Manager

The Contractor's Environmental Manager (EM), or his appointee, will conduct daily inspections of the site and plant, to identify potential non-compliances and potential negative impacts to the environment. The inspections will take the form of an inspection sheet and will be kept as a record. Findings thereof will be made available to the ECO and raised in construction meetings for mitigation or avoidance measures.

4.1.5 Environmental Control Officer

The independent Environmental Control Officer (ECO) appointed will monitor and review the on-site environmental management and implementation of this EMPr by the contractor throughout the project. This will be done by conducting site audits and issuing monthly audit reports to the relevant parties.

EDTEA requires that the ECO be at the forefront of all environmental management issues.

4.2 Record Keeping, Monitoring and Compliance

During the construction phase, the Msunduzi Municipality must monitor the Contractor's adherence to the approved impact prevention procedures on a weekly basis and must issue the Contractor a Notice of Non-compliance whenever transgressions are observed.

The Msunduzi Municipality must document the nature and magnitude of any non-compliance, the action taken to correct the non-conformance, the actions taken to mitigate its effects and the results of those actions. This reporting must be kept on file for inspection by the ECO and/or the EDTEA when required. Significant, emergency or ongoing non-compliance findings must be immediately reported to the Msunduzi LM who must report these to the EDTEA or any other state department who may have jurisdiction over the matter.

During the construction phase, the Msunduzi LM must appoint a competent independent individual (Environmental Control Officer – ECO) to monitor and report on the contractor/s compliance with the conditions contained within the EMPr. Monitoring audits and reporting must take place on a monthly basis during the construction phase and a closeout audit must be undertaken post rehabilitation of areas affected by construction activities.

In the case of non-compliance giving rise to physical environmental damage or destruction, the Project Manager, in consultation with the ECO and the Msunduzi LM: Environmental Unit, shall be entitled to undertake, or to cause to be undertaken, such remedial works as may be required to make good such damage, and to recover from the contractor the full costs incurred in doing so. All parties, however, must be mindful of the fact that any remedial work may trigger a separate Listed Activity not included in the initial application for Environmental Authorisation, and therefore may require its own separate environmental assessment prior to implementation.

In the event of a dispute or difference of opinion between any parties arising out of the interpretation of the conditions of the EMPr, or a disagreement regarding the implementation or method of implementation of conditions of the EMPr, the Project Manager will act as the arbitrator, unless the Project Manager feels the need to seek specialist advice.

The Msunduzi LM shall at all times have the right to stop work and/or certain activities on site in the case of non-compliance or failure to implement remediation measures. The Msunduzi LM has the authority to instruct the Authorisation Holder or Contractor to cease a particular construction activity causing, or liable to cause, significant environmental damage.

4.3 Failure to Complete Corrective Actions

In the event that the Msunduzi Municipality or Contractor fails to complete the corrective action within the allocated timeframes, the Project manager / Engineer must:

- Formally (in writing) inform the EDTEA; and
- Request that a Stop-work Order be issued to the Authorisation Holder or Contractor by the EDTEA.

The Authorisation Holder is responsible for resolving any issues with the Contractor. Failure to address any non-compliance may lead to the termination of the contract and removal of the Contractor and staff from the site.

The Authorisation Holder or Contractor are deemed not to have complied with the EMPr if:

- Within the boundaries of the site there is evidence of a contravention of clauses of the EMPr; or

- environmental damage occurs due to negligence / inappropriate actions taken by the Authorisation Holder or Contractor or any of his staff.

On receiving a Notice of Non-compliance, the Authorisation Holder and Contractor is required to swiftly address the issue/s taking all corrective actions required to rectify the situation. Penalties can be applied for non-compliant situations. Penalties/fines are advocated to ensure corrective measures are successfully undertaken and the necessary standard of rehabilitation is achieved. The penalties imposed per incident or violation can be imposed by EDTEA or the Applicant.

The penalty associated with a chemical spill is not a set amount but will depend on the nature and extent of the spill; the cost of any soil and / or groundwater monitoring; and any soil and / or groundwater remediation required by Authorities will be to the Authorisation Holder or Contractors account.

The imposition of such penalties / fines will not preclude the relevant Competent Authority from applying an additional penalty in accordance with statutory powers.

Failure to address the cause must be reported to the relevant Authority for them to deal with the transgression as deemed fit.

