

ENVIRONMENTAL MANAGEMENT PROGRAMME

PROPOSED DEVELOPMENT OF A NEW LANDFILL SITE (CLASS B) AND ASSOCIATED INFRASTRUCTURE ON THE REMAINING EXTENT OF PORTION 1 OF THE FARM MELK SPRUIT NO. 12, WALTER SISULU LOCAL MUNICIPALITY, EASTERN CAPE PROVINCE

Prepared by: Rambuda Consultants (Pty) Ltd

Prepared for: Walter Sisulu Local Municipality

DEDEAT Ref No: JG/B/M/001/2025

Date: August 2026 (Draft EMPr – Rev 02)



DETAILS OF THE PROJECT EAP

	Name	Qualifications	Date	Signature
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CONTRACTOR'S DECLARATION OF UNDERSTANDING AND COMMITMENT TO COMPLIANCE

I, the undersigned, hereby acknowledge that I have obtained copies of the following documentation and confirm that I fully understand the contents thereof and the consequences of non-compliance. The Contractor furthermore reiterates its commitment to compliance with the requirements contained within the following provided documentation:

Name of the Contractor	
Project Number	
Scope of Work	PROPOSED DEVELOPMENT OF A NEW LANDFILL SITE (CLASS B) AND ASSOCIATED INFRASTRUCTURE ON THE REMAINING EXTENT OF PORTION 1 OF THE FARM MELK SPRUIT NO. 12, WALTER SISULU LOCAL MUNICIPALITY, EASTERN CAPE PROVINCE
Declaration by the contractor	
• I undertake to adhere to the requirements as set out in: - Environmental Management Programme, including the support plans such as Rehabilitation and Monitoring Plans. - All related environmental permits (Integrated Environmental Authorisation and Water Use Licence). • I undertake to comply with all applicable environmental, legal, and other requirements. • Undertake to comply with JRA's environmental standards, policies, and procedures where applicable. • I pledge to inform all staff of their role in managing environmental impacts on the site. • I am fully aware that incidents must be reported within 24 hours of occurrence. • I pledge to always implement the best environmental practices on-site during the contract. • I pledge that all non-conformances issued to us will be addressed promptly.	
Name of Contractor's Representative:	
Position:	
Date:	
Signature	

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GLOSSARY OF TERMS, DEFINITIONS AND ABBREVIATIONS

Audit	A verification process used to obtain information on the implementation of the EMPr. It is an objective tool used to make improvements at the construction site.
Bunding	An impervious containment system for potential spillages from tanks/containers stored on site. The bunded area shall have a capacity greater than 110% of the total tankage contained. The bunding shall be constructed of a material impermeable and resistant to the stored material.
Client	The Client is the principal party (Applicant) of the project. The legal accountability for the correct implementation of the relevant requirements of the EMPr falls primarily upon the applicant and must therefore be built into all contractors' contractual agreements. The Client of this project is Walter Sisulu Local Municipality
Construction Activity	Any construction activity is any action taken by the Contractor, his Subcontractors, suppliers or personnel during the construction process.
Contractor	The main organisation is appointed by the Developer (Client), through the Project Manager, to undertake construction activities on the site.
Construction camp	The area is allocated for the establishment of equipment, a repair area, ablution facilities, laydown and rest areas, etc. It also serves as the central point for the storage of fuel and construction materials.
Demolition	The tearing down of buildings and other structures: the opposite of construction.
Environmental Control Officer (ECO)	An individual appointed by the project developer and who is responsible for the implementation of the EMPr, liaison between Contractors in respect of monitoring, reviewing and verifying environmental compliance.
Environmental Management Programme Report (EMPr)	The EMPr for the project sets out general instructions that must be included in a contract document for the construction phase of the project. The EMPr will ensure that the construction activities are conducted and managed in an environmentally sound and responsible manner. The EMPr also details the organisational structure required to ensure the effective implementation of the EMPr and measures to monitor and improve the application of the EMPr.
Environment	This means the surroundings within which humans exist, and that are made up of: • The land, water and atmosphere of the earth; • Micro-organisms, plant and animal life; • Any part or combination of a) and b) and the interrelationships among and between them; and • The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

Fauna	Any animals identified within or outside of the construction area. Animals may not be harmed in any way.
General Waste	Domestic, commercial, non-hazardous waste and builders' rubble, e.g. paper, plastics, food, tins, etc.
Hazardous substance	Any substance that is a risk to health and safety, property or the environment. Hazardous substances have been classified under the SABS Code 0288: 'The Identification and Classification of Dangerous Goods and Substances'.
Hazardous Waste	Any inorganic or organic element or compound that, because of its toxicological, physical, chemical or persistent properties, may exercise detrimental acute or chronic impacts on human health or development. Hazardous waste is classified in accordance with the 'Minimum Requirement for the Handling, Classification and Disposal of Hazardous Waste' published by the Department of Water Affairs and Forestry (1998).
Hazardous Waste Landfill Site	A waste disposal site is designed and managed to accommodate the disposal of hazardous waste substances and is permitted by the Department of Water Affairs and Forestry (DWAF).
Heritage site	A site that contains archaeological artefacts, graves, buildings older than 60 years, meteorological or geological fossils, etc.
Landowner	The individual or company that owns the land through which the servitude crosses.
Project	This refers to all construction activities associated with the proposed activities.
Rehabilitation	Rehabilitation is defined as the return of a disturbed area, feature or structure to a state that approximates the state (where possible) that it was before disruption, or to an improved state.
Solid Waste	Means all solid waste, including construction debris, chemical waste, excess cement/concrete, wrapping materials, timber, tins and cans, drums, wire, nails, food and domestic waste (e.g. plastic packets and wrappers).
Topsoil	The layer of soil covering the ground that allows for the successful germination of seeds, water penetration and is a source of microorganisms and plant nutrients.
Watercourse	A natural channel in which water flows regularly or intermittently.

1. INTRODUCTION

Rambuda Consultants (Pty) Ltd has been appointed in terms of EIA Regulations 12 (1) by Imbawula Civil Projects (Pty) Ltd on behalf of the Walter Sisulu Local Municipality as an Independent Environmental Assessment Practitioner to undertake the Environmental Impact Assessment (EIA) for the proposed development of a new Class B landfill site and associated infrastructure on the Remaining Extent of Portion 1 of the farm Melk Spruit No. 12, Maletswai, Eastern Cape Province. The EMPr is required to guide the environmental impacts and aspects associated with the cellular bridge upgrade and associated infrastructure. The document identifies and outlines measures that can be adopted for the mitigation of environmental impacts. The EMPr covers activities during the construction and rehabilitation process. It is important to note that the EMPr can be amended to incorporate any additional requirements the proponent may find necessary.

According to Section 2 (1, 2 & 3) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), all organs of state must apply certain principles set out in NEMA when making decisions that may significantly affect the environment. The key principles of this Act include that all “actions” that they approve must be economically, socially, and environmentally sustainable. It further states that “people and their needs” must be at the forefront of “its concern”, and their interests must be served equitably. These legislative requirements include, but are not limited to, the provisions of the legislation and associated policies and guidelines, as described below:

Name of Legislation, Policies and guidelines	Authority
Section 24 of the Constitution – Environment (Act 108 of 1996)	National & Provincial
National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended).	National & Provincial
The National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)	National & Provincial
Conservation of Agricultural Resources Act (Act No. 43 of 1983)	National & Provincial
National Water Act, 1998 (Act No. 36 of 1998)	National & Provincial
National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004) (NEM: AQA)	National & Provincial
National Heritage Resources Act, 1999 (Act No. 45 of 1999)	National & Provincial
Occupational Health and Safety Act (No 85 of 1993)	National & Provincial
National Environmental Management: Biodiversity Act (NEMBA, Act 10 of 2004)	National & Provincial
Draft Spatial Development Framework 2040	Municipal
National Heritage Resources Act, 1999 (Act No. 25 of 1999)	National & Provincial
National Forest Act, 1998 (Act No. 84 of 1998)	National & Provincial
Environmental Impact Assessment Regulations, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998).	National & Provincial
National Veld and Forest Fire Act, 1998 (Act No. 101 of 1998)	National & Provincial
Spatial Planning and Land Use Management Act, 2013 (Act No. 16 of 2013)	National & Provincial

Name of Legislation, Policies and guidelines	Authority
Walter Sisulu Local Municipality, Integrated Development Plan	Municipal
Joe Gqabi District Municipality, Integrated Development Plan	Municipal
Fire Brigade Services Act, 1987 (Act No. 99 of 1987)	National & Provincial
Local Government: Municipal Systems Act, 2000 (Act No. 32 of 2000)	Municipal

1.1 Objectives of the EMPr

The purpose of this EMPr is to provide an easily interpreted reference document that ensures that the project environmental commitments, safeguards and mitigation measures from the environmental planning documents, project approvals, and scope of work are implemented.

The objectives for the EMPr are:

- To develop, implement and maintain effective management systems for the environmental aspects of the landfill project.
- To document details of environmental protection infrastructure and controls so that they can provide long-term protection for the natural environment.
- To ensure compliance with relevant legislation (National, Provincial and Local), regulatory requirements and Integrated Environmental Authorisation (IEA), Waste Management Licence (WML) and Water Use Licence (WUL) conditions.
- To maximise the value and outcomes of environmental monitoring activities so that the information can be applied to the planning and implementation of future waste management projects.
- To ensure that all Environmental Management considerations are implemented during the planning, construction, operation, and decommissioning phases of the landfill site.

All the environmental specifications and the procedures discussed in this document were also developed in accordance with the relevant legislation applicable to landfill site development and management.

1.1.1 Phases of the Project

The EMPr deals with the following phases, as detailed below:

The Planning and Design Phase

Overall Goal for Planning and Design: Undertake the planning and design phase of the landfill site in a way that:

- Ensures that the design of the proposed landfill site responds to the identified environmental constraints and opportunities (e.g., groundwater sensitivity, ecological support areas, buffer zones).
- Ensures that the best environmental options are selected for all components of the project, including liner systems, leachate management, and stormwater controls.

- Ensures that there is sufficient financial provision for environmental assessment, monitoring, rehabilitation, and maintenance.

The EMPr offers an ideal opportunity to incorporate pro-active environmental management measures with the goal of attaining sustainable development. Pro-active environmental measures minimise the likelihood of impacts occurring during the construction and operational phases. There is still a chance of accidental impacts taking place; however, through the incorporation of contingency plans (e.g., this EMPr) during the planning phase, the necessary corrective action can be taken to further limit potential impacts.

In order to meet this goal, action plans for the planning and design stages of the landfill site project must be identified, together with monitoring requirements.

The Construction Phase

The bulk of the impacts during this phase will have an immediate effect (e.g., noise, dust, odour, leachate generation, water pollution, etc.). If the site is monitored on a continual basis during the construction phase, it is possible to identify these impacts as they occur. These impacts will then be mitigated through the contingency plans identified in the planning phase, together with a commitment to sound environmental management from Walter Sisulu Local Municipality and its appointed contractors.

Rehabilitation and Reinstatement Phase

This phase will involve restoring the land impacted during the construction phase back to its original state (in the case of slopes, gradients, soil profiles, and hydrology) or better.

This process will mainly involve rectifying the negative impacts that have been caused during construction by removing pollution or contaminants and other dangerous substances from groundwater, sediment, or surface water and improving the soil.

The plan identifies potential impacts during construction, including soil disturbance, erosion, compaction, loss of vegetation cover, and the spread of invasive alien plants. Rehabilitation criteria were developed to address these risks, focusing on reinstatement of disturbed soils, erosion control, alien vegetation management, and restoration of ecological processes.

Two rehabilitation categories were defined:

- Category 1 (Reinstatement): Disturbed construction areas and moderately transformed habitats requiring reshaping of soils, reinstatement of topsoil, and re-seeding with indigenous grasses.

- Category 2 (Reinstatement and Rehabilitation): Sensitive habitats such as buffer zones, watercourses and wetlands requiring fencing, search-and-rescue of flora, re-vegetation with indigenous species, and strict supervision by the Environmental Officer (EO).

The plan also sets out procedures for alien invasive vegetation control and a monitoring programme during and after construction to ensure rehabilitation success.

The Operational Phase

By taking proactive measures during the planning and construction phases, potential environmental impacts emanating during the operational phase will be minimised. This, in turn, will minimise the risk and reduce the monitoring effort, but it does not make monitoring obsolete.

