
# DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE CONSTRUCTION OF NEW BURGERSFORT LANDFILL SITE

**CONTRACT NUMBER: FTLM/CS78/17/18**

**18 September 2019**

**PREPARED BY**

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**CONFIGURATION CONTROL**

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| **PROJECT NAME** | **:** | Construction of New Burgersfort Landfill Site |
| **TITLE OF DOCUMENT** | **:** | Draft EMPr Report |

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## Glossary

**Alternative:** Different means of meeting the general purpose and requirements of the activity, which may include site or location alternatives; alternatives to the type of activity being undertaken; the design or layout of the activity; the technology to be used in the activity and the operational aspects of the activity.

**Development:** Means the building, erection, construction or establishment of a facility, structure or infrastructure, including associated earthworks or borrow pits, that is necessary for the undertaking of a listed or specified activity, including any associated post development monitoring, but excludes any modification, alteration or expansion of such a facility, structure or infrastructure, including associated earthworks or borrow pits, and excluding the redevelopment of the same facility in the same location, with the same capacity and footprint.

**Cumulative Impact:** The impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

**Do-nothing Alternative:** The 'do-nothing' or 'No go' alternative is the option of not undertaking the proposed activity, that is, the maintenance of the status quo.

**Environmental Assessment Practitioner (EAP):** The individual responsible for planning, management and coordination of environmental impact assessments, strategic environmental assessments, environmental management programmes or any other appropriate environmental instrument introduced through the EIA Regulations.

**Environmental Management Programme (EMPr):** A detailed plan of action prepared to ensure that recommendations for enhancing or ensuring positive impacts and limiting or preventing negative environmental impacts are implemented during the life cycle of a project. The EMPr focuses on the construction phase, operation (maintenance) phase and decommissioning phase of the proposed project.

**Environmental Impact:** A change to the environment, whether adverse or beneficial, wholly or partially, resulting from an organisation's activities, products or services.

**Fatal Flaw:** Issue or conflict (real or perceived) that could result in a development being rejected or stopped. Such an issue or conflict would be considered to be a significant issue that mitigation could not address.

**Integrated Environmental Management:** A philosophy that prescribes a code of practice for ensuring that environmental considerations are fully integrated into all stages of the development and decision-making process. The IEM philosophy (and principles) is interpreted as applying to the planning, assessment, implementation and management of any proposal (project, plan, programme or policy) or activity - at local, national and international level - that has a potentially significant effect on the environment. Implementation of this philosophy relies on the selection and application of appropriate tools for a particular proposal or activity. These may include environmental assessment tools (such as strategic environmental assessment and risk assessment), environmental management tools (such as monitoring, auditing and reporting) and decision-making tools (such as multi-criteria decision support systems or advisory councils).

**Interested and Affected Party:** For the purposes of Chapter 5 of the NEMA and in relation to the assessment of the environmental impact of a listed activity or related activity, means an interested and affected party contemplated in Section 24(4)(a)(v), and which includes - (a) any person, group of persons or organisation

interested in or affected by such operation or activity; and (b) any organ of state that may have jurisdiction over any aspect of the operation or activity.

**Leachate:** Highly contaminated water which has seeped through the waste.

**Mitigate:** The implementation of practical measures designed to avoid, reduce or remedy adverse impacts, or to enhance beneficial impacts of an action.

**Piezometer:** A device used to measure groundwater levels, providing information essential to understanding site baseline information.

**Watercourse: Means:**
a) a river or spring;
b) a natural channel or depression in which water flows regularly or intermittently;
c) a wetland, lake or dam into which, or from which, water flows; and
d) any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse as defined in the National Water Act, 1998 (Act No. 36 of 1998) and a reference to a watercourse includes, where relevant, its bed and banks.

**Wetland:** Land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.

**Work Face:** The active part of the landfill where waste is deposited.

## List of Acronyms

| Acronym | Description |
|---|---|
| BA | Basic Assessment |
| BID | Background Information Document |
| CA | Competent Authority |
| CBA | Critical Biodiversity Area |
| CMA | Catchment Management Agency |
| DEA | Department of Environmental Affairs |
| DWS | Department of Water and Sanitation |
| DWAF | Department of Water Affairs and Forestry |
| EAP | Environmental Assessment Practitioner |
| ECA | Environmental Conservation Act |
| ECO | Environmental Control Officer |
| EIA | Environmental Impact Assessment |
| EIR | Environmental Impact Assessment Report |
| EMF | Environmental Management Framework |
| EMI | Environmental Management Inspectorate |
| EMPr | Environmental Management Programme |
| ESA | Ecological Support Area |
| ESS | Environmental Scoping Study |
| ESR | Environmental Scoping Report |
| FTLM | Fetakgomo Tubatse Local Municipality |
| GA | General Authorisation |
| GTLM | Greater Tubatse Local Municipality |
| GN | Government Notice |
| I&APs | Interested and Affected Parties |
| IDP | Integrated Development Plan |
| LEDET | Limpopo Department: Economic Development Environment and Tourism |
| LHRA | Limpopo Heritage Resources Authority |
| NEMA | National Environmental Management Act |
| NEM:WA | National Environmental Management: Waste Act |
| NHRA | National Heritage Resources Act |
| NWA | National Water Act |
| PPP | Public Participation Process |
| PHRA | Provincial Heritage Resources Authority |
| SANRAL | South African National Roads Agency |
| SAHRA | South African Heritage Resources Agency |
| SAHRIS | South African Heritage Resources Information System |
| SAWS | South African Weather Services |
| SEMAs | Specific National Environmental Management Acts |
| SANBI | South African National Biodiversity Institute |
| S&EIR | Scoping and Environmental Impact Reporting |
| TP | Test Pits |
| TBF | Tubatse Business Forum |
| WMA | Water Management Area |
| WML | Waste Management Licence |
| WULA | Water Use Licence Application |

# 1 Introduction

The Fetakgomo Tubatse Local Municipality (FTLM) intend to establish and operate a new Class B waste disposal site (landfill) that will cater for areas located within the Burgersfort region and its surrounding settlements. The municipality currently manages the existing Burgersfort Landfill site which is located on the eastern side of the region and serve areas like Burgersfort Town, Steelpoort, Praktiseer, Ohrigstad and mines. The existing landfill reached its design capacity in utilisation, and its allocated permit ended in 2018. Closure processes for Burgersfort Landfill site are underway as requested by law, that processes should resume a year before closure.