4.4 Environmental Awareness Training

The contractor shall ensure that adequate environmental awareness training of senior site personnel takes place and that all construction workers receive an induction presentation on the importance and implications of the EMPr and Conditions of the Environmental Authorisation.

The presentation shall be conducted, as far as possible, in the employees' language of choice. As a minimum, training shall include:

- Explanation of the importance of complying with the EMPr;

- Discussion of the potential environmental impacts of, and environmental risks presented by construction activities;

- Employees' roles and responsibilities, including emergency preparedness;

- Explanation of the mitigation measures that must be implemented when carrying out their activities;

- Explanation of the specifics of this EMPr; and

- Explanation of the management structure of individuals responsible for matters pertaining to the EMPr.

The contractor shall keep records of all environmental training sessions, including names, dates and the information presented. These records will be presented to EDTEA and the ECO on request during audits.

4.5 Amendments to the Environmental Management Programme

This EMPr outlines the environmental practices and mitigation measures to be adhered to during the Construction Phase, in order to curtail and/or minimise potential negative impacts and promote sound environmental practices.

The EMPr is a dynamic document and is subject to change as and when required. Changes to mitigation actions may be affected by the Msunduzi Municipality/ Contractor immediately while changes to the Environmental Outcome/Objective require the formal amendment and approval by EDTEA.

4.6 Specialist Environmental Considerations

As part of the application for Environmental Authorisation, Erf 9011 was subject to an aquatic ecological assessment given the environmental sensitivities highlighted in the Basic Assessment Report.

The aquatic ecological assessment confirmed the presence of a channelled valley bottom wetland located east of Erf 9011 (See Figure 4-1) .

The wetland is regarded as sensitive and a No-go area. Specific measures have therefore been included in this EMPr when working within close proximity to the wetland with activities within 25 m being subject to special considerations.