1.2 Environmental Principles and Best Practice Guidelines

- The environment is considered to be composed of both biophysical and social components.
- Construction is a disruptive activity, and all due consideration must be given to the environment, including the social environment, during the execution of the project to minimise the impact on affected parties.
- Minimisation of areas disturbed by construction activities (i.e. the 'footprint' of the construction area) should reduce many of the construction-related environmental impacts of the project and reduce rehabilitation requirements and costs.
- All relevant standards relating to international, national, provincial and local legislation, as applicable, should be adhered to. This includes requirements related to waste generation and emissions, leachate management, waste disposal practices, noise regulations, and traffic ordinances.
- Every effort should be made to minimise, reclaim and/or recycle waste material.

1.3 Details of the Project Team

This section provides details on the team, which includes the proponent, the project engineers, and the Environmental Assessment Practitioner (EAP).

1.3.1 Details of the Proponent

Table 1: Details of the Proponent

Name of Applicant:	Walter Sisulu Local Municipality
Contact Person:	Sivuyile Mbobo (Waste Manager)
Address:	1 Greyling Street, Burgersdorp, 9744
Contacts	076 422 2947
E-mail:	sivuyile.mbobo@wslm.gov.za

1.3.2 Details of the Project Engineer

Table 2: Details of the Project Engineer

Name of Lead Consultant:	Imbawula Civil Projects (Pty) Ltd
Contact Person:	Mr B. Citwa (Project Engineer)
Address:	P O Box 719, Butterworth
Contacts	(012) 372 3708
E-mail:	bulelani@imbawulacp.co.za

1.3.3 Details of the Main Contractor

Table 3: Details of the Main Contractor

Name of the contractor	TBC
Contact Person:	
Address:	
Contacts	
E-mail:	

1.3.4 Details of the Environmental Assessment Practitioner

Table 4: Details of the EAP

Name of the EAP:	Rambuda Consultants (Pty) Ltd
Contact Persons:	Kabedi Mashilo (<i>Reg. EAP</i>)
Address:	Erf No. 2141, 71 Arsenic Street, Clayville X26, 1666
Contacts	Tel: 076 893 5757 Fax: 086 538 6300
E-mail:	marumo@rambudaconsultants.co.za

1.4 Organisational and Reporting Structure

For sound development and effective implementation of the EMPr, it is necessary to identify and define the responsibilities and authority of the various persons and organisations that will be involved in the project. During the construction process, all instructions and official communications regarding environmental matters shall follow the generic organogram shown in **Figure 1**.

The organisational structure identifies and defines the authority structure and the communication structure for the various parties involved in the construction of the proposed development. The structure may require revision as the project unfolds. The organisational structure must also include clear reporting lines for environmental incidents, chance finds, and water quality monitoring.

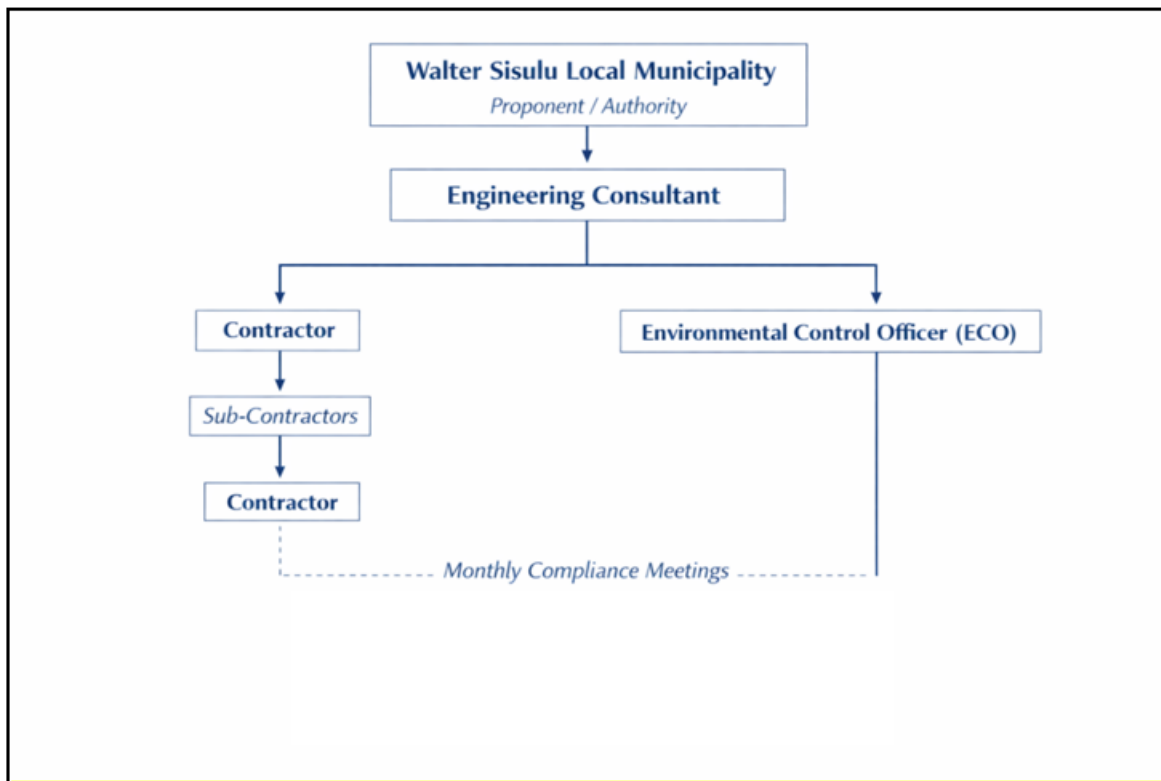


Figure 1: Project Reporting Structure.

The Project Engineer leads the structure, reporting to the Client (Walter Sisulu Local Municipality). Under the Project Engineer, the Contractor and their Sub-Contractors are responsible for construction activities, while the Environmental Control Officer (ECO) oversees environmental compliance.

The ECO must consult with the Residential Engineer regarding instructions on contraventions, corrective actions, penalties, or working methods. Except in emergencies, where instructions may be given directly to the Contractor's employees or sub-contractors, all ECO instructions must flow through the Residential Engineer in line with the GCC contract structures.

The ECO participates in monthly compliance meetings, where environmental matters and EMPr requirements are standing agenda items. The ECO is required to attend these meetings to provide input on compliance.

It is important to note that, while roles are defined, all parties are jointly and severally responsible for ensuring compliance with environmental legislation and best practices.

1.5 Roles and Responsibilities

Table 5: Breakdown of Roles and Responsibilities of the Project Team

Role	Responsibility
ECDEAT and Department of Water and Sanitation (DWS) The lead authority is responsible for compliance with all environmental legislation.	• Provide directives in terms of specific requirements for EMPr. • Undertake inspections of the site at its own discretion. • Oversee Environmental Incidents. • Issue directives, notices and/or fines for significant transgressions of the IEA WUL, ROD, EMPr, or environmental legislation.
Residential Engineer (RE)/ Project Engineer	• The RE assumes overall responsibility for the environmental aspects and management of the project. This includes compliance with all environmental regulations and good management practices for the duration of the project. • The RE is also responsible for the overall management, implementation, administration and enforcement of the EMPr. • Ensure that all designs appropriately incorporate the required environmental provisions. • Liaise with the Contractor and Environmental Control Officer (ECO) on environmental matters, as well as any pertinent engineering matters where these may have environmental consequences. • Oversee the general compliance of the Contractor with the EMPr and other pertinent site specifications. • Familiarise him/herself with the EMP specifications and further monitor the Contractor's compliance with the Environmental Specifications daily through the Site Diary and enforce compliance. • Ensure that Monthly Audits reach the contractor before the Monthly Progress Meeting. • Ensure proper rehabilitation is undertaken before site closure. Project Engineer must • Ensure that there is a sufficient budget for complying with all EMPr conditions at the tender stage. • Ensure sufficient budget is provided for rehabilitation/ Reinstatement. • Ensure proper rehabilitation is undertaken before site closure. • Ensure that all specifications and legal constraints, specifically about the environment, are highlighted to the Contractor(s) so that they are aware of these. • Ensure that Contractor(s) are made aware of all stipulations within the EMPr.

Role	Responsibility
	• Ensure that the EMPr is correctly implemented throughout the project by means of site inspections and meetings. This will be documented as part of the site meeting minutes. • Be fully conversant with the EIA for the project, the EMPr, the conditions of Environmental Authorisation (if applicable), and all relevant environmental legislation. • Ensure compliance monitoring of contractors on a day-to-day basis. • Ensure adherence and implementation of the tender requirements. • Ensure reference of specific non-compliance/non-conformance issues to the responsible units and/or contractors.
Contractor	• Understand the roles assigned in the EMPr. • Be bound to conform to the EMPr conditions through his/her contract with Walter Sisulu Local Municipality and is responsible for ensuring that he/she adheres to all the conditions of the EMPr. • Thoroughly familiarise with the EMPr requirements before construction begins and must request clarification on any aspect of these documents, should they be unclear. • Be responsible for mitigation and rehabilitation of all environmental damage at his/her expense. • Ensure adherence to, and implementation of, the environmental management specifications. • Ensure that environmental damage, whether intentional or unintentional, is prevented in the first instance, mitigated and rehabilitated, and adopt a proactive approach followed by a reactive approach. • Ensures identification of, and compliance with, all environmental laws, all bylaws and regulations. • Ensure that any instructions (whether verbal or written) issued by the site manager, project manager, site engineer or ECO, in terms of the EMPr are adhered to. • Appoint an Environmental Officer (EO) before construction commences. • Ensure that an environmental compliance report is tabled at each site meeting, which must document all incidents, complaints, and non-compliances, and their close-out progress, which have occurred during the period before the site meeting. • Provide a photographic report to Walter Sisulu Local Municipality upon request showing the close-out of identified issues. • Provide any project or compliance information that may be requested by RE in any format as requested.

Role	Responsibility
	• Ensure that proposed site camp areas, waste handling zones, and storage areas are approved by RE and ECO before establishment. • Ensure compliance with the IEA, WUL conditions and EMPr mitigation measures • Take comprehensive site photographs for before, during and after construction. • Provide a detailed, site-specific method statement for rehabilitation, which must be approved by RE and ECO. • Ensure that a report is tabled at each site meeting, which will document all incidents that have occurred during the period before the site meeting. • Ensure that the incident register is kept in the site office. • Ensure that a register of all public complaints is maintained. • Ensure that all employees, including those of sub-contractors, receive Environmental Induction before the commencement of construction in order that they can constructively contribute towards the successful implementation of the EMP (i.e., ensure their staff are appropriately trained as to the environmental obligations). • Ensure that all disturbed areas are rehabilitated and at least 85% healthy grass/ground cover has been established, that rehabilitation is maintained, the sites are free of erosion, waste and pollution of any kind, including rubble and spills, and free of weeds and alien invasive species. • Provide accurate and factual information about the projects, communications, and discussions at all times. • Is responsible for NEMA Duty of Care and the Polluter Pays principle.
Environmental Control Officer /ECO	The role of the ECO shall be to: • Act as site 'custodian' for the implementation, integration, and maintenance of the EMPr in accordance with the contractual requirements. • Ensure successful implementation of the EMPr; and • Ensure that the Contractor, his employees and/or Subcontractors receive the appropriate environmental awareness training before commencing activities. • The responsibilities of the ECO will be to: • Liaise with the Walter Sisulu Local Municipality Environmental Section and Project Engineer on the level of compliance with the EMPr achieved by the Contractor regularly for the duration of the contract. • Advise the Project Engineer on the interpretation and enforcement of the Environmental Specifications (ES), including evaluation of non-compliances. • Enforce compliance with the EA and EMPr through audit reports and checklists.