# 2 Project Description

The proposed development involves the establishment of a landfill site together with the accompanying buildings and facilities. It is proposed that the new landfill site will have the following facilities:

- Recycling facility (and a Buy-Back center),
- Compost facility,
- Inert waste disposal,
- Building rubble area – 30 m x 50 m,
- Composting area – 50 m x 10 m.

The footprint of the proposed landfill site is approximately 40 hectares. It is proposed that the life span of the proposed landfill site will be approximately 20years. Furthermore, the following forms part of the proposed scope of works for the landfill site:

- Electricity
- Clean and dirty storm water
- buffer zones
- Access roads
- Bulk water and sewerage supply.
- Concrete palisade Perimeter fencing
- Two main Access-controlled gates
- Parking bays for staff and visitors.
- Security guard house
- Administration block with ablution facilities, computers, and workshop
- Platform station

- Recycling facilities and sorting facilities
- Constructions of landfill cells and leachate management
- Access road and storm-water drainage management system.

**Water Reticulation**

In terms of water reticulation, a storm-water reticulation network will be placed between the kopje and the dirty water berm and the discharge will be at the SW corner area of the landfill site.

At the discharge point a headwall will be constructed together with gabion blocks and reno mattresses to assist in erosion prevention.

**Access**

Currently access to the site is via Route 1 in the NW corner of the site, which is off Penge Road this will be an internal road which will be built as part of the facility, with sufficient width for vehicular and pedestrian access.

## 2.1 Project Location

The FTLM (LIM476) intends to establish and operate a new waste disposal site (Class B Landfill) that will cater for areas within the Burgersfort region and its surrounding settlements. The land on which the proposed landfill is earmarked was donated by the then Department of Rural Development and Land Reform to GTM/ FTLM. The proposed project site is a “greenfield” site and is located on part of Portion 9 of Farm Aapiesdoorndraai 298 KT (hereafter refer to as “the site”). The project entails the construction of a new landfill on a site that has an area of 30 hectares (ha) in extent and located along Penge Road, approximately 10 km from Burgersfort Town.

The site’s neighbouring towns are: Burgersfort Town, Steelpoort, Praktiseer, Ohrigstad and mines. Figure 2-1 shows at the location of the New Burgersfort Landfill site relative to the aforementioned neighbouring towns:

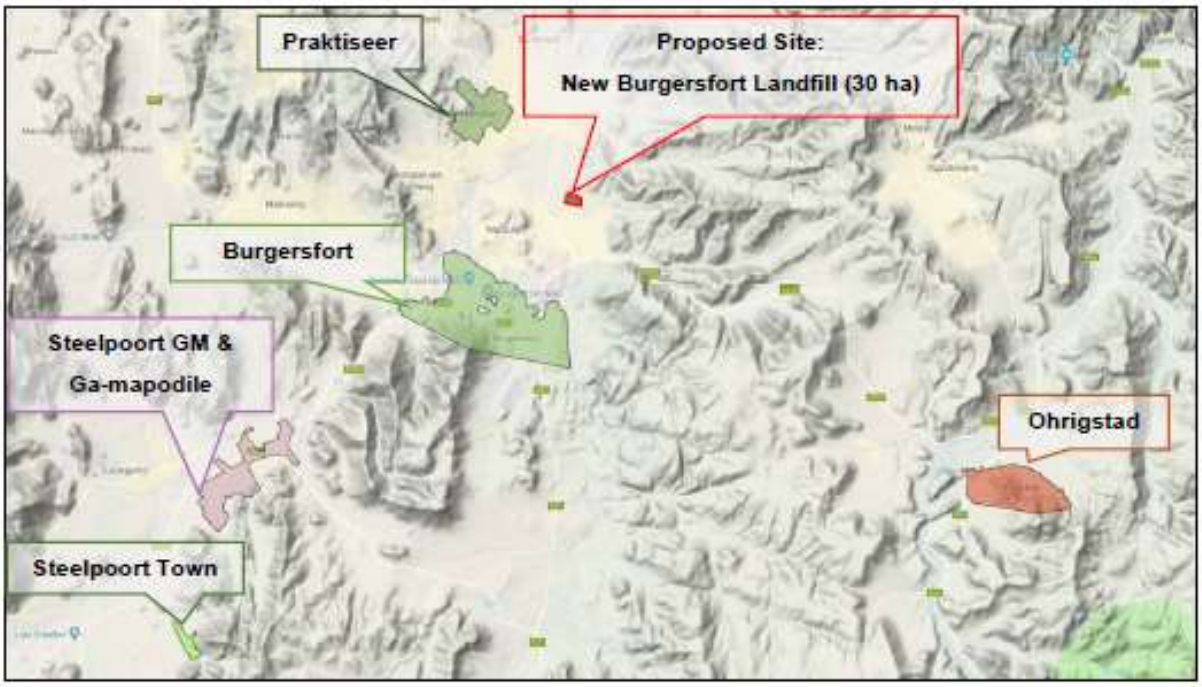


**Figure 2-1: Topographic Map Showing Site Location**

The property details and geographic coordinates for the New Burgersfort Landfill site are provided in Table 2-1.

Table 2-1: Property Details

| **Name** | Description |
|---|---|
| **Name / Erf Number** | Portion 9 of Farm Aapiesdoorndraai 298 KT |
| **SG 21 Digit Code** | T0KT00000000029800009 |
| **Physical Address** | Penge (Road 02537) |
| **Co-ordinates** | Corner 1 - 30°21'32.65"E 24°37'2.99"S<br>Corner 2 - 30°21'55.21"E 24°37'14.43"S z<br>Corner 3 - 30°21'53.69"E 24°37'25.35"S<br>Corner 4 – 30°21'28.89"E 24°37'21.50"S |

# 3 Purpose of this version of the EMPr

The EMP, which must comply with section 24N of the Act, must include all the information specified in Regulation 33 of the EIA Regulations, 2010. This Environmental Management Plan aims to address the management of the identified activities in the report.

Regulation 33 specifies the minimum set of requirements for management, monitoring and reporting of the impacts of the development on the environment. In addition, the Applicant must ensure that the contents of this document not only aim to strictly adhere to the conditions of authorisation, but also to manage the environmental impacts that may arise from the construction, operation and rehabilitation of the proposed New Burgersfort Landfill Site. In terms of the provisions of the EIA Regulations 2010; this document must also be read as a living document that must be amended or updated periodically as required.