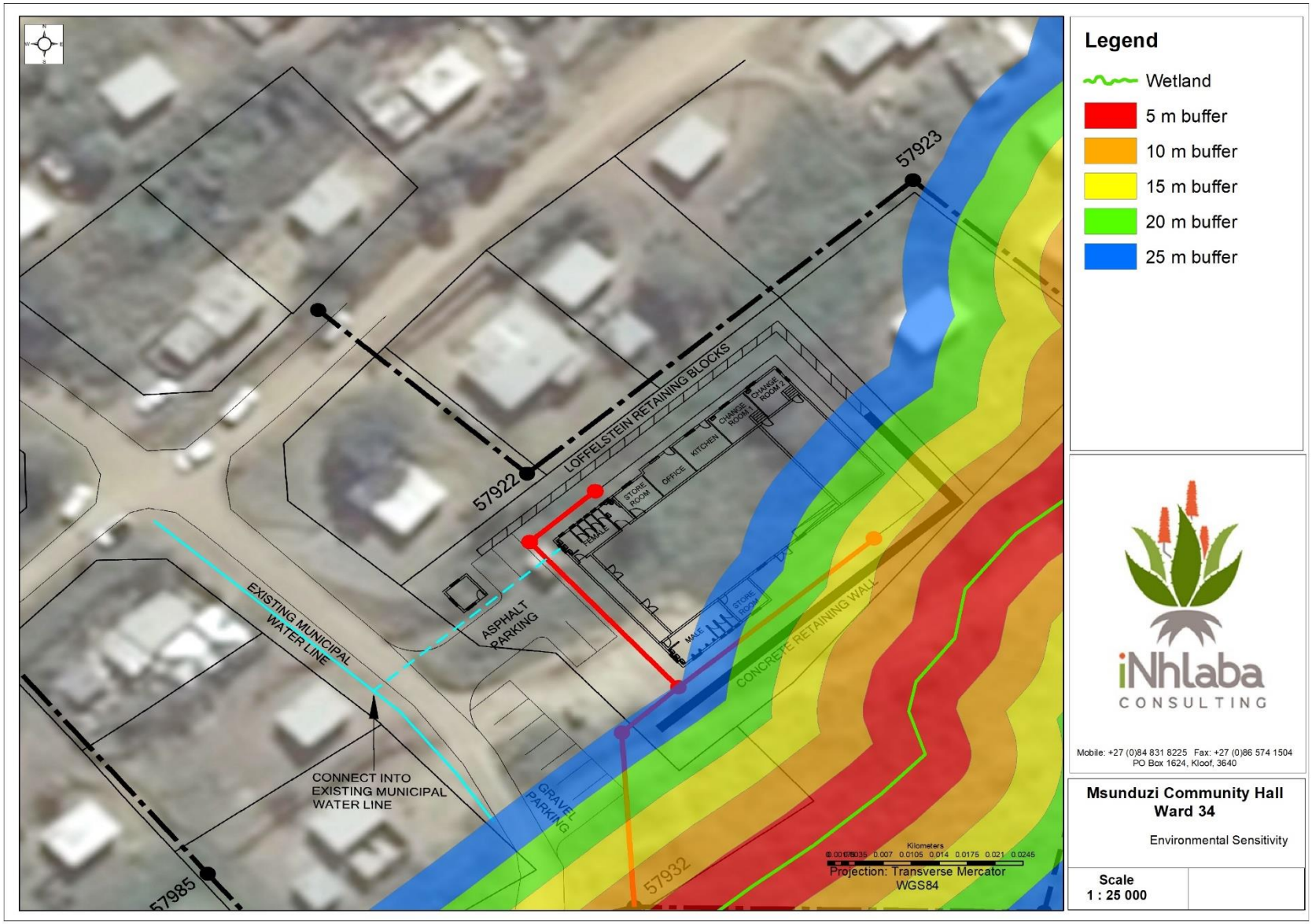

Figure 4-1: Environmental Sensitivity Map

5. Environmental Management Programme Requirements

Construction Phase EMPr activities are those relating to the preparation of the site prior to commencing the Construction Phase, as well as the construction and rehabilitation activities themselves.

5.1 Preparation of Method Statements / Management Plans

Method Statements and/or Management Plans must be submitted by the Contractor to the ECO and Msunduzi Municipality for approval for the following activities prior to any construction commencing on site:

- Construction camp locality and layout plan;
- Management, use and storage of hazardous goods / substances, including petrochemicals;
- Stormwater management at the construction Camp/s and at the construction work front;
- Traffic, accommodation and construction vehicle movement routes during the Construction Phase;
- Spill Contingency Plan; and
- Emergency Response Procedures.

The Authorisation Holder must monitor the implementation of the Method Statements and Management Plans during the Construction Phase of the project.

5.2 Permit Requirements

The necessary permits (if any) must be obtained by the Authorisation Holder prior to the commencement of any activities requiring such a permit. These could include permits for activities such as:

- Building plan approval from the Msunduzi Municipality, including approval of the storm water management plan; and
- Impacting on water resources - This would constitute a Water Use Licence from the Department of Human Settlements, Water and Sanitation.

6. Environmental Management Programme

The following Pre-Construction Phase actions detailed in Section 6.1 must be adhered to at all times. Construction related actions are detailed in Section 6.2. These also require continuous adherence during the Construction Phase. Post-Construction and Rehabilitation Management Actions are detailed in Section 6.3.

6.1 Pre-Construction Phase

Table 6-1: Pre-Construction Management Actions and Outcomes

Management Objectives (*A thing aimed at or sought, a goal*)	**Actions** (*The process of doing something, typically to achieve an aim*)	**Management Outcomes** (*The way a thing turns out; a consequence*)	**Responsibility**	**Frequency/Timing**
Prevent soil contamination	• Hazardous materials/dangerous goods must be stored in a clearly marked, lockable, designated storage area; • Hazardous materials/ dangerous goods must be stored within a bunded area which has the capacity to store 110% of the volume of the materials stored; and • Chemical toilets must be placed at least 25 m outside any watercourse. A registered chemical waste company is to be used to remove waste from the chemical toilets on site. Proof of servicing of chemical toilets must be kept by the contractor, in the on-site environmental file, for review purposes by the ECO if needed.	Avoidance of soil loss Re-use of viable soils in rehabilitation. Avoidance of disposal of hazardous waste	Implementation: Contractor Inspection: EM Verification: ECO	Implementation: Ongoing Inspection: Ad hoc Verification: Monthly
Prevent soil loss	• Soil should be stockpiled in such a way as to minimize erosion; • Topsoil should be stockpiled such that re-use in rehabilitation is feasible • The exposed soil surfaces should be protected from wind derived fugitive dust generation, if to be exposed for a period exceeding 2 months or in high wind conditions • Where exposed surfaces will be exposed to surface run-off, diversion of surface run-off must be implemented to ensure erosion is avoided • The re-use of soil and stockpiles must be prioritised in the construction phase, where geotechnically appropriate; and • No Soil stockpiles are to be established within 25 m of the wetland boundary	Soil resources are protected from loss and retained for re-application during rehabilitation	Implementation: Contractor Inspection: EM Verification: ECO	Implementation: Ongoing Inspection: Ad hoc Verification: Monthly
Preservation of flora	• All construction areas must be demarcated prior to construction to ensure that the footprint of the impacts are limited (including areas where vehicles may traverse);	Remaining natural flora is protected especially in neighboring wetland	Implementation: Contractor Inspection:	Implementation: Ongoing Inspection:

Management Objectives (*A thing aimed at or sought, a goal*)	**Actions** (*The process of doing something, typically to achieve an aim*)	**Management Outcomes** (*The way a thing turns out; a consequence*)	**Responsibility**	**Frequency/Timing**
	• All areas outside of Erf 9011 must be regarded as No-go areas and demarcated as such; • All alien invasive species within the construction and development footprint must be removed and follow up monitoring and removal programmes should be initiated once construction is complete. • A survey of indigenous trees is to be undertaken. If trees are to be removed they are to be replaced during rehabilitation.		EM Verification: ECO	Ad hoc Verification: Monthly
Preservation of fauna	• Hunting and/or fishing activities on site are prohibited. This includes the setting of traps, or the killing of any animal caught in construction works; • No animal, reptile or bird of any sort found on site may be killed. This specifically includes snakes or other animals considered potentially dangerous discovered on site. If such an animal is discovered on site an appropriately skilled person should be summoned to remove the animal from the site. Consideration should be given to selection and nomination of such a person prior to site establishment. If no-one is available, training should be provided to at least two site staff members; and • Environmental training must be conducted by the responsible ECO.	Remaining natural fauna is protected especially in neighboring wetland	Implementation: Contractor Inspection: EM Verification: ECO	Implementation: Ongoing Inspection: Ad hoc Verification: Monthly
Prevent increased surface runoff	• Hardened surfaces within 25 m of the wetland boundary are limited to those illustrated in Figure 2-1. No additional structures are permitted within the 25 m buffer (See Figure 4-1) • A stormwater management plan is to be compiled detailing specific measures to be implemented to manage storm water during construction. • Care must be taken to ensure that in removing vegetation adequate erosion control measures are implemented	Storm water discharge does not result in degradation of the neighboring environments	Implementation: Contractor Inspection: EM Verification: ECO	Implementation: Ongoing Inspection: Ad hoc Verification: Monthly
Preserve air quality	• Heavy vehicles and machinery should be serviced regularly to minimise exhaust fume pollution; • Soil stockpiles must be located in areas to limit the erosive effects of the wind, which will limit dust; • Removal of vegetation must be avoided until such time as soil stripping is required, which will limit dust; • Limit vehicle speeds on unpaved roads to 20 km/h to limit the amount of dust generated; • Haulage distances must be at a minimum;	Emissions from the site remain within the regulatory limits and do not create nuisance	Implementation: Contractor Inspection: EM Verification: ECO	Implementation: Ongoing Inspection: Ad hoc Verification: Monthly

Management Objectives (*A thing aimed at or sought, a goal*)	**Actions** (*The process of doing something, typically to achieve an aim*)	**Management Outcomes** (*The way a thing turns out; a consequence*)	**Responsibility**	**Frequency/Timing**
	• Dust control measures should be implemented when warranted. The use of water as a dust suppression measured is not preferred, and alternative measures should be utilised; • Environmentally friendly soil stabilisers may be used as additional measures to control dust on gravel roads and construction areas; • All equipment must be kept in good working order; • Equipment must be operated within its specifications and capacity and must not be overloaded; and • All machinery/plant must be serviced and lubricated regularly to ensure good working order.			
Prevent noise pollution	• Potential disturbance to the resident's adjacent to the construction site; • The noise sources must conform to, SANS Code 10103:2008, so that it will not produce excessive or undesirable noise when it is released; and • All of the Contractors' vehicles must be fitted with effective exhaust silencers and must comply with Road Traffic Act (Act 29 of 1989) when any such vehicle is operated on a public road.	Emissions from the site remain within the limitations imposed by the National Environmental Management Air Quality Act , 2003 (Act No. 39 of 2003) and its Regulations	Implementation: Contractor Inspection: EM Verification: ECO	Implementation: Ongoing Inspection: Ad hoc Verification: Monthly
Prevent unnecessary impedance of traffic	• Minimise possible lane closures, traffic delays and congestion during the pre-construction phase; • Appropriate flagmen and signage must be provided on the roadside in compliance with the requirements of relevant road department authority; • Sufficient area for the storage of heavy vehicles within the construction site must be provided; • Vehicle traffic which may obstruct traffic flow must be scheduled outside of peak travelling times; • Heavy / large load traffic must be appropriately routed and appropriate safety precautions must be taken to prohibit road collisions and traffic incidences; • All vehicle operators must be suitably licensed, must have had appropriate environmental and safety induction, must aware of specific site procedures, and must be well rested and cognisant when operating heavy or unsafe vehicles / machinery; and • Public consultation informing residents of alternative routes prior to the commencement of construction activities, or duration of construction activities must occur. Proof is to be provided to the ECO.	Construction related traffic does not have an adverse impact on traffic management	Implementation: Contractor Inspection: EM Verification: ECO	Implementation: Ongoing Inspection: Ad hoc Verification: Monthly