Role	Responsibility
	• Supply environmental information as and when required. • Review and approve Method Statements produced by the Contractor, in conjunction with the PM and EO. • Monitor any basic physical changes to the environment because of the construction works according to an audit schedule. • Attend regular site meetings and project steering committee meetings. • Undertake bi-weekly audits of the construction works and generate monthly audit reports. These reports are to be forwarded to the Walter Sisulu Local Municipality and the competent authority (DFFE and DWS). • Submit audit reports to the authority as per the requirements of the issued Environmental Authorisation. • Communicate frequently and openly with the Contractor and the Project Engineer to ensure effective, proactive environmental management, with the overall objective of preventing or reducing negative environmental impacts and/or enhancing positive environmental impacts. • Advise the Project Engineer on remedial actions for the protection of the environment in the event of any accidents or emergencies during construction, and to advise on appropriate clean- up activities. • Review complaints received and make instructions as necessary; and • Identify and make recommendations for minor amendments to the EMPr as and when required.
Contractor's Environmental Officer	The principal contractor must appoint an Environmental Officer (EO), who is responsible for the on-site implementation of the approved EMPr. The Contractor must ensure that the Contractor's EO is suitably qualified and competent to perform the necessary tasks and is appointed at a level such that she/he can interact effectively with other site Contractors, labourers, the ECO, and the public. The Contractor's EO ensures that all Subcontractors working under the Contractor and subcontractors abide by the requirements of the approved EMPr, and licenses/permits issued. The appointment of additional EOs and/or subcontractor EOs is at the ECO's discretion. The costs related to the implementation of the EMPr will be the responsibility of the relevant Contractor/Subcontractor. The Contractor's EO roles will include: • Prepare and present the contractor's method statement / safe work procedures/risk assessments/induction training / DSTIs (daily safe task instructions) during the construction phase and include information relating to the relevant environmental risks and appropriate mitigation measures.

Role	Responsibility
	• Support the ECO in monitoring by maintaining a permanent presence on-site. • Establishing and maintaining an environmental incident register. • Taking required corrective action within the specified time frame in respect of non-conformances and environmental incidents. • Assist in finding environmentally acceptable solutions to construction problems. • Attendance at toolbox talks and induction programmes (where relevant). • Inspect the site daily to ensure adherence to the management actions of the approved EMPr. • Prepare weekly environmental monitoring reports. • Complete a daily diary to record environmental issues and corrective measures daily. • Report any complaints to the ECO and capture these in the Complaints register. • Ensure adequate waste management, including segregation of general waste, hazardous waste, and daily cover material for landfill cells. • Ensuring that environmental signage and barriers are correctly placed and maintained.
Public	• The public plays an oversight role in compliance to environmental compliance. • Register environmentally related complaints regarding the project and the implementation of the EMPr, including issues such as odour, dust, litter, leachate management, and water quality impacts associated with landfill operations.

1.6 Non-Compliance with the EMPr

Failure to comply with mitigation measures as prescribed in this EMPr may result in future environmental problems. Penalties for non-compliance should be discussed with the Contractor on appointment. The Contractor must make every effort to motivate staff members to comply with the EMPr and enforce non-compliance penalties. Allowance must be made for the contractor to rectify all non-compliances. Failure to comply with the stipulations above could be considered a breach of the contract by the Contractor.

The RE, in consultation with or on the advice of the ECO, must issue spot fines in the form of penalties to the Contractor's payment certificate if the Contractor infringes the environmental specifications set out in this EMPr. The Contractor shall be advised in writing of the nature of the infringement and the penalty amount. The Contractor

shall be liable for the penalty, and it is his responsibility to decide on the manner to recover the penalty value. The Contractor shall also take the necessary steps (e.g. training) to prevent a recurrence of the infringement.

The Contractor is also advised that the imposition of penalties does not replace any legal proceedings the authorities, landowners and/or members of the public may institute against the Contractor. Where non-compliance has resulted in environmental damage or pollution, the penalties imposed will, as a minimum, be the cost to completely rehabilitate the damage caused including all time and costs of any specialist used to remediate the problem.

Fine or penalties may be determined by the proponent based on the fairness and severity of the transgression. A preliminary list of infringements for which spot fines and penalties will be imposed is as follows:

- Using areas outside the working areas without permission/accessing “no-go Areas”.
- Clearing and/or levelling areas outside of the working areas.
- Spillage onto the ground or water bodies of oil, diesel, etc.
- Littering on the site and its surroundings.
- Burying waste on-site and surrounding.
- Making fires on site.
- Discharging effluent and/or stormwater onto the ground or into surface water.
- Improper handling or disposal of general waste, hazardous waste, or leachate from landfill cells.
- Repeated contravention of the specifications or failure to comply with relevant instructions.
- Additional fines as determined by the ECO and added to this list.
- Damage to heritage material due to negligence or insubordination.
- Damaging any tree outside of the construction area or any tree marked for protection within the construction footprint.
- Recurring non-compliance with the condition EMPr.

The Residential Engineer Must:

- On recommendation from the ECO, may also order the Contractor to suspend part or all the works if the Contractor repeatedly causes damage to the environment by not adhering to the approved EMPr (i.e., after a warning has been issued). The suspension will be enforced until the offending actions, procedure or equipment are corrected. No extension of time will be granted for such delays, and all costs will be borne by the Contractor.
- On recommendation from the ECO, the RE may also fine the Contractor in line with Table 6 above.
- Retain records for all fines issued. Monies for the spot fine penalties must be deducted from the Contractor's monthly certificate and used as additional funds to ensure the final rehabilitation of the construction area.

1.7 Compliance with Other Policies and Legislation

The Contractor shall commit to complying with the relevant provisions of the applicable environmental legislation and associated regulations promulgated in terms of these laws, through all phases of the project.

A list of applicable legislation, not limited to the list below, includes:

Table 6: Applicable Environmental Legislation

LEGISLATION	APPLICABLE		OBTAINED	
	YES	NO	YES	NO
Environmental Authorisation in terms of Section 24 of the National Environmental Management Act, 1998 (Act No. 107 of 1998)	X			X
Water Use License in terms of Section 21(a) and (g) of the National Water Act, 1998 (Act No. 36 of 1998)	X			X
Tree License in terms of the National Forests Act, 1998 (Act No. 84 of 1998)		X		
Sections 35 and 38 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999)		X		
Mineral and Petroleum Resources Development Act, 2002 (Act No. 29 of 2002)		X		
National Environmental Management: Waste Management Act, 2008 (Act No. 59 of 2008)	X			X

1.8 Environmental Management System

The purpose of this EMP is to ensure that the environment is properly considered during the design, construction, and operations, so that negative impacts are minimised or prevented and that positive impacts are enhanced. At the same time, the EMP should provide a logical extension of the EIA, specialist studies, or any other technical planning and assessment documentation, to ensure that recommendations are implemented and that the project does not deviate from the environmental profile that formed the basis of the assessment.

1.8.1 Document Control

A formal document control system should be established. The document control system must provide for the following requirements.

- Documents are approved for adequacy before use.
- Review and update documents as necessary and re-approve documents.
- Ensure that changes and the current version status of documents are identified.
- Ensure that relevant versions of applicable documents are available at points of use.

- Ensure that documents remain legible and readily identifiable.
- Ensure that documents of external origin necessary for the EMPr are identified and their distribution controlled; and
- Prevent unintended use of obsolete documents and apply suitable identification to them if they are retained for any purpose.
- The responsibility for establishing a suitable document control system rests with the Project Manager.

1.8.2 Record-Keeping (Environmental Filing)

An official procedure for control of records must be developed to ensure that records required to demonstrate conformity to environmental standards are maintained.

The appointed contractor is therefore required to develop and maintain a procedure for the identification, storage, protection, retrieval, retention, and disposal of records as part of the EMPr. Records must be legible, identifiable, and traceable.

All records relating to the implementation of this EMPr must be kept together, be readily retrievable, and available for scrutiny by any relevant authority. **The Contractor's Environmental File must include the following as a minimum:**

- Environmental Permits (IEA and WUL).
- Approved Environmental Management Programme, with the signed Declaration of Understanding.
- Specialist Studies
- Contractor's Information.
- Contractor's Environmental Policy.
- Contractor's Organogram
- EO appointment letter, CV and Qualifications.
- Site Photographs (must be taken before, during, and immediately after construction as a visual reference).
- Site Camp Layout
- Environmental Site Rules for visitors.
- Legal Register (Site-specific)
- Environmental Aspect and Impact Register (site-specific)
- Permit registers
- Non-Conformance Register
- Environmental incident reports.
- Hazardous Substance Register
- EMPr induction Attendance Register
- Method Statements

- Waste Disposal Registers
- Waste Disposal Certificates (solid, sewer and hazardous waste)
- Monthly ECO Compliance audit reports
- Weekly EO Compliance Audit Reports
- Public Complaint Register.
- Services Agreements
 - Water and Sewer Usage.
 - Site Camp Location (agreement letters for use of municipal or private land for site camp establishment).
 - Sewer Disposals.
 - Waste Disposals.
- Record of formal external communications.
- Site Closure Certificate.

1.8.3 Auditing and Reporting Procedures

Reporting procedures must be developed at the start of the project, for conveying information from the compliance monitoring activities, and to ensure that management can take rapid corrective action should certain thresholds be exceeded. Different reporting procedures may include:

- Inspections.
- Accidents and emergencies.
- Measuring performance indicators and interpreting and acting on the indicators.
- Records of monitoring activities to test the effectiveness of mitigation measures and impact controls, as well as for compliance auditing purposes; and
- Training programmes and evidence of appropriate levels/levels/number of skills/capacities created.

All monitoring and auditing must be accompanied by applicable records and evidence (e.g. delivery slips, photographic records, etc.). All reports must be retained and made available for inspection by the ECO, the Applicant, and /or the relevant Competent Authorities.

All reports must be signed by the relevant parties to ensure accountability. The Applicant must use the audit report findings to continually ensure that environmental protection measures are working effectively on-site through a system of self-checking. The EMPr should be viewed as a dynamic document aimed at continual environmental performance improvement.

The following auditing and reporting must be required throughout the construction phase:

- **Daily Environmental Diary:** These reports must be prepared by the contractors' EO and must aim to monitor and report on day-to-day activities to ensure compliance with the relevant authorisations, licenses, permits, and the approved EMPr.
- **Weekly Compliance Reports (EO):** These reports must be prepared by the contractors' EO and must aim to provide a concise monthly performance report, including copies of relevant documents (e.g. waste manifests, incident registers, consultation register, etc.);
- **Monthly Audit Reports:** The ECO must compile monthly compliance reports (audits), which are to be submitted to the Applicant for review and correction of non-compliance issues. It is the responsibility of the ECO to report any non-compliance which is not correctly rectified. Depending on the outcome of the permitting processes, it may be a requirement to submit these to the relevant authorities.

1.9 Environmental Audits

Environmental audits must be undertaken regularly during the construction phase, at predetermined intervals. Based on the appointment, the audits will be undertaken every month.

To facilitate communication between the parties responsible for ensuring environmental compliance, a chain of command must be set up that will ensure that the ECO's recommendations have the full backing of the RE and/or Walter Sisulu Local Municipality. In this way, penalties as a result of non-compliance with the EMPr by the contractor may be justified as failure to comply with instructions from the highest authority (**Figure 1**).

1.10 Training and Induction of Contractors and Workers

All parties involved in the construction activities MUST be made aware of and be familiar with the EMPr. It is the responsibility of the EO to prepare the EMPr introduction and environmental awareness training presentation for the RE, Contractor and possibly subcontractors, including any employee member deemed necessary. This induction process should target project inception. It is then the responsibility of the Contractor and EO to ensure that training and awareness of the staff and subcontractors is provided in this regard.

Training must also include landfill-specific awareness, covering leachate management, stormwater diversion, landfill gas monitoring, odour and dust suppression, and waste handling protocols. Attendance registers must be kept in the Environmental File, and refresher training should be conducted when new staff are appointed or when significant changes to landfill operations occur.

1.11 Complaints Register and Environmental Incidents Book

The Contractor must record any complaints received from the community in the complaints register kept on-site. The lodged complaint must be brought to the attention of the RE, who will respond accordingly. The following information will be recorded:

- Time, date and nature of the complaint
- Person responsible for the investigation and implementation of remediation measures
- Response and investigation undertaken
- Actions taken and by whom.

An investigation must ensue, and a response to the complainant must be provided within **seven (7) working days**.

All environmental incidents occurring on the site shall be recorded by the contractor and submitted to the RE and copied to the ECO. The following information will be documented:

- Time, date, location and nature of the incident.
- Actions taken and by whom.
- Close Out.

The RE, or in conjunction with the ECO, will identify and authorise remediation action where necessary.

1.12 Contractual Obligation

To ensure that the EMPr is enforced and implemented, this document must be given legal standing. This shall be achieved through incorporating the EMPr as an addendum to the contract documents as conditions of the contract that must be met. This will ensure that the obligations are communicated to the Contractor, thereby ensuring that the included EMPr becomes legally binding to the appointed contractor.