The Competent Authority may also require the holder of the Waste Management License to provide environmental audit reports on the impacts of the authorised activity on the environment, at specified times or intervals as requested by the Competent Authority. This means that in order to comply with the Waste Management License the Applicant must make financial provision for environmental monitoring and compliance audits as a key component of the EMPr.

The purpose of this document is to outline a programme of action to mitigate and manage the impacts of the facility on the surrounding environment and to ensure that such impacts do not compromise the environment and people working on or around the site. The EMPr aims to assist the responsible parties to comply with various legislative provisions pertaining to environmental management. It is a requirement of the Environmental Impact Assessment that this Environmental Management Programme (EMPr) must be viewed as an extension to the Contractual Documents issued to the Applicant's agents – Contractors, subcontractors, Consulting Engineers, etc for implementation and compliance during various stages of construction. The EMP contains mitigation measures specific to the construction, operational and rehabilitation phases of the proposed New Burgersfort Landfill Site.

This EMP considers mitigation measures and recommendations contained in the following documents, commissioned and/or developed during the planning phase of the proposed
landfill site.

- The Geotechnical Investigation conducted by Engeolab

- Design Drawings and Site Layout Plan as done by Engineerex;
- Ecological scan conducted by Engineerex
- Heritage Impact Assessment conducted by J A van Schalkwyk (D Litt et Phil)
- Survey Report conducted by Initio Earth Sciences
- Flood Line Study by LD&S Consulting

Table 3-1 relevant laws, standards and procedures.

Table 3-1: Relevant laws, standards and procedures

| Title of legislation, policy or guideline: | Administering authority: | Promulgation Date: |
|---|---|---|
| National Environmental Management Act No. 107 of 1998 as amended. | National & Provincial | 27 November 1998 |
| The South African Constitution 108 1996 | National & Provincial | 18 December 1996 |
| SANS 1186-1: Symbolic safety signs Part 1: Standard signs and general requirements | South African Bureau of Standards | 2008 |
| Occupational Health and Safety Act (Act 85 of 1993) | National & Provincial | 1993 |
| SANS 1598: SOUTH AFRICAN NATIONAL STANDARD | National & Provincial | 2006 |
| Hazardous Substances Act (Act 5 of 1973) | National & Provincial | 1973 |
| Health Act (Act 63 of 1977) | National & Provincial | 1977 |
| National Water Act (Act 36 of 1998) | National & Provincial | 1998 |
| Municipal Structures Act (Act 117 of 1998) | Provincial | 1998 |
| Municipal Systems Act (Act 32 of 2000) | Provincial | 2000 |
| Air Quality Act (Act 39 of 2004) | National & Provincial | 2004 |
| National Environmental Management: Waste Act, 2008 (Act 59 of 2008) | National & Provincial | 2008 |
| National Environmental Management: Waste Amendment Act, 2014 (Act 26 of 2014) | National & Provincial | 2014 |
| Waste Policies; Municipal Waste Sector Plan, Integrated Waste Management Policy. | Provincial | - |
| National Norms and Standards for the storage of waste | National & Provincial | 2013 |

All other conditions that may be further specified in the Waste Management License or amendments thereto must be included in the final EMPr. This EMPr is therefore a standalone document, which will be used on the site during each phase of the development. The following complementary appendices have been attached to this document:

a. An Example of an Incident Log to be used by the Waste Management Control Officer during construction and operational phases of the development (Appendix 1);

## 3.1 Objectives of the EMP

The EMPr focuses on the management of negative impacts associated with the development activities of the proposed New Burgersfort Landfill Site on the surrounding environment. Some of these activities include: site clearing and establishment, earthworks, installation of bulk services and internal water and sewer reticulation. The EMP also outlines measures to be followed in order to reduce the social impacts of the project on local residents and adjacent properties. The aim is to prevent, reduce or mitigate the negative occupational and safety hazards and environmental impacts, while enhancing the beneficial aspects of the project. This document specifies environmental management activities for the different parties responsible for various mitigation tasks during all phases of the project. It therefore forms a key component of the construction contracts, and the specifications laid down in this EMPr will be enforceable under the general conditions of the contracts. The stated objectives of the programme are to ensure that:

- All project activities are managed in a manner that reduces or avoids negative social and environmental impacts, while enhancing positive impacts;
- Timely precautions are taken to forestall damage and claims arising from damages;
- Communication between FT Municipality, their agents, contractors and affected parties is optimised to ensure that all role-players are aware of their specific responsibilities;
- The known risk and hazards are actively managed and monitored according to guidelines laid down in this EMPr;
- The completion date of the contract is not delayed due to problems arising from neighbours' concerns with the project.
- Accurate records of environmental or social incidents, including accidents or objections and complaints are kept, so that the responsible parties are accountable in the event of claims against the Applicant;
- Environmental Audit or Compliance Reports are submitted to LEDET in terms of an agreed schedule or as and when required;
- Any improvements made in the mitigation of the EMPr due to on-going monitoring of its effectiveness are documented, and then made available for future reference.
- In order to meet the preceding objectives, an Occupational Health and Safety Officer as well as the Waste Management Control Officer must be appointed by the Applicant.

# 4 Phases of development

This EMPr also focuses on the key safety risk mitigation measures associated with the New Bugersfort Landfill site. This EMP addresses the following three phases of the development:

## 4.1 Planning and Design Phase

This EMPr provides an ideal opportunity to incorporate pro-active environmental management and safety measures to ensure that development occurs in a sustainable manner. Pro-active safety and environmental measures minimise the risks of major incidents concerning environmental impacts as well as occupational health and safety. There is still a possibility of accidental incidents taking place; however, through the incorporation of contingency plans during the planning phase, the necessary corrective action can be taken to further limit detrimental impacts arising from unforeseen/foreseen incidents. An unforeseeable event could be the lack of commitment of key role players to implement mitigation measures as proposed in this EMPr, thus a practical solution to the problem has to be sought. This emphasises the need to see this EMPr as a dynamic working tool that needs to be modified as and when necessary.