Management Objectives (*A thing aimed at or sought, a goal*)	**Actions** (*The process of doing something, typically to achieve an aim*)	**Management Outcomes** (*The way a thing turns out; a consequence*)	**Responsibility**	**Frequency/Timing**
Prevent the spread of waste	• Minimise accumulation of construction and general waste; • Demarcated areas where waste can be securely contained and stored on a temporary basis during the construction phase must be established. When adequate volumes (not more than 1 month) have accumulated all waste is to be removed from site and disposed of at a licensed facility; • Litter must be removed from all construction areas prior to construction commencement; • Should skips be used for the storage and transportation of waste, these must be emptied once full and must be covered to prevent waste from being blown away; • Waste is not to be buried or burned on site; • All waste must be recycled where possible or disposed of at a registered landfill, proof of which must be provided and kept in the on-site environmental file; All hazardous materials including paints, turpentine and thinners must be stored appropriately to prevent these contaminants from entering the environment; and • Spill-sorb or similar type product must be used to absorb hydrocarbon spills in the event that such spills should occur.	Waste generation is minimised and managed to prevent impacts on the environment.	Implementation: Contractor Inspection: EM Verification: ECO	Implementation: Ongoing Inspection: Ad hoc Verification: Monthly
Prevent unnecessary loss of heritage artefacts	• In the event of a cultural or heritage artefact being found all work must stop until the matter is resolved. Amafa aKwaZulu-Natali (Amafa) is to be contacted immediately and direction from the Amafa representative must be taken and adhered to; • The importance of heritage finds and the correct mitigation measures must be included in the environmental awareness training.	No impact on heritage artefacts or resources is incurred	Implementation: Contractor Inspection: EM Verification: ECO	Implementation: Ongoing Inspection: Ad hoc Verification: Monthly
Protection of water resources	• Implement a construction storm water management plan; • Planned storm water controls are to prevent direct discharge into the wetland during construction phase; and • Discussion of wetland No-go to be included in environmental awareness training.	Impacts on wetland functionality is protected against	Implementation: Contractor Inspection: EM Verification: ECO	Implementation: Ongoing Inspection: Ad hoc Verification: Monthly

6.2 Construction Phase

Management Objectives (*A thing aimed at or sought, a goal*)	**Actions** (*The process of doing something, typically to achieve an aim*)	**Management Outcomes** (*The way a thing turns out; a consequence*)	**Responsibility**	**Frequency/Timing**
Prevent soil contamination	• Hazardous materials/dangerous goods must be stored in a clearly marked, lockable, designated storage area; • Material Safety Data Sheet (MSDS's) must be kept on site for all hazardous materials used on site; • MSDS's must be easily accessible to staff; • Hazardous materials/dangerous goods must be stored within a bunded area which has the capacity to store 110% of the volume of the materials stored, and in accordance with the relevant MSDS's; • When decanting hazardous substances, drip trays must be used; • Should a spillage occur, an absorbent material e.g. sawdust / Oilcap must be spread on areas where oil spills have occurred. The resultant contaminated soil and sawdust must be lifted and placed within a high density plastic bag for storage / disposal; • Oil-contaminated soils are to be removed to a contained storage area and disposed of at a licensed facility. Disposal slips are to be retained in the environmental file as proof of safe disposal; and • Chemical toilets must be placed at least 32 m outside of any watercourse. A registered chemical waste company is to be used to remove waste from the chemical toilets on site. Proof of servicing of chemical toilets must be kept by the contractor, in the on-site environmental file, for review purposes by the ECO if needed.	Loss of soil resources through contamination is prevented	Implementation: Contractor Inspection: EM Verification: ECO	Implementation: Ongoing Inspection: Ad hoc Verification: Monthly
Prevent soil loss	• Soil must be stockpiled in such a way as to minimize erosion; • Topsoil must be stockpiled such that re-use in rehabilitation is feasible; • The exposed soil surfaces must be protected from wind derived fugitive dust generation, if to be exposed for a period exceeding 2 months or in high wind conditions; • Where exposed surfaces will be exposed to surface run-off, diversion of surface run-off must be implemented to ensure erosion is avoided; and • The re-use of soil and stockpiles must be prioritised in the construction phase, where geotechnically appropriate.	Loss of soil resources is avoided	Implementation: Contractor Inspection: EM Verification: ECO	Implementation: Ongoing Inspection: Ad hoc Verification: Monthly