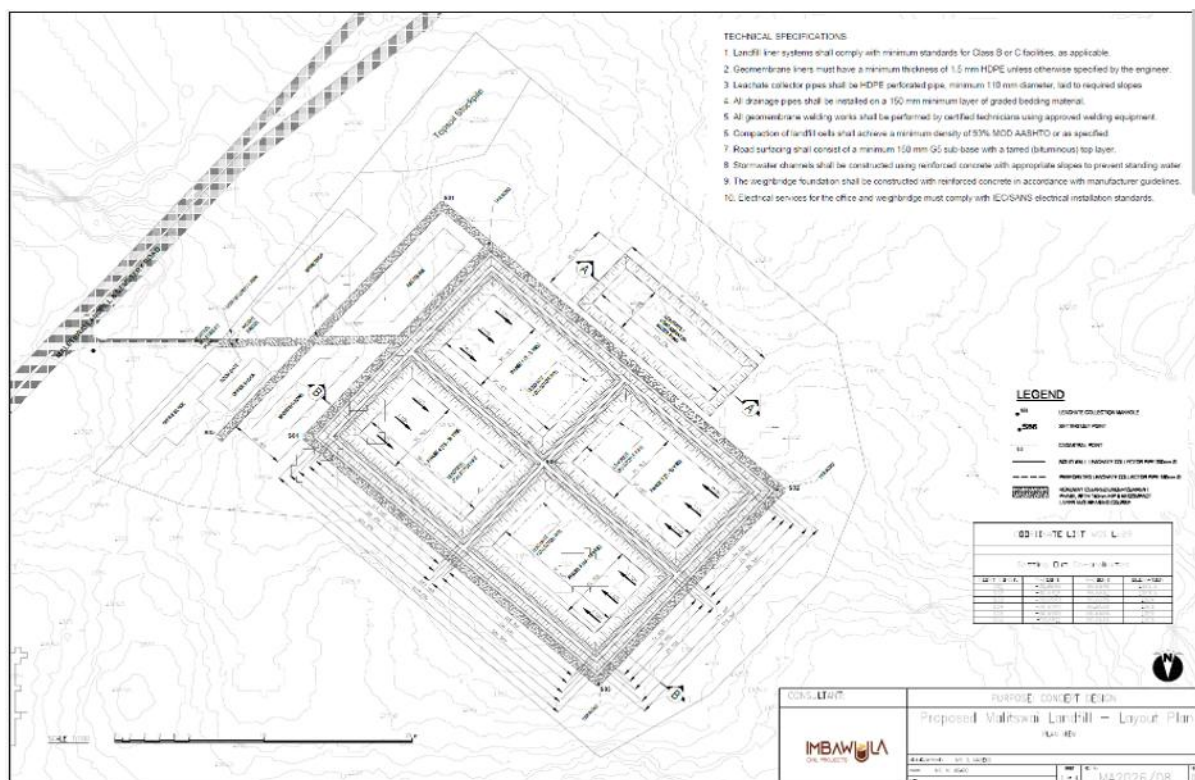
2. PROJECT DESCRIPTION

2.1 Project Scope of Works

The proposed development entails the establishment of a new Class B landfill site with a total gross landfill airspace of approximately 460 881 m³, inclusive of allowances for daily and intermediate cover, final capping, settlement, and operational inefficiencies. The facility is designed for a 20-year operational horizon, with phased in operation of four (4) engineered landfill cells ($\pm 115\,220\text{ m}^3$ each). Each cell will be constructed with a composite Class B liner system (Geosynthetic Clay Liner and a 2.0 mm textured HDPE geomembrane, adopted following geotechnical investigations which confirmed that suitable clay materials are not available on site for construction of a conventional compacted clay liner) in compliance with the National Norms and Standards for Disposal of Waste to Landfill (GN 636 of 2013, as amended 2024).

The associated infrastructure, as confirmed in the **Proposed Layout Plan (Figure 2)**, will include:

- Leachate & Evaporation dams
- Leachate monitoring and collection system (Leachate collector pipes will consist of HDPE perforated pipe, minimum 110 mm diameter, laid to required slopes and all drainage pipes shall be installed on a 150 mm minimum layer of graded bedding material).
- Stormwater Management System (to manage the dirty water channels and cut off drain)
- Material Recovery and Sorting Facility
- Access roads
- Office buildings
- Electric Connection
- Workshop
- Weighbridge (reinforced concrete foundation)
- Security Perimeter Fence
- Access control/Security House
- Topsoil stockpile and designated storage pits



The landfill will operate in four phases (Phase 1: 1–5 years; Phase 2: 5–10 years; Phase 3: 10–15 years; Phase 4: 15–20 years), with progressive rehabilitation and capping. The preferred option consists of landfill cells with an effective height of approximately 13 m (10 m above ground, 3 m below ground). This configuration provides a compact footprint of 3.55 ha (cells only), expanding to ± 6 ha with ancillary infrastructure, balancing airspace efficiency with reduced visual impact, stability, and windblown litter risk.

Coordinates of the preferred site boundary:

- Point No. 1: 30°41'29.43"S, 26°39'58.18"E
- Point No. 2: 30°41'35.28"S, 26°39'52.11"E
- Point No. 3: 30°41'27.44"S, 26°39'41.94"E
- Point No. 4: 30°41'21.06"S, 26°39'48.92"E

2.2 Project Location

The proposed landfill site is located on the remaining extent of portion 1 of the farm Melk Spruit No. 12, Walter Sisulu Local Municipality. The central coordinates of the preferred site are situated at the following coordinates: 30°41'27.97" S 26°39'46.43" E. Refer to the locality map below.

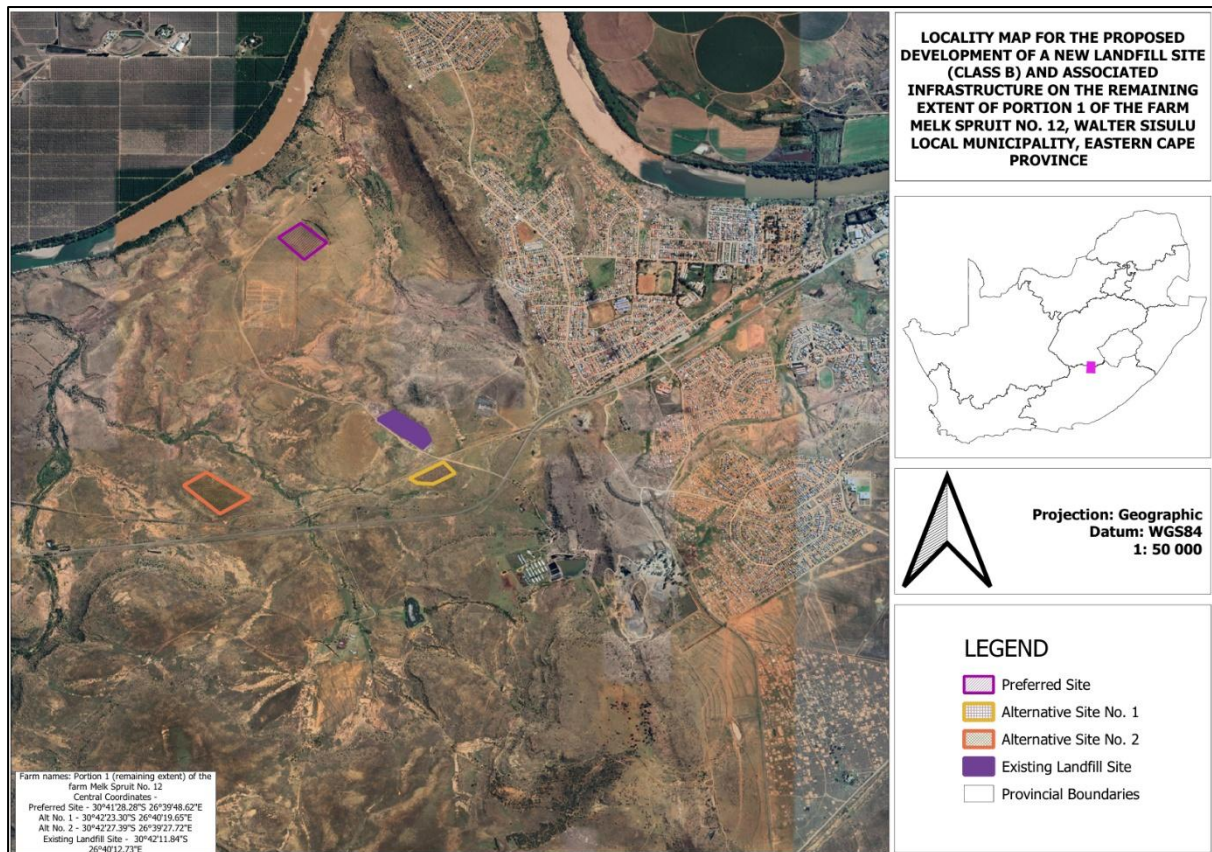


Figure 3: Locality Map of the Project

2.3 Key Activities that can have significant Environmental Impacts

Table 7: Rating of key activities with significant impact

Activities	Significance or Probability of impacts		
	High	Medium	Low
Traffic disruption during construction		x	
Transportation of equipment or materials for construction on-site		X	
Use of transportation and construction vehicles and equipment		X	
Positioning of the construction campsite		X	
Construction camp activities		X	
Noisy construction activities, such as heavy vehicles			X
Fuelling and maintenance of construction vehicles			X
Cement and/or concrete mixing and disposal of effluent		x	
Storage and use of construction material such as water, concrete, brick, fuel, oils, steel structures, equipment, construction wastes and litter. Establishment and use of concrete batching equipment and/or a concrete		X	
Disposal of construction rubble		X	
Waste management		X	
Ablution management		X	

Activities	Significance or Probability of impacts		
	High	Medium	Low
Poor maintenance and repairs to infrastructure		X	
Pollution within a watercourse			x
Operation of landfill cells		X	
Stormwater diversion and management		X	
Windblown litter dispersal beyond site boundary			x
Progressive rehabilitation activities			X

3. ENVIRONMENTAL AWARENESS AND TRAINING

The philosophy adopted in this EMPr is derived from the principles of the National Environmental Management Act, 1998 (Act No. 107 of 1998), which states that development must be socially, economically and environmentally sustainable. Sustainable development requires that:

- The disturbance of ecosystems and loss of biodiversity are avoided (minimised or remedied).
- Pollution and degradation of the environment are avoided or minimised and remedied
- Waste is avoided or minimised and re-used or recycled where possible and otherwise disposed of responsibly.
- A risk-averse and cautious approach is applied.
- Negative impacts on the environment and people's environmental rights are anticipated and prevented, and where they cannot altogether be prevented, are minimised and remedied.

NEMA makes provision that anyone who causes pollution or degradation of the environment is responsible for preventing impacts from occurring, continuing or recurring and for the costs of repair of the environment (Section 28).

3.1. Environmental Awareness Plan

The appointed contractor must ensure that all construction personnel have the appropriate level of environmental awareness and competence to ensure continued environmental due diligence and ongoing minimisation of environmental harm. The obligations of the contractor in this regard include the following:

- Employees must have a basic understanding of the key environmental features of the depot and its surrounding environment.
- Ensuring that a copy of the EMPr is readily available on-site and that all site staff are aware of the location and have access to the document.
- Employees must be familiar with the requirements of the EMPr and the environmental specifications as they apply to the construction of the facility.
- The induction must be undertaken before commencing with the site works; all employees must attend an Environmental Awareness Training course. The course must provide the site staff with an assessment of the project's environmental requirements, and how they are to be implemented.
- Awareness of any other environmental matters which are deemed to be necessary by the EO.
- Ensure that construction workers have received basic training in environmental management, including the storage and handling of hazardous substances, minimise of disturbance to sensitive areas (wetland), management of waste and prevention of water pollution
- Training must also cover landfill-specific risks, including leachate management, stormwater

diversion, landfill gas monitoring, odour and dust suppression, and litter control.

- Records must be kept of those who have completed the relevant training.
- Training should be done either in a written or verbal format, but must be in an appropriate format and language for the receiving audience
- Refresher sessions must be held to ensure the operating staff are aware of their environmental obligations.
- Therefore, before the commencement of construction activities on site and before any person commences with work on site thereafter, adequate environmental awareness and responsibility are to be appropriately presented to all staff present on site, clearly describing their obligations towards environmental controls and methodologies in terms of this EMPr. This training and awareness will be achieved in the following ways:

3.1.1 Induction Training

- Environmental induction training must be presented to all people who are to work on the site, whether for short or long durations. Contractors and Engineers staff, site staff, sub-contractors, or visitors to the site. This induction training should include discussing the Contractor's environmental policy and values, the function of the environmental legislation, permits, EMPr and the importance and reasons for compliance with these. The induction training must highlight overall dos and don'ts on site and clarify the repercussions of not complying with these. The reporting procedure must be explained during the induction as well. Opportunity for questions and clarifications must form part of this training. A record of attendance at this training must be maintained by the EO within the environmental file on-site.