## 4.2 Pre-Construction and Construction Phase

The majority of impacts identified during this phase will have immediate effect (e.g. noise-, dust- and air pollution mainly due to vehicular traffic that may result). The other major impact could be ground water and surface water pollution; visual aesthetic impact due to the location of the proposed landfill site, thus this EMPr should suggest precautionary measures to be implemented in line with engineering designs for development of the proposed Landfill Site. If the site is monitored on a continual basis during the construction phase, it is possible to identify and mitigate impacts to ensure proper safety and environmental management practices on the part of the Fetakgomo Tubatse Municipality (the Applicant) and their Contractor(s). Possible impacts include:

- Removal and/or destruction of natural vegetation.
- Groundwater and surface water impacts pollution
- Fire hazard due to uncontrolled open fires.
- Soil contamination from oil and/or other chemicals from construction vehicles and equipment
- Loss of fauna surrounding location of proposed area.
- Surface Geology disturbance as a result of earthworks and excavation activities.
- Change in air quality due to movement of construction vehicles on unsurfaced access routes.

Figure 4-1 illustrates identification and handling of the different phases of the project:

| Activate and Communicate | Bring Incident Under Control | Audit | Recovery |
|---|---|---|---|
|  |  |  |  |
| Fetakgomo Tubatse Local Municipality | Safety, Health & Environmental Committee | Safety, Health & Environmental Audit Team | Incident Recovery Team |
| | Emergency Operations Center is located at disaster site | | |

**Figure 4-1: Four Phases of an Environmental Incident**

### 4.3 The Operational Phase

By taking pro-active measures during the planning and construction phases, potential environmental impacts emanating during the operational phase will be minimised, and where possible, avoided. This, in turn, will minimise the risk and reduce the monitoring effort, although the intention here is not to make monitoring redundant. Monitoring and periodic testing of certain critical aspects such as waste management, erosion control, ground and surface water pollution control and cell rehabilitation will still be required. The Fetakgomo Tubatse Municipality (Applicant), Health and Safety consultant, as well as the Waste Management Control Officer will be instrumental in implementing the EMPr during the operational phase.

## 5 The Rehabilitation Phase

This phase outlines as far as possible, measures to rehabilitate the environment affected by the development. The aim is to landscape all the open areas, thus indigenous vegetation must be used for the landscaping. The areas to be landscaped must be incorporated in the designs of the development. The other rehabilitation that must happen should be done concurrent to operational phase, i.e. as the active cell is closed, it must immediately be rehabilitated with grassing where possible.

## 6 Financial Provision for Implementation of the EMP

Fetakgomo Tubatse Municipality will be required to provide means and resources to implement of all aspects of the EMPr. The proposed budget for the EMPr includes professional fees for the Waste Management Control Officer and an Occupational Health and Safety (OHSO) Officer; the training of the Contractor's HSE Officer, training of the Contractors' personnel and an External EHS auditor. The

budget items are estimated in Table 6-1, and will need to be verified by Fetakgomo Tubatse Municipality.

Table 6-1: Financial Provision and Budget for the Fetakgomo Tubatse: EMPr Implementation

| *Budget per implementation/construction phase* | | | |
|---|---|---|---|
| Cost Items | Monthly (R) | Annually (R) | Remarks |
| 1. Appointment of Environmental Health and Safety Officer | 12,000 | 120,000 | |
| 2. Training of HSE Officer | 5,000 | 5,000 | Once-off |
| 3. Provision of Environmental, Health & Safety Training and Awareness for Contractors' personnel | 6,000 | 6,000 | once-off |
| 4. Travel Costs of HSE Officer | 1,000 | 11,000 | |
| 5. Telecommunication, Stationery, etc. | 300 | 3,300 | |
| 6. Specialists & ad hoc input | 1,000 | 11,000 | only as required |
| 7. Attendance of HSE Officer at HSE committee meetings | 1,200 | 13,200 | monthly |
| 8. External HSE Audits | 12,000 | 12,000 | |
| ***Total Estimated Budget*** | ***R 38 500*** | ***R 181 500*** | |

The manner in which the EMP is financed will depend upon the extent to which Fetakgomo Tubatse Municipality in-house resources are used for these tasks. The estimated cost of the EMPr is therefore conservative, and it will vary depending on the scale and duration of each phase of the project. As a minimum, it is suggested that R 181,500 is set aside for environmental, health and safety monitoring and compliance measures over a 12-month period.

# 7 Roles and Responsibilities

## 7.1 Waste Management Control Officer

It is mandatory that Fetakgomo Tubatse Municipality (applicant) appoints a Waste Management Control Officer (WMCO) to oversee all the environmental aspects relating to the development. The WMCO must be suitably qualified personnel with experience in managing environmental impacts associated with establishment and operational phases of disposal facilities. The WMCO must be appointed during the planning phase and must form part of the project management team. She/he must attend monthly project meetings, compile periodic Environmental Compliance Reports (ECRs) to evaluate compliance with the EMPr and be responsible for providing feedback on potential environmental, health and safety problems associated with the facility. The ECR must contain information on the implementation and compliance of the EMPr, compliance with the conditions of

Environmental Authorisation and compliance with any the directives of the Competent Authority. In addition, the WMCO must be responsible for:

- Liaison with relevant authorities, i.e. LEDET. This includes the submission of environmental audit reports as stipulated by the Competent Authority
- Ensuring that all activities undertaken on site are aligned to the EMPr.
- Liaison with contractors regarding environmental, health and safety compliance; thus, review the weekly reports compiled by the contractor and notify the contractor of any non-compliance with the EMP.
- Undertaking routine monitoring and appointing a competent person/institution to be responsible for specialist monitoring, whenever necessary.
- Compiling audit reports to be submitted to the project manager.

The WMCO will be responsible for monitoring compliance, rather than enforcing it. The onus is on the Applicant to ensure that the Contractor(s) complies with the conditions of the Waste Management License.

## 7.2 Liaising with Authorities

During the construction phase, the WMCO will be responsible for submitting monthly (or as required by the Competent Authority) Environmental Audit or Compliance Reports to LEDET. These audit reports will be based on the mitigation measures recommended and must include a description of the general state of the site, with specific reference to critical safety and risk issues as well as areas of non-compliance. In order to keep a record of any impacts, an environmental, health and safety incident log (**Refer to Annexure 1**) must be kept on site and maintained on continual basis.