Management Objectives (*A thing aimed at or sought, a goal*)	**Actions** (*The process of doing something, typically to achieve an aim*)	**Management Outcomes** (*The way a thing turns out; a consequence*)	**Responsibility**	**Frequency/Timing**
Preservation of flora	• All construction areas must be demarcated prior to construction to ensure that the footprint of the impacts are limited (including areas where vehicles may traverse); • All alien invasive species within the construction and development footprint must be removed and follow up monitoring and removal programmes must be initiated once construction is complete (See Appendix B); and • Reseed cleared areas with an indigenous seed mix to prevent soil erosion and enable rehabilitation.	Existing floral diversity is maintained and protected against encroachment from invasive plants.	Implementation: Contractor Inspection: EM Verification: ECO	Implementation: Ongoing Inspection: Ad hoc Verification: Monthly
Preservation of fauna	• Hunting and/or fishing activities on site is prohibited. This includes the setting of traps, or the killing of any animal caught in construction works; and • No animal, reptile or bird of any sort found on site may be killed. This specifically includes snakes or other animals considered potentially dangerous discovered on site. If such an animal is discovered on site, an appropriately skilled person should be summoned to remove the animal from the site. Consideration should be given to selection and nomination of such a person prior to site establishment. If no-one is available, training should be provided to at least two site staff members.	Existing faunal diversity is maintained	Implementation: Contractor Inspection: EM Verification: ECO	Implementation: Ongoing Inspection: Ad hoc Verification: Monthly
Prevent increased surface runoff	• Care must be taken to ensure that in removing vegetation adequate erosion control measures are implemented; • A construction storm water management plan is implemented. • The propagation of low-growing dense vegetation suitable for the habitat such as grasses, sedges or reeds is the best natural method to reduce erosion potential in sensitive areas and therefore must be implemented.	Storm water run-off from the site does not impact negatively on the neighboring environments	Implementation: Contractor Inspection: EM Verification: ECO	Implementation: Ongoing Inspection: Ad hoc Verification: Monthly
Preserve air quality	• Heavy vehicles and machinery must be serviced regularly to minimise exhaust fume pollution; • Soil stockpiles must be located in areas to limit the erosive effects of the wind, which will limit dust; • Removal of vegetation must be avoided until such time as soil stripping is required, which will limit dust; • Limit vehicle speeds on unpaved roads must be set at 20 km/h to limit the amount of dust generated; • Haulage distances must be at a minimum;	Impacts on ambient air quality remain within the limits set by the National Environmental Management: Air Quality Act, 2003 (Act No. 39 of 2003)	Implementation: Contractor Inspection: EM Verification: ECO	Implementation: Ongoing Inspection: Ad hoc Verification: Monthly