3.1.2 Toolbox Talks

- Toolbox talks should be held every week, where the foreman/site supervision manager, environmental and safety representative and all employees on site hold talks relating to environmental practices on site. These talks should also include discussions on possible common incidents occurring on site and the prevention of their recurrence. Discussion of specific topics in the EMPr. Records of attendance and the awareness talk subject must be kept in the environmental file.

Table 8: Basic conduct rules during construction

Do	Do Not
Use of toilet facilities provided.	Make open fires for cooking or heating
Clear your work areas of litter and build rubbish at the end of each day.	Allow any cement bags or litter to be blown around

Do	Do Not
Report all petroleum leakages and/or spillages	Dispose of cigarettes and burning matches randomly
Confine work and storage of equipment, and comply with all safety procedures	Leave food lying around
Provide an easily accessible fire extinguisher in good working condition	Remove, cut, or damage protected threatened trees on site without a permit/license.
Use areas designated for food preparation	
Only emergency repairs of construction vehicles are allowed on the construction site	
Use all safety equipment and comply with all safety procedures	
Preventing excessive dust and noise	
Maintain stormwater diversion structures to prevent contamination.	Tamper with landfill gas monitoring equipment or venting systems.
Ensure daily cover is applied to waste to prevent odour and litter dispersal.	Burn or dispose of waste outside designated landfill cells.
Store hazardous substances (fuel, oils, chemicals) in designated bunded areas.	Dispose of leachate or contaminated water into stormwater drains.

4. IMPACTS MITIGATION AND MANAGEMENT PLAN

Table 9 below provides details of various impacts and mitigation measures that are necessary to be addressed during the various phases of the development.

Table 9: Environmental Management and Mitigation Measures that must be implemented during the planning, pre-construction, construction, and operational phases

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
Planning	To ensure readiness of the contractor to comply with all environmental requirements (i.e. IEA, WUL conditions and EMPr management actions)	- The environmental responsibilities must be formalised by signing the "CONTRACTOR'S DECLARATION OF UNDERSTANDING AND COMMITMENT TO COMPLIANCE". - The construction crew must be inducted to understand and create environmental awareness of environmental impacts. - Weekly toolbox talks must be undertaken. - The contractor must appoint the environmental officer to oversee the implementation of the EMPr. The officer must at least qualify in Natural Sciences (Environmental management/science) and have at least 2 years of experience in a construction environment. - The contractor must prepare the Environmental File for approval by the ECO before the commencement of any construction activities.	Contractor	Pre-construction	Visual inspection of the file and all related documents	- Signed Declaration of Understanding - Appointment of EO - Availability of the approved Environmental File - Induction and Tool Box talk registers - Method statements approved

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		- The contractor must include all the agreements (i.e. for site camp, water and sewer usages, etc.) in the environmental file. - The contractor must prepare method statements for the following activities: - Stockpiling of soil. - Waste management. - Sewage management. - Dust Management. - Hydrocarbon Leaks Management. - Rehabilitation management. - Alien invasive vegetation control and removal procedures. - Stormwater and erosion control measures - Chance finds protocol for archaeology and heritage resources. - The ECO may add additional method statements based on the activities on-site.				
Site Camp Establishment	To prevent unnecessary impacts on natural vegetation through the establishment and operations of the site	The site camp location must be assessed by the ECO before establishment.	Contractor and sub-contractors	Before commencement of Project	- Visual inspection - Site establishment t checklist	- Position of Site Camp approved by ECO and RE - Site Camp with proper fencing and access

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
	camp and associated access roads.	- Site layout plan must be approved before site camp establishment - Establish a suitably fenced Site Camp, which will allow for site offices, vehicles, equipment, material, and waste storage areas to be consolidated as much as possible. Should a site camp be outside the project area, an environmental screening assessment must be undertaken before establishment. - The boundaries of the site camp must be clearly demarcated, and it must be ensured that all activities remain within the demarcated footprint area. - Ensure that environmentally friendly on-site sanitation options are selected, and these facilities are properly managed and maintained. - Contractors should refrain from impacting areas beyond the demarcated construction area. - The contractor must avoid traffic or storing equipment and material in vegetated areas that will not be cleared. - Temporary laydown areas must be located outside sensitive ecological				control controlled. - Clear demarcation of no-go areas as agreed with ECO and RE. - Detailed site layout plan

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		zones (wetlands, drainage lines, and the 32 m buffer of any watercourse) and prioritise already disturbed ground. • Alien invasive vegetation must be removed during site establishment, with no kikuyu grass or alien species used for rehabilitation. • Search and Rescue of indigenous plants in affected areas must be undertaken before clearing. • Stormwater controls (i.e. silt fences, berms, gabions, etc.) must be installed early to prevent erosion during site establishment. • Prior pictures of the camp site must be taken before camp site establishment. • The contractor must self-assess the site camp establishment using the attached checklist (section 7).				
Construction Site Identification and Demarcation	▪ To prevent unnecessary disturbance and environmental impact outside the project area. ▪ To prevent disturbance of no-go areas	▪ Before construction commences, the ECO, Contractor, and RE must inspect the site and identify any sensitive environments in the vicinity of the proposed project area. ▪ Where necessary, demarcate the construction footprint areas using	Contractor and subcontractors	Before the commencement of the Project	• Visual inspection • ECO Monthly Report	• Clear demarcation of no-go areas as agreed with ECO and RE. • Proper demarcation of

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		materials as specified by the RE and/or Contractor. These may include fencing, rope, hazard tape, wire mesh, or other approved materials or means. ▪ The Contractor must maintain all demarcation fencing and other demarcating materials for the duration of construction activities or as otherwise instructed by the RE. ▪ Prior pictures must be taken before any construction activities can commence. ▪ Sensitive ecological areas, including riparian zones and identified no-go areas, must be fenced off and clearly marked to prevent disturbance. ▪ Areas with alien invasive vegetation must be identified during demarcation for removal and rehabilitation. ▪ Any archaeological or heritage find discovered during demarcation must trigger the chance finds protocol. ▪ Any deviations from the demarcated working area must be agreed upon by the Contractor, RE, and the ECO concerned.				the no-go areas.

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
The potential damage to the material of archaeological importance	To prevent the disturbance and/ Destruction of identified and unidentified heritage artefacts	- A 30-metre buffer must be maintained around the dam wall. - If any remains are found on-site that are potentially human, the Provincial Heritage Resources Authority – Gauteng (PHRA-EC) and the South African Police Service (SAPS) must be contacted immediately. - Under no circumstances may any archaeological, historical, or cultural property be destroyed, disturbed, or affected. - Any chance finds of archaeological, palaeontological, or cultural material during landfill construction must trigger the chance finds protocol. - Work in the affected area must cease until a qualified heritage specialist has assessed the find and provided guidance. - If demolition or alteration of any identified heritage structure is contemplated, a second phase of detailed documentation must be undertaken to support a permit application to PHRA-EC.	Contractor Municipality	Contractor Operational	- Visual inspection - ECO Monthly Report	No impacts on the Heritage Resource.

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		- All staff must be trained during induction and toolbox talks on recognising potential heritage materials and the reporting procedure. - Protective fencing or barriers must be installed around any identified heritage site or chance-find area until clearance is granted by PHRA-EC.				
Biodiversity Impact Management	- To prevent loss of fauna and flora species - Preventing habitat destruction - Prevent Alien Plant infestation.	- No vegetation must be removed unless necessary. The clearance must be limited to the working areas, including the corridor identified for the temporary disturbance. - No trees or shrubs may be removed if there are active bird nests in them. If found to contain nests, then a specialist or ECO must first be approached on how best to proceed. - No animal species must be poached, snared, hunted, captured, or willfully damaged or destroyed. - Snakes and other reptiles that may be encountered at the construction site must not be killed.	Contractor Municipality	Contractor Operational Closure	Visual Inspection/ inspection by Botanist/ Ecologist/ ECO	- No loss of fauna - Limited vegetation clearing - No poaching and hunting of fauna - No alien plant species

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		• Alien plant species must be removed from the camp site, stockpiles and construction areas. • No alien vegetation must be used during the rehabilitation phase of the project site and temporary laydown areas. ▪ The Contractor must ensure that the work site is kept clean and free from rubbish, which could attract pests. ▪ All construction areas should be demarcated prior to construction to ensure that the footprint of the impacts are limited only to the development footprint (including areas where vehicles may traverse); ▪ A suitable seed mix of indigenous plants should be used in all rehabilitation programmes on the site; ▪ All alien invasive species on-site should be removed, and follow-up monitoring and removal programmes should be undertaken once construction is complete; and ▪ Topsoil and subsoil should be stockpiled to conserve the seedbank;				

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		▪ Stockpiles of soil must be separate and appropriately managed for final capping of the site; ▪ No hunting or trapping of animals must be permitted on or adjacent to the construction site; ▪ Any animal that falls into excavations or is found elsewhere on site should be caught by a specialist and released back into the environment. ▪ Workers must be limited to areas under construction, and access to neighbouring agricultural lands must be strictly regulated ("no-go areas" through all stages of the project), preventing uncontrolled hunting and poaching. ▪ Construction should be limited, where practical, to the daylight hours, preventing disturbances to the nocturnal activities of certain species and nearby human populations. ▪ Clearance must be limited to the required infrastructure at the time. ▪ Waste must be covered at the end of each day.				

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		- Litter fencing must be maintained throughout the operation phase of the project. - No disposal of waste must be allowed outside any cell. - No hunting or trapping of animals must be permitted on or adjacent to the construction site; - Any animal that falls into excavations or is found elsewhere on site should be caught by a specialist and released back into the environment. - Progressive rehabilitation of the construction site must include indigenous vegetation re-establishment to restore biodiversity.				
Littering/ Pollution of the environment with waste Materials (Solid Waste)	- To promote waste minimisation - To prevent land contamination from waste	- Refuse bins with lids must be provided for different waste streams at the construction camp and site crew. These must be labelled. - Refuse bags must be provided to different construction sites/ crews for the collection of solid waste. - A Serviced Provider with the necessary accreditation to transport and dispose of hazardous waste must be appointed.	Contractor Municipality	Contractor Operational Closure	- Visual inspection/Environmental inspection checklist. - Legal Documents: Transport and disposal certificate for transporting general or hazardous waste.	- No Littering observed onsite - No Soil contamination observed onsite from waste management practices.

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		▪ Toolbox talks must include a component on efficient waste management practices. ▪ Illegal dumping is forbidden. No dumping of builders' rubble or other materials within the surrounding areas. ▪ The contractor must retain the waste disposal certificate within the environmental file. ▪ Waste (domestic) must be removed daily and stored in an appropriately designated area within a skip (covered) in the construction camp until disposal ▪ Rubble and general construction waste on site must be removed frequently into a landfill site, with proof of disposal retained in the environmental file. ▪ Hazardous waste is not permitted to be mixed with general waste and disposed of at permitted sites. ▪ Burning of waste is not permitted. ▪ Absorbent materials used to clean up spillages must be disposed of as hazardous waste. ▪ All hazardous waste must be disposed of in a registered hazardous waste disposal facility.				

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		▪ Good housekeeping must always be practised. ▪ Photographic records of waste storage and removal must be kept for audit purposes. ▪ Disposal of waste must be in accordance with relevant legislative requirements. ▪ General waste can be disposed of at the disposal site with prior permission from the Operations Manager. All waste must be weighed and recorded before disposal. ▪ The Contractor must familiarise themselves with the definitions of waste and the handling, storage and transport of waste as prescribed in the applicable environmental legislation. ▪ Burning of waste will not be permitted. ▪ Monitoring of the waste received within the site. ▪ The disposal activities to focus on at the cell at the time. ▪ The litter fence must be maintained. ▪ Open and maintain a compliance register, and all complaints must be investigated and resolved.				