## 7.3 Routine Monitoring and Liaising with Contractors

The WMCO will be responsible for informing the contractors of any decisions concerning the landfill site and the social environment during the construction phase of the development. This would also include informing the contractors of the necessary corrective actions to be taken against employees transgressing the management activities stipulated in this EMP. Routine monitoring would be necessary during the construction (monthly) and operational (annually) phases of this development. Internal and external audits will be conducted in compliance with the Environmental Authorisation.

### 7.4 Environmental Awareness Plan

As required in the EIA Regulations 2010, the WMCO will assist the Applicant by providing training and environmental awareness information sessions for the entire project team as well as the Contractor(s) and the Applicant's agents. The awareness training must highlight the key risks and pertinent site issues and it must explain the chosen manner of mitigating these risks in line with the EMPr and the Environmental Authorisation. Ideally, this once-off training session must be provided once the Contractor has been appointed.

## 8 Occupational Health and Safety Officer (OHSO)

The OHSO must be suitably qualified in occupational health and safety with experience in managing occupational health and safety incidents. The OHSO must be appointed during the planning phase and must form part of the project management team. She/he must attend monthly project meetings; audit the site for compliance with the Occupational Health and Safety Regulations; compile periodic health and safety compliance reports to evaluate compliance with the EMPr and be responsible for providing feedback on potential health and safety problems associated with the site. Such reports must contain information on the implementation and compliance of the OHSA Regulations.

In addition, the OHSO must be responsible for:

- Liaison with relevant authorities, i.e. Department of Labour on occupational health and safety issues
- Liaison with contractors regarding health and safety compliance

The OHSO will be responsible for monitoring compliance, rather than enforcing it.

## 9 Risks and Key Environmental Issues

### 9.1 Key issue 1: Biophysical impacts

During and after construction, there are a number of potential impacts on the biophysical environment. Such impacts must be mitigated by following the guidelines set forth in this EMPr. The WMCO is responsible for monitoring and enforcing the mitigation measures and must compile regular compliance reports concerning compliance of contractors to the EMPr. Key issues to be considered are the following:

- Poorly managed storm water which may result in severe flooding downstream during periods of high rainfall.
- Vegetation clearing and topsoil management
- Poor stock piling of soil
- Soil erosion caused by run-off
- Suitable vegetation management
- Loss of surrounding fauna as a result of habitat destruction
- Flood mitigation
- Underground seepage
- Overland leachate tank
- Rechannelling river
- Wind break
- Sludge management
- Road reinforcements
- River and aquifer protection

## 9.2 Key issue 2: The social environment

It must be emphasised that whilst there are a number of impacts relating to the occupational health and safety, fire risk and groundwater/surface water contamination, this development will be of major significance on the lives and means of livelihood of a fairly large group of people who make up the surrounding community. Therefore, a major focus of the EMPr is on reducing/mitigation the negative social impacts, while enhancing the expected positive benefits and spin-offs of the development. Two groups of people were identified as affected parties: residents of the Manoke and Dresten Villages, these communities in close proximity to the site. In this regard the social issues raised in the public consultation process must be taken into account. Therefore, implementation of the project must take into account key impacts that affect people and their well-being. The following social issues can be linked to safety hazards.

- Change in air quality due to increased dust and odour from waste body.
- Increase in traffic congestion
- Increased services
- Fire Risks
- Possible Groundwater and Surface water contamination due to leachate.

### 9.3 Key issue 3: Safety Hazards and Risks

The key issues and impacts that must be managed pertain to safety and risks that could arise due to human error or negligence leading to a major or minor incident. If the incident is a major one, with a severe impact, it is considered as a Disaster. Key negative impacts that this EMPr addresses are:

- Uncontrolled fire risks.
- Operation of dangerous construction equipment by unqualified personnel.
- Safety and health risks due to potential hazards on site such as vehicles, equipment/machinery.
- Vehicle and pedestrian accidents due to an increase in traffic.
- Fire Risks
-

## 10 Environmental Management Programme

The intention of this section of the EMPr is that it forms a stand-alone document, which can be used as an integrated environmental, health and safety management tool during the various phases of the project.

Table 12-1 forms the core of this EMPr for the planning, construction and operational phases of each phase of the development. This table must be used as a checklist on site during each phase of the development. Compliance with this EMPr must be audited monthly during the construction phase and once immediately following the completion of construction. This must be followed up with annual audits.

Table 10-1: Planning and design phase EMP

| Item | Aspect Impact/Issues | Mitigation Measures/Actions | Responsible party | Frequency of Action |
|---|---|---|---|---|
| | | **Planning & Design** | | |
| **1** | General compliance reporting | This EMPr will be made binding on the Applicant, the design team, contractors and subcontractors working on the site.<br><br>The special conditions of the contract must include provision for the strict adherence to and compliance with this EMPr as well as the general and specific conditions of the environmental authorisation. | Applicant, OHSO & WMCO | Once off |
| | | • MAP (Applicant) must appoint an Occupational Health and Safety officer (OHSO) and Waste Management Control Officer (WMCO) to oversee the safety and environmental aspects of the project respectively.<br>• The OHSO and WMCO must form part of the project management team and must attend all project meetings.<br>• They will both be required to supply the Project Manager with a monthly report, on the adherence or non-adherence of the contractors and sub-contractors to the environmental and safety guidelines contained in this EMP. An incident log (see Annexure 1) must be used to keep a record of non-compliance. | Applicant, OHSO & WMCO | Once off |
| 2 | Planning | • The construction must comply with the Waste Management<br>• Conditions, including the Minimum requirements for Disposal of Waste facilities<br>• It is the duty of the responsible person to ensure that all requirements pertaining to the operation of the landfill facility are complied with.<br>• Resources should be made available to ensure the operation of the landfill site is carried out as per the relevant legislative requirements<br>• This EMP is binding and should form part of all agreements between the applicant and contractors | Municipal Project Manager | Once off |