Management Objectives (*A thing aimed at or sought, a goal*)	**Actions** (*The process of doing something, typically to achieve an aim*)	**Management Outcomes** (*The way a thing turns out; a consequence*)	**Responsibility**	**Frequency/Timing**
	• Environmentally friendly soil stabilisers may be used to control dust on gravel roads and construction areas; • All equipment must be kept in good working order; • Equipment must be operated within its specifications and capacity and must not be overloaded; • All machinery/plant must be serviced and lubricated regularly to ensure a good working order; and • The entire Contractors' vehicles must be fitted with effective exhaust silencers and shall comply with Road Traffic Act (Act 29 of 1989) when any such vehicle is operated on a public road.			
Prevent noise pollution	• Noise sources must conform to the SANS Code 10103:2008; and • All the Contractors' equipment must be fitted with effective exhaust silencers and shall comply with the SANS Code 10103:2008, for construction plant noise generation.	Impacts on ambient noise levels remain within the SANS 10103: 2008 at the boundary of the site.	Implementation: Contractor Inspection: EM Verification: ECO	Implementation: Ongoing Inspection: Ad hoc Verification: Monthly
Prevent unnecessary impedance of traffic	• Minimise possible lane closures, traffic delays and congestion during the pre-construction phase; • Appropriate flagmen and signage must be provided on the roadside in compliance with the requirements of relevant road department authority; • Sufficient area for the storage of heavy vehicles within the construction site must be provided; • Vehicle traffic which may obstruct traffic flow must be scheduled outside of peak travelling times; • Heavy / large load traffic must be appropriately routed and appropriate safety precautions must be taken to prohibit road collisions and traffic incidences; • All vehicle operators must be suitably licensed, must have had appropriate environmental and safety induction, must aware of specific site procedures, and must be well rested and cognisant when operating heavy or unsafe vehicles / machinery; and • Public consultation informing residents of alternative routes prior to the commencement of construction activities, or	Disruption to traffic users is limited	Implementation: Contractor Inspection: EM Verification: ECO	Implementation: Ongoing Inspection: Ad hoc Verification: Monthly

Management Objectives (*A thing aimed at or sought, a goal*)	**Actions** (*The process of doing something, typically to achieve an aim*)	**Management Outcomes** (*The way a thing turns out; a consequence*)	**Responsibility**	**Frequency/Timing**
	duration of construction activities must occur. Proof is to be provided to the ECO.			
Prevent the spread of waste	• Demarcated areas must be established where waste can be securely contained and stored on a temporary basis during the construction phase. When adequate volumes (not more than 1 month) have accumulated all waste must be removed from site and disposed of at a licensed facility. Proof of safe disposal slips must be maintained in the on-site environmental file; • Litter must be removed from all construction areas prior to construction commencing; • Should skips be used for the storage and transportation of waste, these must be emptied once full and covered to prevent waste from being blown away; • Waste is not to be buried or burned on site; • All waste must be recycled where possible or disposed of at a registered landfill, proof of which must be provided. • All hazardous materials including paints, turpentine and thinners must be stored appropriately to prevent these contaminants from entering the environment; and • Spill-sorb or similar type product must be used to absorb hydrocarbon spills in the event that such spills should occur.	Waste generated during construction is prevented on impacting on neighbouring land uses	Implementation: Contractor Inspection: EM Verification: ECO	Implementation: Ongoing Inspection: Ad hoc Verification: Monthly
Prevent unnecessary loss of heritage artefacts	• In the event of a cultural or heritage artefact being found all work must stop until the matter is resolved. Amafa is to be contacted immediately and direction from the Amafa representative must be taken and adhered to; • The importance of heritage finds and the correct mitigation measures must be included in the environmental awareness training.	No impact on heritage artefacts or resources is incurred	Implementation: Contractor Inspection: EM Verification: ECO	Implementation: Ongoing Inspection: Ad hoc Verification: Monthly
Employee training and skills development	• Environmentally focused toolbox talks must be undertaken at least once a week. Content must include matters included in this EMPr e.g. alien vegetation control, littering, erosion control etc.; and • A register of attendance at each toolbox talk must be maintained in the environmental file.	Educate staff regarding environmental protection	Implementation: Contractor Inspection: EM Verification: ECO	Implementation: Ongoing Inspection: Ad hoc Verification: Monthly

Management Objectives (*A thing aimed at or sought, a goal*)	**Actions** (*The process of doing something, typically to achieve an aim*)	**Management Outcomes** (*The way a thing turns out; a consequence*)	**Responsibility**	**Frequency/Timing**
Protection of water resources	• Construction is limited to the delineated boundary of the site. The wetland is regarded as a No-go area and is to be included in the environmental awareness training • No stockpiling of materials is permitted within 25 m of the wetland boundary (See Figure 4-1) • Storage of hazardous goods is not permitted within 25 m of the wetland boundary (See Figure 4-1) • Chemical toilets are to be placed further than 32 m from the wetland boundary. • Discharge of storm water directly into the wetland from the construction site is prohibited. • Silt curtains are to be erected at the base of the site to collect sediment eroded from the contraction site.	Impacts on wetland functionality is protected against	Implementation: Contractor Inspection: EM Verification: ECO	Implementation: Ongoing Inspection: Ad hoc Verification: Monthly