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		- Daily covering the waste. - Collection of litter along the fence lines.				
Odour, litter and vectors	- Reduce odour in the surrounding area. - Reduce areas for vectors	- Odour monitoring through water and gas monitoring. - The active landfill working face should be maintained at the smallest practicable size consistent with safe landfill operation. - Incoming waste should be promptly: Receive waste → Spread → Compact → Cover → Inspect. - Effective compaction and covering will reduce exposed waste surfaces and thereby assist in controlling odour, windblown litter and direct gaseous emissions. - Waste should not remain unnecessarily exposed overnight where operationally avoidable. - Landfill gas management should form an integral component of the operational and post-closure management system. - The landfill operator should monitor for evidence of: - Methane accumulation; - Uncontrolled gas venting;	Municipality	Operational and closure	- Auditing report - Visual assessment	- Limit vectors, scavengers, odours onsite. - Limited complaints regarding the matters.

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		○ Cracks in landfill cover; ○ Gas migration; ○ Persistent odour; ○ Vegetation stress potentially associated with gas migration; and ○ Abnormal conditions around landfill-gas infrastructure. ▪ Where landfill gas generation becomes significant, appropriate passive or active gas-control infrastructure should be implemented in accordance with the final engineering design. ▪ Odour management should focus on prevention at source. The principal controls should include: ○ Rapid compaction of deposited waste; ○ Regular application of appropriate cover; ○ Minimisation of the active working face; ○ Effective landfill-gas management; ○ Appropriate leachate management; ○ Prevention of stagnant contaminated water;				

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		○ Rapid management of unusually odorous waste; ○ Maintaining good housekeeping; ○ Preventing accumulation of decomposing waste outside designated disposal areas; and ○ Investigating odour complaints promptly. ▪ H₂S should receive particular attention because the field assessment recorded a comparatively elevated result at the existing waste-influenced MP03 location. ▪ Persistent odour beyond the landfill boundary should trigger investigation of the active working face, landfill gas, leachate infrastructure and other potential sources. ▪ Windblown litter is particularly important because of the open landscape surrounding the development and the potential for lightweight material to affect grazing land, roads and the natural environment. The landfill should therefore implement: ○ Perimeter fencing;				

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		○ Appropriately positioned litter-control fencing around active working areas; ○ Rapid waste compaction; ○ Regular covering; ○ Routine collection of windblown material; ○ Increased inspections during windy conditions; and ○ Immediate retrieval of waste transported beyond the authorised landfill footprint. ▪ Construction and landfill equipment should be maintained in good operating condition. Management measures should include: ○ Routine servicing; ○ Prevention of excessive engine idling; ○ Removal or repair of visibly smoking equipment; ○ Efficient vehicle routing; ○ Avoiding unnecessary trips; ○ Maintaining internal roads; and				

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		○ Ensuring waste-delivery vehicles comply with applicable roadworthiness requirements. ▪ These measures will assist in limiting NO_x, particulate matter and other combustion-related emissions. ▪ Open or uncontrolled burning of waste should be prohibited. ▪ Any landfill fire should be treated as an environmental incident because it may generate substantial particulate matter, smoke and gaseous pollutants. ▪ The facility should maintain appropriate fire-prevention and emergency-response procedures, including access to suitable firefighting resources and clear reporting responsibilities. ▪ Leachate and contaminated-water infrastructure should be operated to minimise odour generation. ▪ The operator should avoid prolonged accumulation of stagnant contaminated water where practicable and regularly inspect the leachate collection system and Pollution Control Dam.				

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		- Where persistent odour is identified around these facilities, the source should be investigated and corrective action implemented. - Particular attention should be given to SR01, SR02, SR05 and SR06 because these represent educational, accommodation or residential receptors with potentially prolonged human exposure. The receptor map confirms their distribution within the adopted 5 km assessment area. - SR01, representing Vumile Primary School and the surrounding residential area, should be considered a high-priority receptor for dust and particulate management. - Air quality complaints originating from these receptors should be formally recorded, investigated and linked to meteorological and operational conditions at the time of the complaint. - An air quality complaints register should be maintained throughout landfill operation.				

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		- Spray neutralizing agents along the site edges when needed. - waste trucks entering the landfill site must cover their loads with nets or tarps. - Crush and cover waste tightly so pests cannot burrow or feed easily. - Hire professional pest control services to spray or trap rodents and flies. - Fill puddles and manage drainage so mosquitoes do not breed in standing water.				
Pollution of the environment by wastewater (sewage)	- To prevent soil pollution - To prevent odour from sewer	- The contractor must provide adequate waterborne/chemical sanitation facilities for the construction camp and construction team. - Effluent must not be discharged into the natural environment, and defecating in the bush/surrounding area is prohibited. - The toilets shall be placed outside of areas susceptible to flooding. - Any leakages must be addressed immediately. - The contractor must retain the sewer disposal certificate within the environmental file.	Contractor Municipality	Contractor Operational Closure	- Visual inspection - Records of waste disposal certificates and collection receipts	- Availability of toilets onsite - No sewer leakage or spillage

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		- Sanitation facilities must be serviced at least weekly by an accredited provider to prevent overflow or leakage. - Ensure that no spillages occur when the toilets are cleaned or emptied. Repeated incidents of spillage of chemicals and or waste (i.e., more than one incident) will require toilets to be placed on a solid base with a sump. - septic tank must be monitored and collected prior to being full. - Annual leak assessment must be undertaken.				
Water Supply and water Quality Management	- To promote water conservation - To prevent illegal abstraction of water - To prevent drinking water with poor water quality. - to protect water against pollution.	- In the event of a spill of potential pollutants that would be at risk of entering any nearby surface water feature, the spill must be fully remediated and pollutants removed. Should pollutants enter a surface water feature, full remediation of the polluted area within the surface water feature must be undertaken. - Contaminated water should be directed into the correct disposal system, and none should go into the stormwater system.	Contractor	Duration of the construction and during operation	- Visual inspection - Water usage register - Borehole water quality testing results	- WUL in place for water abstraction - Recorded water usage

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		- Construction should be avoided within 100 m of the edge of a natural surface water body; - A surface water monitoring plan should be implemented to ensure that no significant impacts are affecting the watercourses in proximity to the construction site. - Demarcated areas where waste generated by construction activities can be safely contained and stored temporarily for the construction phase should be lined and bunded. - All hazardous materials, inter alia, paints, turpentine and thinners must be stored appropriately to prevent these contaminants from entering the environment; - Install a dirty-water collection system to prevent contaminated water from entering the natural system. This water should be recycled or reused; otherwise, responsibly disposed of off-site. - Demarcate the “no-go” areas with tape and ensure that the demarcation				

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		remains in place for the duration of the construction works. ▪ Install an authority-approved barrier system at the new landfill facility to prevent contamination of the soils and water bodies. ▪ Ensure that a WULA is obtained from DWS before commencement of any work within the site; ▪ An alien invasive control programme needs to be established and maintained through all phases of the development; and ▪ 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. ▪ Maintain a substantial protective separation between the waste disposal footprint and the Orange River and associated drainage features. ▪ Ensure that clean stormwater is diverted around the landfill and that contaminated runoff cannot discharge towards the Orange River. Settling ponds/maturation ponds are required				

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		into which all polluted stormwater and leachate should be diverted and prevented from leaving the site. ▪ Implement appropriate landfill containment/leachate management and progressively cover exposed waste. The National Norms and Standards for Disposal of Waste to Landfill provide requirements relating to containment barriers, drainage layers and landfill design. ▪ Establish a surface-water and groundwater monitoring programme, with sampling locations selected to detect any potential migration of landfill-related pollutants towards the Orange River. ▪ The landfill should be shaped in a manner that runoff will be channelled away from the site. ▪ Sizing of ponds (leachate management) is designed to meet standards and norms. Full compliance with the engineering designs. ▪ Maintenance of the landfill liners ▪ Due to the standard cell operation method used for the landfill, which				

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		stipulates that only one cell will be operational at any given time, stormwater will be minimal. - A surface and groundwater monitoring programme must be implemented as per the Geohydrological Study and the monitoring plan. If the monitoring data indicates the need for corrective action, the magnitude of the impact must be assessed by an appropriately qualified and experienced specialist, and the necessary measures are put forward based on the magnitude of the impact. - Regular maintenance of the stormwater and leachate management system should be undertaken in accordance with the maintenance requirements (Operational Plan and Engineering Designs) to ensure that leachate and stormwater run-off are effectively diverted and contained on site.				
Groundwater Management	To prevent water pollution	- Secondary containment for all fuel stored on site. - Accurate oil records must be kept. - Ensure clean-up protocols are in place and followed.	Contractor Municipality	Contractor Operational Closure	- Visual inspection - ECO Report. - Water Monitoring Reports	No groundwater contamination

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		▪ Temporary ablutions must be provided for construction employees. ▪ Install clean and dirty water cut-off trenches to ensure that clean water is kept clean, and dirty water is contained. ▪ Ensure a suitable barrier system (i.e. composite barrier system of suitable protection layers/liners, and leak detection system) is installed below all contaminated areas to ensure that leachate from the facility does not enter the environment; and ▪ Install a groundwater monitoring system that ensures that early detection of groundwater pollution can be detected. ▪ Ensure that the mitigation measures documented in the construction phase are implemented, especially the installation of a suitably designed barrier system below the facility. ▪ The stormwater management plan must minimise the influx of clean water into dirty water containment areas. ▪ Implementation of the underground monitoring programme.				

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		- Effective monitoring and maintenance of the leachate interception and stormwater management system according to the stipulations in the related reports (Operational Plan and Engineering Designs) to ensure that leachate and stormwater run-off do not pond on the surface and side areas of the landfill. - Lining of the landfill cells, stormwater and leachate management systems as per the recommendations of the Design Reports (Appendix D) where it is proposed that a double liner system or equivalent Class B barrier system be installed. - In the maintenance of the ponds, care must be taken not to damage any HDPE liners. Personnel should avoid walking on the liners. Scratches can compromise the service life of a liner. Tears or deep scratches to the exposed liner should be noted and repaired where necessary by a specialist Contractor. It is possible to have patches welded over damaged areas of the liner. Regular inspections				

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		of the exposed liners should be carried out as part of routine maintenance. For both ponds, should desilting or removal of precipitated solids be required, absolute care must be taken not to damage the liners. Only plastic spades should be used. Care must also be taken not to damage the HDPE liners with herbicides or "weed eaters" another type of grass-cutting machine. Where damage is noted, the operator should call in a professional liner installer to repair the damage. The liners are UV-resistant and resistant to most chemicals. However, as the quality of the leachate can vary with time, the ponds should be monitored for unexpected degradation. ▪ Maintenance of both the stormwater and leachate drains should be carried out on a regular basis. The v-drains associated with stormwater management require simple desilting. This may be achieved manually without any additional equipment. The silt trap will also require regular desilting which may be done by hand				

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		or with a skid steer via the access ramp. Leachate drains should be monitored by regular inspections of the manholes located every 40 m. If blockages occur, specialist rodding equipment may be required for unblocking. A standby borehole pump may be kept on site in case of significant blockages requiring the extraction of leachate. ▪ Pumps must be maintained as per their specifications. This may require periodic service and possible replacement. The enhanced evaporation system is designed and includes accessories to minimise operational maintenance. ▪ Ongoing groundwater monitoring of the Landfill and pollution control pond area should be conducted.				
Cement mixing	▪ To prevent land and ground water contamination from cement wastewater	▪ Mixing of cement must be done on mortarboards or similar structures to contain surface run-off. ▪ No mixing directly on the ground is allowed. ▪ No cement mixing outside the working areas is allowed.	Contractor Municipality	Contractor Operational Closure	• Visual inspection • ECO Report.	• No contamination of land and underground water

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		▪ The visible remains of the batch and concrete, either solid or from washing, must be physically removed immediately and disposed of as hazardous waste. ▪ Cleaning of cement mixing equipment must be done on proper cleaning trays. ▪ No cement or cement containers must be left lying on the ground. ▪ Surface runoff from the mixing area must be contained and directed into a collection point. ▪ Cement bags must be considered “waste” and therefore stored and disposed of at a licensed waste disposal facility. ▪ Waste concrete and cement sludge must be scraped off the site and removed to an approved disposal site. ▪ All visible remains of excess concrete must be physically removed and disposed of at an approved disposal site. ▪ Washing of the remains into the soil is not permitted.				