| Item | Aspect Impact/Issues | Mitigation Measures/Actions | Responsible party | Frequency of Action |
|---|---|---|---|---|
| | | • All recommendations from specialist studies must be incorporated in the planning phase | | |
| 3. | Appointment of WMCO | • The applicant must appoint a Waste Management Control Officer (WMCO) for the construction and operational phases, to carry out duties as described in this EMPr. | Fetakgomo Tubatse Municipality | During construction and operational phase. As and when required. |
| **Construction Phase** | | | | |
| 1. | Employment | • The contractor/applicant shall ensure that local labour is used where possible in order to improve the local economy of the area.<br>• The contractor/applicant shall employ and train local community members in waste management | Contractor/ Applicant | Once off |
| 2. | Site clearing and establishment | • The location of the site camp should be agreed on by the contractor and WMCO.<br>• The site camp should not be located on any inclined slopes; it should be further away from any water resources and should be located anywhere near environmentally sensitive area. All areas that are environmentally sensitive, including the site camp should be demarcated.<br>• The construction camp should contain waste storage areas, and should be able to accommodate all other equipment's required or to be used for the construction activities.<br>• All no go areas, within and outside of the boundary should be indicated and the personnel on site should be made aware of such areas.<br>• There should be an area designated for maintenance of construction vehicles, however this area should have an impermeable lining so to contain any spillages during servicing and to prevent soil contamination as well.<br>• A suitable area should be allocated where personnel should take their breaks. | Contractor, WMCO | Once-Off |

| Item | Aspect Impact/Issues | Mitigation Measures/Actions | Responsible party | Frequency of Action |
|---|---|---|---|---|
| | | • Prior to excavation, topsoil should be removed and stockpiled at a designated area, not susceptible to erosion.<br>• All excavated areas should be stabilised to avoid erosion.<br>• Waste should be properly management to keep the area aesthetically pleasing.<br>• Any red data Flora and Fauna encountered on site must be relocated to alternative suitable site(s) where possible. | | |
| 3. | Waste Management | • Some of the construction waste (Excavated material) can be used as fill material at other sites where required or disposed of the licensed landfill site.<br>• Construction waste, for instance unused concrete, must be disposed of at a licensed Waste disposal facility/Landfill site.<br>• No construction phase waste must be stockpiled on site.<br>• Litter bins must be provided at the site for waste generated by construction personnel.<br>• An area for disposal of waste should be allocated and demarcated on site.<br>• Where possible separation at source of waste should be carried out.<br>• No waste should be burnt on site.<br>• All hazardous waste should be separated from general waste; in addition the hazardous waste (contaminated soils) should be disposed off at a license hazardous waste disposal facility. | Contractor/WMCO | As and when required during the construction phase |
| 4. | Impact on Geology and Soil | • Proper design, monitoring and management.<br>• Installation of a leachate management system<br>• Proper sub-soil drainage systems should be constructed<br>• Building foundations must be reinforced<br>• Road structures must be reinforced | Fetakgomo Tubatse Municipality, Contractor | As and when required during the construction phase |

| Item | Aspect Impact/Issues | Mitigation Measures/Actions | Responsible party | Frequency of Action |
|---|---|---|---|---|
| | | • Topsoil removed must not be used for building or maintaining access roads but must be imported | | |
| 5. | **Surface and Groundwater**<br>Surface water pollution as a result of fuel leaks and lubricants.<br>Riverine pollution as a result of surface water run-off. | • Construction vehicles must be serviced to avoid leakages of fuels and lubricants to the soil. No servicing of construction vehicles must take place within the site, to avoid soil contamination with hydrocarbons or oils.<br>• Chemical portable toilets provided by contractors must be maintained for the duration of the construction phase.<br>• Mixing of cement must take place on impervious surfaces and the areas for mixing must be controlled by berms.<br>As informed by the Geotech and hydro reports the following mitigations were proposed for the flaws identified:<br>- A rebound of the water table will result in a shallow, pollution-prone perched water table * Identify areas prone to rebound of water table for drainage trenches<br>- Seepage is expected to emulate the site topography and flow towards the Steelpoort River, about 2km downslope from the site * Anticipate direction of the seepage flow and construct drainage directing it away from Steelpoort River<br>- Excavation depths and classes vary considerably and there are no distinct excavation patterns; the refusal depths are associated with well-cemented, hardpan calcrete with boulders and gravels in places, requiring a combination of very hard ripping, boulder excavation and blasting in places * Utilise areas appropriate for excavation and designate hardened calcrete areas to above ground landfill site activities like above ground leachate tanks, Cell method in areas suitable for excavation<br>- Private boreholes located to the south-south-west of the site are prone to groundwater pollution and a 'curtain' of monitor boreholes will be required to assess the | Fetakgomo Tubatse Municipality, Contractor | As and when required during the construction phase |

| Item | Aspect Impact/Issues | Mitigation Measures/Actions | Responsible party | Frequency of Action |
|---|---|---|---|---|
| | | groundwater movement and quality * Install impermeable membrane to curb pollution of boreholes<br>- Capping material is expected to vary from soils comprising clay-sand-silt mixes to soils with gravels and boulders mixed with calcrete-rich soils. These course soils are difficult to work with and grid rolling will be required to break down the course fraction of the capping material * Acquire capping material off site<br>- During heavy down pours, the local streams will be in flood and the site will be inaccessible * Appropriate drainage designs to ensure access throughout the year<br>- The soaked wearing course of the access road will not be able to support heavy refuse trucks * Road construction that can support heavy refuse trucks<br>- Prevailing NE winds will blow landfill fumes, gasses and smoke towards developed areas * Install a windbreak | | |
| 6. | Air Quality/Dust | • All surfaces that are not paved and generate dust should be sprayed using a water tank continuously, or other dust suppressing agents can be used to limit the generation of dust.<br>• Vehicular speed to the construction site should be regulated, in order to limit the generation of dust on houses along the access route to site.<br>• Dust monitoring process needs to be undertaken during the construction phase.<br>• Any rubble generated during construction shouldn't be left on site for more than two weeks as it will become susceptible to wind action.<br>• Unnecessary movement of construction vehicle must be avoided. | Project Manager / Contractor | Once off, As when required |