6.3 Post Construction and Rehabilitation Phase

Management Objectives (*A thing aimed at or sought, a goal*)	**Actions** (*The process of doing something, typically to achieve an aim*)	**Management Outcomes** (*The way a thing turns out; a consequence*)	**Responsibility**	**Frequency/Timing**
Rehabilitation	• On completion of the project, the appointed contractor must ensure that all structures, equipment, materials, waste, rubble, notice boards and temporary fences used during construction are removed; • All construction waste / debris must be removed from within the construction footprint and disposed off-site at an approved landfill site; • Progressive rehabilitation must be undertaken throughout the construction phase of the project where areas have been impacted upon. Rehabilitation should commence as soon as construction is completed in a specific area and not at the end of the entire project; • Post construction, any areas disturbed outside of the construction footprint due to construction activities must be rehabilitated by appropriate landscaping, topsoil dressing, alien plant eradication and vegetation establishment; • Post construction, all disturbed and open surfaces must be planted with indigenous grasses; and	Ensure environmental degradation associated with construction is remediated	Implementation: Contractor Inspection: EM Verification: ECO	Implementation: Ongoing Inspection: Ad hoc Verification: Monthly

Management Objectives (*A thing aimed at or sought, a goal*)	**Actions** (*The process of doing something, typically to achieve an aim*)	**Management Outcomes** (*The way a thing turns out; a consequence*)	**Responsibility**	**Frequency/Timing**
	• Where necessary, topsoil must be imported to the site in question, prior to regrassing of the site. It is preferred that the topsoil used is excess topsoil from another portion of the site. • Indienous trees removed are to be replaced at a ratio of 1:5 (five trees to be replaced for every five removed).			

7. Acknowledgement

Record of signatures providing acknowledgment of being aware of, and committed to complying with the contents of this Environmental Management Programme (EMPr), which relates to the environmental management, mitigation and rehabilitation measures for the project outlined above, and the environmental conditions contained in the civil and other construction contract documents.

AUTHORISATION HOLDER:

Name :

Signature **Date:**

CONTRACTOR:

Name :

Signature **Date:**

Appendix A: Curriculum Vitae

Appendix B: Alien Plant Management

Alien Plant Control

Best practice measures that must be undertaken during site clearing include the following:

i. Cut plants as low to ground as possible.

ii. All alien plants must be removed carefully and exposed soil should be covered with cut vegetation or leaf litter that is free of weed seeds to ensure that regrowth will not occur.

iii. Press any loosened soil down carefully and firmly and mulch with plant material where possible.

iv. All alien seeds, fruit bulbs, tubers and stems must be collected and placed in a sealable container/plastic bag for disposal at a landfill site.

v. The roots system of mature trees including alien invasive play an important role in stabilising soil and therefore the up-rooting of large mature specimen of trees is not advocated. It is better to fell the trees and paint the stump with the relevant herbicides.

Alien plant control methods are provided in Table 0-1.

Table 0-1: Invasive Plant Management Methodology

METHOD	DESCRIPTION
Hand pulling/ hoeing	• Hand pulling is most effective with small (30cm), immature or shallow rooted plants. • Shake the excess sandy material from the plant, this makes the plant easier to stockpile and lighter to transport. • However, make sure there is no seed on the plant first to eliminate the spread of seed while shaking.
Chopping/ cutting/ slashing	• This method is most effective for plants in the immature stage, or for plants that have relatively woody stems/ trunks. • This is an effective method for non-re-sprouters or in the case of re-sprouts (coppicing) it must be done in conjunction with chemical treatment of the cut stumps. **Note** • Cut/slash the stem of the plant as near as possible to ground level. • Paint re-sprouting plants (i.e. Black Wattle, Lantana and Chromolaena) with an appropriate herbicide immediately after they have been cut. • Stockpile removed material into piles as prescribed and treat as general waste
Felling	• De-branch trees and where possible remove all material. • Where possible large trees that are to be felled such that they fall uphill. • Cut the tree down as low as possible to the ground. • Apply herbicide immediately (no later than 30mins) to the cambium layer. • Ensure all the cuts in the cambium layer are treated.
Ring barking	• Remove bark in a 30-40cm centimetre band and leave the tree to die. • Can be used with or without chemicals but is more successful when herbicide is used