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		- Any accidental cement spillage into the river or buffer zones must be remediated immediately under ECO supervision. - Use Ready-Mix concrete rather than batching where possible. - Ensure that no cement truck delivery chutes are cleaned on site. Cleaning operations are to take place off-site at a location where wastewater can be disposed of in the correct manner. If this is not possible, a suitable washing facility is to be developed on site in consultation with the ECO. - Photographic records of cement mixing areas and waste removal must be kept for audit purposes. - Rehabilitation of any areas impacted by cement residue must be undertaken immediately, using indigenous vegetation.				
Impacts on Soils, Geology, Agricultural Potential and Land Use	- To prevent loss and contamination of soil that can be used for rehabilitation purposes. - To prevent soil erosion	All excavations (if not working in the area) should be barricaded/covered to prevent safety and environmental accidents. Erect signs and/or danger	Contractor Municipality	Contractor Operational Closure	Visual inspection	- Availability of unspoiled soil material. - continuation of the grazing activities

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
	- Minimise impacts on agricultural land - Protection of surrounding plantations (i.e. walnuts)	tape around the exposed excavations to warn the public of the inherent dangers. - Minimise the time taken to complete each operation that is causing inconvenience or disruption in this area. - Soil should be exposed for the minimum time possible once cleared. - All stockpiles must not exceed a height of 2.0m. - Stockpiled soil must be protected by erosion- control berms if exposed for a period of greater than 14 days during the wet season and seeded. - The contractor should remove 150mm of topsoil and stockpile it at a height of not more than 2m. - Topsoil should be temporarily stockpiled, separately from (clay) subsoil and rocky material, when areas are cleared. If mixed with clay subsoil, the usefulness of the topsoil for the rehabilitation of the site will be lost. - Stockpiled topsoil should not be compacted and should be replaced as the final soil layer. No vehicles are				within the close proximity of the site. continuation of the plantations around the project area.

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		allowed access onto the stockpiles after they have been placed. ▪ Ensure that stockpiled material is not lost due to exposure to the runoff. If the stockpiled material is in danger of being washed or blown away, it must be covered with a suitable material, such as hessian ▪ Covering stockpiles with plastic is not permitted. ▪ Where contamination of soil is expected, analysis must be done before disposal of excess soil to determine the appropriate disposal route. Proof from an applicable waste disposal site where contaminated soils are dumped, if and when a spillage/leakage occurs, must be forwarded to the ECO. ▪ All accumulated and surplus excavated material should be disposed of in a suitable place and manner to prevent translocation of invasive plant species, modification of drainage and contamination of surface water ▪ Topsoil stockpiles must be kept free of weeds and litter.				

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		▪ Stockpiles must be protected from the wind, rain and traffic. ▪ Photographic records of excavation and stockpile areas must be kept for audit purposes. ▪ Disturbed areas of natural vegetation, as well as excavation areas, must be rehabilitated immediately to prevent soil erosion. ▪ Remove and store topsoil separately in areas where excavation/degradation takes place. Topsoil should be used for rehabilitation purposes in order to facilitate the regrowth of species that occur naturally in the area. ▪ Secondary containment for all fuel stored on site. ▪ Accurate oil records must be kept. ▪ Limit the area disturbance to the landfill footprint. ▪ Maintain fencing and appropriate livestock access. ▪ No burning of waste must be allowed onsite. ▪ Ensure clean-up protocols are in place and followed.				

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		▪ Use of drip trays underneath any stationary vehicle. ▪ Collection of contaminated soil using the spill kit. All leakages onto soils should be cleaned immediately. ▪ Effective monitoring and maintenance of the stormwater management system in accordance with the stipulations in the Operational Plan and engineering designs to ensure there are no leakages of contaminated leachate and stormwater into the soil. ▪ All leakages onto soil should be cleaned immediately. ▪ Drains and silt traps must be de-silted regularly. ▪ Use of drip trays underneath any stationary vehicle. ▪ Collection of contaminated soil using the spill kit. ▪ Maintain fencing and appropriate livestock access. ▪ No burning of waste must be allowed onsite. ▪ Land outside the authorised landfill footprint should remain available for its				

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		existing agricultural function wherever practicable. - Construction workers and contractors should not unnecessarily disturb surrounding grazing areas, damage fences, create unauthorised access tracks or interfere with livestock. - Where existing livestock access routes or fencing are affected by construction, appropriate arrangements should be made to maintain livestock management and prevent animals from entering active construction or landfill areas. - Compact and cover deposited waste promptly; - Apply effective dust suppression to unpaved roads and active earthworks; - Implement and enforce vehicle speed limits; - Minimise unnecessary exposed surfaces; - Retain surrounding natural vegetation where compatible with engineering and safety requirements; - Planting of high treetops along the four sides of the landfill site.				

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		▪ Install and maintain appropriate litter-control fencing; ▪ Retrieve windblown waste outside the operational footprint; ▪ Prohibit uncontrolled burning of waste; ▪ Implement landfill-gas monitoring and management; ▪ Manage leachate and contaminated water to prevent persistent odour; ▪ Progressively rehabilitate completed and disturbed surfaces; ▪ Undertake particulate and landfill-gas monitoring; ▪ Open or uncontrolled burning of waste should be prohibited. ▪ Any landfill fire should be treated as an environmental incident because it may generate substantial particulate matter, smoke and gaseous pollutants. ▪ The facility should maintain appropriate fire-prevention and emergency-response procedures, including access to suitable firefighting resources and clear reporting responsibilities.				
Air Pollution	▪ To prevent air pollution	▪ Ensure that vegetation clearing is limited to only the areas where construction will take place.	Contractor Municipality	Contractor Operational Closure	• Visual inspection • EO Weekly Reports	• No air pollution complaints.

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		▪ Ensure that “no-go” areas are staked and marked clearly prior to construction commencing. ▪ Prevent construction vehicles from riding all over the site, and ensure that they stick to pre-determined routes and low speeds; ▪ Sequence the construction methodology in such a way as to reduce the area of exposed soil to its minimum extent practically possible; ▪ Use chemical dust suppression (such as dust-a-side) on areas to be frequently used; and ▪ Regularly undertake dust suppression using uncontaminated water to ensure that dust mobilisation is prevented. ▪ Dust nets must be utilised when working in heavy winds. ▪ Ensure that vegetation clearing is limited to only the areas where construction will take place; ▪ Ensure that “no-go” areas are fenced to ensure that ongoing maintenance activities do not unnecessarily impact the wider area.			• ECO Monthly reports	• No dust nuisance

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		▪ Use chemical dust suppression (such as dust-a-side) on areas to be frequently driven; ▪ Regularly undertake dust suppression on all gravel roads using uncontaminated water to ensure that dust mobilisation is prevented. ▪ Odour monitoring through water and gas monitoring. ▪ Internal haul roads should therefore be maintained in a condition that minimises loose surface material. ▪ Water suppression should be undertaken according to actual conditions rather than a fixed schedule only. Increased watering may be required during dry periods, particularly when relative humidity is low and winds are sufficient to entrain loose material. ▪ Vehicle speeds should be controlled, and unnecessary vehicle movements should be avoided. ▪ Where traffic volumes justify it, consideration should be given to stabilising or surfacing frequently used sections of the internal road network.				

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		▪ The active landfill working face should be maintained at the smallest practicable size consistent with safe landfill operation. ▪ Incoming waste should be promptly: Receive waste → Spread → Compact → Cover → Inspect. ▪ Effective compaction and covering will reduce exposed waste surfaces and thereby assist in controlling odour, windblown litter and direct gaseous emissions. ▪ Waste should not remain unnecessarily exposed overnight where operationally avoidable. ▪ Landfill gas management should form an integral component of the operational and postclosure management system. ▪ The landfill operator should monitor for evidence of: ○ Methane accumulation; ○ Uncontrolled gas venting; ○ Cracks in landfill cover; ○ Gas migration; ○ Persistent odour;				

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		○ Vegetation stress potentially associated with gas migration; and ○ Abnormal conditions around landfill-gas infrastructure. ▪ Where landfill gas generation becomes significant, appropriate passive or active gas-control infrastructure should be implemented in accordance with the final engineering design. ▪ The MP03 field results demonstrated a localised waste-related methane concentration of approximately 3 ppm compared with <1 ppm at the other monitoring points. This reinforces the importance of preventing uncontrolled landfill-gas emissions from becoming established at the future facility. ▪ Odour management should focus on prevention at source. The principal controls should include: ○ Rapid compaction of deposited waste; ○ Regular application of appropriate cover; ○ Minimisation of the active working face;				

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		○ Effective landfill-gas management; ○ Appropriate leachate management; ○ Prevention of stagnant contaminated water; ○ Rapid management of unusually odorous waste; ○ Maintaining good housekeeping; ○ Preventing accumulation of decomposing waste outside designated disposal areas; and ○ Investigating odour complaints promptly. ▪ H₂S should receive particular attention because the field assessment recorded a comparatively elevated result at the existing waste-influenced MP03 location. ▪ Persistent odour beyond the landfill boundary should trigger investigation of the active working face, landfill gas, leachate infrastructure and other potential sources. ▪ Windblown litter is particularly important because of the open landscape surrounding the development and the				

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		potential for lightweight material to affect grazing land, roads and the natural environment. ▪ The landfill should therefore implement: ○ Perimeter fencing; ○ Appropriately positioned litter-control fencing around active working areas; ○ Rapid waste compaction; ○ Regular covering; ○ Routine collection of windblown material; ○ Increased inspections during windy conditions; and ○ Immediate retrieval of waste transported beyond the authorised landfill footprint. ▪ Construction and landfill equipment should be maintained in good operating condition. ▪ Management measures should include: ▪ Routine servicing; ▪ Prevention of excessive engine idling; ▪ Removal or repair of visibly smoking equipment; ▪ Efficient vehicle routing;				

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		▪ Avoiding unnecessary trips; ▪ Maintaining internal roads; and ▪ Ensuring waste-delivery vehicles comply with applicable roadworthiness requirements. ▪ These measures will assist in limiting NO_x, particulate matter and other combustion-related emissions. ▪ Open or uncontrolled burning of waste should be prohibited. ▪ Any landfill fire should be treated as an environmental incident because it may generate substantial particulate matter, smoke and gaseous pollutants. ▪ The facility should maintain appropriate fire-prevention and emergency-response procedures, including access to suitable firefighting resources and clear reporting responsibilities. ▪ Leachate and contaminated-water infrastructure should be operated to minimise odour generation. ▪ The operator should avoid prolonged accumulation of stagnant contaminated water where practicable and regularly				

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		inspect the leachate collection system and Pollution Control Dam. - Where persistent odour is identified around these facilities, the source should be investigated and corrective action implemented. - Particular attention should be given to SR01, SR02, SR05 and SR06 because these represent educational, accommodation or residential receptors with potentially prolonged human exposure. The receptor map confirms their distribution within the adopted 5 km assessment area. - SR01, representing Vumile Primary School and the surrounding residential area, should be considered a high-priority receptor for dust and particulate management. - Air quality complaints originating from these receptors should be formally recorded, investigated and linked to meteorological and operational conditions at the time of the complaint.				

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		An air quality complaints register should be maintained throughout landfill operation.				
Storage of Vehicles, Vehicle Servicing Areas	To prevent soil pollution and possible ground water pollution	- Vehicle servicing must be done at the identified camp depot on impermeable surfaces to minimise the likelihood of petrochemical spills on the soil. In the case of accidents, polluted soil must be appropriately treated or taken away to an appropriate disposal site. - Ensure that there is always a supply of absorbent material (Spill Kit) readily available to absorb/break down any hydrocarbon spillage. - Used spares must be collected and disposed of correctly. Oil must be drained into a suitable container, transferred to a larger storage container, and then supplied to oil recycling companies. - Oil must under no circumstances be disposed of into the ground. - Any major spillage of any hazardous material must be reported immediately to ECO.	Contractor Municipality	Contractor Operational Closure	- Visual inspection - Designated area for vehicle servicing - Availability of spill kit, drip trays and fire extinguishers	- No fuel leaks and spillages onsite - No reported underground water pollution

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		- Inspect all vehicles and plants daily for leaks and spills. Repair or remove leaking equipment from the site immediately. - Stationary plants must be supplied with drip trays to prevent soil contamination after hours and when not in use. - Fire extinguishers must be readily available, - The employees must be trained in the use of the trip drays and spill kits. - Contractor's emergency response procedures for large spills must be developed and included in the Environmental File. - The storage area must be kept tidy, and the area shall be rehabilitated after use. - Records of all spill incidents, corrective actions, and disposal certificates must be retained in the environmental file and signed off by the ECO.				
Socio-Economic Impacts	- Protection of sensitive receptors. - Improving socioeconomic conditions of the area.	Any infrastructure such as roads which may be impacted by the project should be maintained in their present condition or improved upon.	Contractor municipality	Construction Operational Closure	- Health reports - Annual Audits	- Availability of reports. - complaints management

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
	Reduce health issues associated with the project	- Contractors must adhere to the rules as set down by the property owner. This aspect should be included in their scope of work to ensure that they provide the financial means to execute the necessary maintenance and repair work required. Should they disobey the local rules regarding speeding, a fine system must be implemented. - During construction, any incidents must be reported in a complaints register that should be inspected by the social/environmental monitor every week. - The contractor should have a person trained in first aid on site to deal with smaller incidents that require medical input. - For the duration of the construction phase, there must be a well-published, culturally appropriate grievance mechanism. This must be agreed with local communities at the start of the construction period in the area. The communities must give input in the process to ensure ownership.				