| Item | Aspect Impact/Issues | Mitigation Measures/Actions | Responsible party | Frequency of Action |
|---|---|---|---|---|
| | | • Vehicles that will be transporting building materials such as sand or rubble need to be covered or wet down to avoid the material being blown by air during windy conditions.<br>• The topsoil removal must be done in a phased manner so that large areas of unconsolidated soils are avoided.<br>• A register must be made available for reporting any excess dust from construction activities. | | |
| 7. | Noise Management | • Activities which involve excessive noise must be prohibited at certain times during construction.<br>• All construction work must be conducted only during regular business hours.<br>• When required, the CLO must inform the community of any planned noise disturbances outside of normal working hours.<br>• Construction activities must be limited to working hours (from 7am to 5p.m) during the week, not including public holidays.<br>• Shall it happen that construction will take place after working hours the neighbors/IAPs need to be notified.<br>• On site personnel should be provided with PPE to assist in reducing noise level impacts | Contractor, WMCO | Once Off, As and when required. |
| 8. | Generation of construction Waste | • Some of the construction waste (Excavated material) can be used as fill material at other sites where required or disposed of the licensed landfill site.<br>• Construction waste must be disposed of at a licensed Waste disposal facility/Landfill site.<br>• No construction phase waste to be stockpiled on site.<br>• Litter bins must | WMCO, Contractor. | Once Off – As when required |
| 9. | Visual<br>Change of visual and aesthetic aspects due to altered landscapes, | • Construction camps and stockyards should be located out of the visual field of highly sensitive visual receptors such as residents and farm communities. | Fetakgomo Tubatse Municipality, Contractor, WMCO | Once-Off |

| Item | Aspect Impact/Issues | Mitigation Measures/Actions | Responsible party | Frequency of Action |
|---|---|---|---|---|
| | landfill cells construction, and associated construction activities. | • The construction sites and camps should be kept neat, clean and organised in order to portray a general tidy appearance<br>• Rubble and other building litter should be removed off site as soon as possible or placed in a container in order to keep the construction site free from additional unsightly elements;<br>• If construction is necessary during night time, light sources should be directed away from residents and roads to prevent glare; and<br>• Dust suppression measures should be implemented; this includes regulating speeds along access routes to site. | | |
| 10. | Fire Management | • Fires must be made in designated areas only, thus away from any flammable material or an area with a high fire risk.<br>• Open fires must not be left unattended.<br>• Burning of waste on site is prohibited.<br>• Compliance reports must be compiled regularly by both WMCO and OHSO to ensure full compliance with the EMPr.<br>• The facility must be equipped with firefighting equipment which will include;<br>1. Flame arresters<br>2. Water sprinklers<br>3. Gas/ Fire detection equipment<br>4. Nitrogen and carbon dioxide blanketing equipment<br>5. Foam spraying<br>• The fire-fighting equipment should be satisfactory to the Local Fire Services.<br>• Key personnel should be allocated to manage fire emergencies. | Fetakgomo Tubatse Municipality, Contractor, OHSO | Once off, as and when required |
| 11. | Safety and Security | • Trenches which have been excavated must be cordoned off to prevent injury to people who are not aware of their existence. | Contractor, WMCO, OHSO | Continuously during construction |

| Item | Aspect Impact/Issues | Mitigation Measures/Actions | Responsible party | Frequency of Action |
|---|---|---|---|---|
| | | • Emergency contact information should be provided and displayed at the contractor's office and site entrance<br>• The use of PPE should be enforced on site at all times.<br>• The construction site must be adequately fenced off or access must be restricted to prevent unauthorised persons from entering the construction site.<br>• Appropriate medical equipment must be placed on onsite and made accessible at all times.<br>• The appropriate number of staff members must be adequately trained in first-aid in accordance with the Health and Safety Regulations.<br>• Compliance reports must be compiled regularly by both WMCO and OHSO to ensure full compliance with the EMP.<br>• 24 Hour security must be provided at the construction site.<br>• Suitable barricades must be erected to secure the site and to avoid unrestricted access to the site during construction activities. | | |
| 12. | Heritage Resources | • The HIA report recommends that any heritage resources encountered during the construction phase of the proposed development should be reported to the relevant Heritage Agency.<br>• SAHRA must be notified if any palaeontological material exposed during digging, excavating, drilling or blasting is discovered. All development activities must be stopped and a palaeontologist should be called in to determine proper mitigation measures. Especially at shallow caves.<br>• A Section 37(2) agreement of the Occupational, Health and Safety Act 85 of 1993 should be signed with the relevant contractors to protect the environment and adjacent areas as well as for safety and security reasons.<br>• All activities should stop for further indication in terms of commencement from the competent authority after | Contractor, WMCO | As when required |

| Item | Aspect Impact/Issues | Mitigation Measures/Actions | Responsible party | Frequency of Action |
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| | | investigations have been commissioned and concluded with recommendations.<br>• All personnel should be made aware of any existence of heritage resources (Burial site and Kraal) and the procedure to follow when encountering such resources. | | |
| Operational Phase | | | | |
| 1. | General Requirements | • A landfill site maintenance plan should be compiled or adopted if Fetakgomo Tubatse local municipality has one in place<br>• Records and administration process should be maintained, this must include but not limited to:<br>• Emergency preparedness plan, Rehabilitation plan, operational plan, Service plan, Health Safety and Security plan, Air quality monitoring plan and water quality management plan.<br>• Records of Environmental awareness trainings should be kept.<br>• The EMP is a living document that can be amended when a need arises, thus should be reviewed and amended/updated when a need arises<br>• No alien vegetation planting should be allowed on site<br>• Internal and external audits should be performed annually or as and when required by the competent authority<br>• The audit reports should be submitted to the competent authority.<br>• The operational plan must be in place and complied with. | Fetakgomo Tubatse Municipality, WMCO | Once off, as and when required. |
| 2. | Employment | • Local labour employment should be encouraged, provided that personnel have the appropriate qualifications | Fetakgomo Tubatse Municipality, Operator | As and When Required |
| 3. | Waste classification and inspection | • All waste coming into the facility should be weighed and classified; in addition the waste register should be maintained. | Fetakgomo Tubatse Municipality, Operator | Daily |