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		Grievances must be dealt with within a certain period. - All grievances must be recorded in a register stating the grievance, the date that it occurred and the action taken. - For the duration of the construction phase, the ECO will be responsible for assisting the aggrieved person in completing a form or submission that explains the grievance, the process followed and what the outcomes were. - Where possible, unskilled and semi-skilled labour should be employed from the surrounding local communities. - The contractor must put up signs that no recruitment will take place on site, and all jobseekers must be shown away from site. - The contractor should not allow his staff to utilise services from squatters. There must be a formal trading area for informal traders, but they must not be allowed to sleep where they trade or set up camps in close proximity to the construction camp.				

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		▪ HIV/AIDS and Sexually Transmitted Disease (STD) awareness training must form part of the induction of staff. ▪ Condoms must be freely available on site. ▪ STD and HIV / AIDS awareness training should be provided in conjunction with local NGOs or the Department of Health. ▪ The workforce must be discouraged from engaging in casual sexual relationships with local people and informed of the consequences. ▪ The code of conduct, as agreed with the affected communities and landowners, should be adhered to. ▪ No alcohol should be sold in the camps, and the amount of alcohol allowed in the camp should be limited. ▪ Prostitutes should not be allowed to enter the camp. ▪ Unspoilt natural areas should be avoided as far as possible, and infrastructure should rather be erected in areas where similar infrastructure already occurs, whilst considering cumulative impacts.				

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		- Dust suppression must be undertaken. - No construction work should take place on Sundays, public holidays or at night. - Access to the site should be controlled as far as possible. - Local unemployed people must be given preference in the recruitment process. - No open fires must be allowed. Food should be prepared off-site and transported in. Vendors must travel in and out of the area and should not be allowed in the construction area. - Refer to Agricultural and Air Quality Impact Management.				
Storage of fuel, chemicals, and associated dispensing	- To prevent soil pollution and underground water contamination - To prevent unnecessary fires, which may cause damage and risk to the environment,	- Obtain all necessary approvals where storage exceeds prescribed legislative thresholds (i.e. 29 000 L requires Environmental Authorisation); moreover, any storage of more than 1000 L might require a clearance certificate by the Local Fire Department. - Proper dispensing of fuel must be maintained. - Ensure that the location of the fuel storage area is approved by the RE and ECO.	Contractor Municipality	Contractor Operational Closure	- Visual inspection - Method statement for handling hazardous substances	Availability of Hazardous Chemical Storage

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		▪ Ensure that all liquid fuels and oils are stored in tanks with lids and that these are kept firmly locked at all times. ▪ Keep the tanks in a bunded area that has a volume of at least 110% of the volume. The floor of the bunded area must be impermeable, and the bunds must be without leaks. ▪ No smoking shall be allowed in the vicinity of the fuel storage area. ▪ Fire extinguishers must be readily available, ▪ Ensure that there is always a supply of absorbent material (Spill Kit) readily available to absorb/break down any hydrocarbon spillage. ▪ In the case of a spill, contaminated material must be removed from the site immediately and disposed of at an appropriate hazardous waste facility. ▪ Weekly inspections of bunded fuel storage areas must be conducted by the ECO to check for leaks or structural damage.				

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		- Photographic records of fuel storage and dispensing areas must be kept for audit purposes. - Contractor's emergency response procedures for large fuel spills must be documented in the Environmental File and communicated to all staff. - The refuelling must not be undertaken on-site unless in an emergency. All refuelling activities onsite must be supervised, and drip trays must be used during dispensing to prevent soil contamination. - Groundwater monitoring boreholes must be checked monthly for hydrocarbon and chemical contamination.				
Visual	minimise visual impacts of the project	- Only the footprint of the proposed site should be exposed. In all other areas, the natural vegetation should be retained; - Dust suppression techniques should be in place at all times during the construction phase. - Access roads should be minimised to prevent unnecessary dust.	Contractor Municipality	Construction Operational Closure	complaints	no complaints lodge/ or closed successfully

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		- Utilise non-shiny structures for the hard park and toilets, i.e. avoid unpainted roofs; and - Ensure that all impacted areas during construction are topsoiled and re-vegetated before commencement of the operational phase to resemble the natural landscape. - Undertake consecutive rehabilitation of the side slopes of the facility to reduce the visual impact; and - Ensure that topsoil stockpiles that will be in place for more than 2 years are seeded and vegetated. - Revegetate all the capped cells. - Plant trees along the fences of the landfill site.				
Noise Pollution	To prevent nuisance to fauna species and neighbouring communities	- The contractor must be familiar with and adhere to any regulations (including Gauteng Noise Control Regulations and SANS 10103 provisions) and local by-laws regarding the generation of noise and hours of operation. - All construction activity will take place during normal working hours (between 7 am and 5 pm).	Contractor Municipality	Contractor Operational Closure	Complaint Register	No complaints received

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		- Surrounding communities must be notified in advance of noisy construction activities (i.e. explosive). - Construction vehicles/equipment not in use must be switched off and not left idling (noise and air pollution) - Silencer units on vehicles and equipment must be kept in good working order. - Complaint register must be retained onsite. - No loud noise or music is allowed on-site. - Heavy vehicle movement to and from the landfill must be restricted to daylight hours to reduce noise impacts on nearby residents.				
Traffic Impacts	Manage traffic flow into the facility	- No person is allowed to drive more than 20 km/h on the gravel access road. This is applicable only to the access roads on site. All areas within the site itself have a reduced speed limit of 50 km/h. This is communicated to all persons by means of National Speed Signs. - When using heavy or large vehicles/equipment, "spotters" are to be	Contractor Municipality	Construction Operational	- visual - audits	- no traffic observations. - no complaints lodged or closed successfully.

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		present to assist the driver with his blind spots. Any incident or damage to a vehicle must be reported immediately as per municipal Policies and Procedures				
Site Closure/ Rehabilitation	To ensure proper rehabilitation of the site	- The site must be rehabilitated on completion of construction activities. - The original site topography must be restored as much as possible. - Areas which are compacted by the movement of construction vehicles and machinery should be ripped to ensure the recovery of natural vegetation. - Any post-development re-vegetation or landscaping exercise must use species indigenous to the area. As far as possible, indigenous plants naturally growing along the route, but would otherwise be destroyed during construction, must be used for re-vegetation /landscaping purposes. - All remaining building materials must be removed from the site. - Residual stockpiles must be removed. - Disassemble all infrastructure from the working areas and Contractors' camp,	Contractor Municipality	Construction (rehabilitation)	- Rehabilitation Plan - Visual inspection - Close-out report	Revegetated affected areas

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		including temporary office and storage structures, chemical containers, water pipes, water storage containers, etc. ▪ Drain all portable chemical toilets, being careful not to spill the contents. Transfer the contents to a permitted disposal site. ▪ Proof of waste disposal (sewage and solid waste) must be filed in the environmental file. ▪ The electronic environmental file must be prepared and submitted to the ECO. ▪ Rehabilitation must include re-contouring of riverbanks and re-vegetation with indigenous riparian species. ▪ Gabions and stormwater dissipators must be incorporated where recommended by the Geotechnical and Rehabilitation Plan. ▪ Alien invasive vegetation must be eradicated during closure, with no kikuyu grass or alien species used. ▪ Photographic records of rehabilitation progress must be kept for audit purposes.				

Aspect	Management outcomes	Management Actions	Responsible Person	Implementation timeframe	Monitoring Methods	Performance indicators
		Post-closure monitoring of water quality and vegetation recovery must be undertaken for at least 12 months				

5. EMERGENCY PREPAREDNESS PROCEDURE

This procedure is necessary to ensure that employees and contractors on site are aware of the procedure for dealing with accidental spills and leaks of hazardous material. The procedure entails the following:

- Ensure that the necessary materials and equipment for dealing with the above spills and leaks are available on-site at all times.
- The site shall have a supply of absorbent material readily available to absorb any accidental hydrocarbon spills. The quantity of such material shall be able to absorb/ deal with a minimum of 100 litres of spill.
- Contain any spill using sand brems, sandbags, sawdust or absorbent materials.
- The area shall be cordoned off and secure.
- Notify the ECO, RE and relevant authorities of any spills that occur.
- Assemble and list the relevant emergency telephone contact numbers for staff and brief staff on the required procedures. These contact details shall be listed in English, and any other relevant language, in the site office, construction camp and any other suitable areas.
- The treatment and remediation of areas affected by emergencies shall be undertaken to the satisfaction of the ECO, RE at the cost of the Contractor, where his staff have been proven to be responsible for the emergency.
- Emergency response procedures must include a chance finds protocol for archaeological or heritage material uncovered during incidents.
- Spill kits must be located at all high-risk areas, including fuel storage, vehicle servicing, and cement mixing zones.
- Water quality monitoring must be undertaken immediately after any spill affecting the Orange River, Melkspruit, or landfill leachate ponds.
- Photographic records of spill incidents and remediation must be kept for audit purposes.
- Emergency preparedness must also cover landfill-specific risks such as leachate overflows, gas vent failures and odour incidents..

6. ENVIRONMENTAL INCIDENT REPORT FORM

ENVIRONMENTAL INCIDENT REPORT

Project Name:

Project Location:

Site Agent:

Date of Incident:.....Time:.....

Brief description and cause of the incident:

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What immediate actions/control measures were taken:

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What corrective actions were taken to ensure no repeats of the incident:

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.....

EO Response to Incident and Recommendations:

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.....

Is This Incident A: ☐ First Offence ☐ Second Offence ☐ Third Offence?

Signature of EO:

Date:

Signature of Site Agent:

Date:

Signature of ECO:

Date:

REMEMBER: TO BE FACTUAL WHEN DESCRIBING THE INCIDENT.

7. SITE CAMP ENVIRONMENTAL ESTABLISHMENT CHECKLIST

PROJECT REF NO:.....DATE:.....

ENVIRONMENTAL MANAGEMENT REQUIREMENTS CHECKLIST FOR CONTRACTOR SITE CAMP ESTABLISHMENT

The purpose of the checklist is to assist the contractor and the engineer in ensuring the site camp complies with the requirements of the Environmental legislation.

No	Items	Yes	No
1.	Site Camp		
1.1	Layout plan of the site camp		
1.2	The site camp is fenced with access control		
1.3	Site camp -agreement in place		
1.4	Source of water at the site camp -agreement in place		
1.5.	Source of water for construction		
1.5.1	Municipal		
1.5.2	Borehole River Name of river		
1.6	Energy supply at the site camp -agreement in place		
2.	Designated areas within the site camp		
2.1	Designated area for parking vehicles		
2.2	Designated area for servicing construction vehicles <i>-on a concrete slab</i>		
2.3	Designated areas for fuel storage tanks/containers/browsers		
2.4	Designated area for waste storage		
2.5.	Designated area for sanitation facilities		
2.6	Designated area for construction material		
3.	Waste management		
3.1	Waste storage bins must be labelled i.e., general & hazardous waste		
3.2	Storage bins with hazardous waste (e.g. used oil, contaminated soil from oil spillage) must be in a covered area within a concrete bunded wall.		
4.	Fuel storage area		
4.1	Fuel tank capacity must be below 29 000L (municipality fire department must also be consulted)		
4.2	The fuel tank must be labelled to reflect the total capacity of the tank		
4.3	The fuel tank must be placed within a bunded wall (110% and above)		
4.4	Spill Kit		
4.5	Drip Trays		
5	Construction Vehicle		
5.1	All trucks must be provided with drip trays		
6.	Sanitation Facilities		
6.1	Waterborne flushing/ chemical toilets for Male & Female		
6.2	Mobile toilets for a construction site		

Employer representative Signature.....

Contractor representative Signature