| Item | Aspect Impact/Issues | Mitigation Measures/Actions | Responsible party | Frequency of Action |
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| | | • Details of the waste register should include, but not limited to waste type, date of waste coming in or out (to recycling facilities), details of the collector or producer.<br>• Visual inspections should be done frequently at the disposal site to ensure that waste coming into the site is properly disposed off or sorted, at designated areas. | | |
| 4. | Air Quality : odour from waste body | • Compaction and cover approach should be implemented to control odours Where necessary odour suppressants may be utilized to limit the odour coming from the waste body<br>• All exposed areas should be either covered or grassed if it's for long term purposes rehabilitation plan should be implemented in conjunction with the operational phase, thus all landfill slopes needs to be grassed.<br>• Vehicular speed to the construction site should be regulated, in order to limit the generation of dust on houses along the access route to site.<br>• All surfaces that are not paved and generate dust should be sprayed using a water tank continuously, or other dust suppressing agents can be used to limit the generation of dust. Portable water should not be used for dust suppression, however rain harvested water and recycled water can be utilized.<br>• On site, windbreaks can be utilized to limit pollution on surrounding areas of the landfill site. | Contractor/WMCO | As and when required during the construction phase |
| 5. | Air Quality/Dust | • All surfaces that are not paved and generate dust should be sprayed using a water tank continuously, or other dust suppressing agents can be used to limit the generation of dust.<br>• Vehicular speed to the construction site should be regulated, in order to limit the generation of dust on houses along the access route to site. | Project Manager / Contractor | As and when required |

| Item | Aspect Impact/Issues | Mitigation Measures/Actions | Responsible party | Frequency of Action |
|---|---|---|---|---|
| | | • Dust monitoring process needs to be undertaken.<br>• Unnecessary movement of construction vehicle must be avoided.<br>• Vehicles that will be transporting building materials such as sand or rubble need to be covered or wet down to avoid the material being blown by air during windy conditions.<br>• The topsoil removal must be done in a phased manner so that large areas of unconsolidated soils are avoided.<br>• A register must be made available for reporting any excess dust from construction activities.<br>• Measures to collect methane for further use or handling such as flarring must be investigated. | | |
| 6. | Safety and Security | • Emergency contact information should be provided and displayed on site (administration office).<br>• The use of PPE should be enforced on site at all times.<br>• Appropriate medical equipment must be placed on onsite and made accessible at all times.<br>• The appropriate number of staff members must be adequately trained in first-aid in accordance with the Health and Safety Regulations.<br>• 24 Hour security must be provided at the construction site.<br>• Suitable barricades must be erected to secure the site and to avoid unrestricted access to the site during construction activities. | Contractor, WMCO | Once Off, As and when required. |
| 7. | Vehicle, equipment maintenance and fuelling | • Minor maintenance of equipment and/or vehicles must be restricted to designated areas which are established and managed for maintenance, i.e. workshops. No major maintenance must be carried out on site.<br>• All designated maintenance areas must be equipped, designed and constructed to facilitate vehicle and equipment maintenance, e.g. maintenance to be carried out on a concrete slab, and refuelling must be done above | Contractor, WMCO, OHSO | Once off, as and when required |

| Item | Aspect Impact/Issues | Mitigation Measures/Actions | Responsible party | Frequency of Action |
|---|---|---|---|---|
| | | drip trays to reduce the risk of contamination of soil by harmful chemicals and oil.<br>• Vehicular and equipment service plan must be adhered to | | |
| 8. | Waste Management | • No waste should be dumped indiscriminately on site, other than landfilling at designated areas.<br>• All vehicles transporting waste should be well suited for the transportation of the class and type of waste<br>• Waste disposal should be done in accordance with the NEM:WA standard for Disposal of Waste to Landfill<br>• The Waste Hierarchy Management Plan should be adhered to.<br>• All recyclable material sorted should be taken to a licensed recycler.<br>• The green waste should be processed at the designated compost area<br>• Hazardous waste should not be permitted on site.<br>• No medical waste is permitted on site as it is classified hazardous.<br>• Waste treatment is not permitted on site | Fetakgomo Tubatse Municipality, Operator | Daily |
| 9. | Waste Water Management | • The water quality management plan should be adhered to.<br>• Storm water should be separated from the waste body.<br>• All storm water channels should be cleared off litter.<br>• Storm water management plan should be implemented<br>• Discharge of pollutants into storm water channels and water courses is prohibited.<br>• The landfill area should be lined and linings should be monitored<br>• A leak detection and monitoring system should be installed and implemented | Fetakgomo Tubatse Municipality, Operator | Daily |
| 10. | Fire Management | • Fires must be made in designated areas only, thus away from any flammable material or an area with a high fire risk. | Contractors, Project Manager, WMCO | Once-off, as and when required |

| Item | Aspect Impact/Issues | Mitigation Measures/Actions | Responsible party | Frequency of Action |
|---|---|---|---|---|
| | | • Open fires must not be left unattended.<br>• Burning of waste on site is prohibited.<br>• Compliance reports must be compiled regularly by both WMCO and OHSO to ensure full compliance with the EMP.<br>• The plant must be equipped with firefighting equipment which will include;<br>  ○ Flame arresters<br>  ○ Water sprinklers<br>  ○ Gas/ Fire detection equipment<br>  ○ Nitrogen and carbon dioxide blanketing equipment<br>  ○ Foam spraying<br>• The fire-fighting equipment should be stored to the satisfactory to the Local Fire Services.<br>• Key personnel should be allocated for fire emergencies.<br>• All staff should be trained on operation of safety equipment | | |
| 11. | Noise Management | • The service plan for all vehicles and equipment on site should be maintained<br>• All construction work must be conducted only during regular business hours.<br>• When required, the CLO must inform the community of any planned noise disturbances outside of normal working hours.<br>• A register for all noise complaints should be kept and corrective actions needs to be applied on issues raised | Fetakgomo Tubatse Municipality, Operator | Regularly, as and when required |
| 12. | **Loss of Flora**<br><br>Change of ecosystem by potential leakage of leachate | • Any landscaping implemented in the development must make use of indigenous vegetation in order to limit or eliminate the introduction of alien and/or invasive species.<br>• A leakage detection and collection layer of 150mm compacted clay liner, 150mm bases preparation layer and an in-situ layer must be installed | Fetakgomo Tubatse Municipality, contractor | On-going |

| Item | Aspect Impact/Issues | Mitigation Measures/Actions | Responsible party | Frequency of Action |
|---|---|---|---|---|
| | | • Installation of impermeable base liners to protect the underlying soil and groundwater from pollution (a Maccaferri drainage geocomposite (GCD) for planar drainage recommended) | | |
| 13. | **Loss of Fauna**<br><br>Change of ecosystem by potential leakage of leachate and windblown litter. | • Installing the leachate collection system.<br>• The landfill site must be fenced off windbreakers in the form of trees and/or wall barrier where possible must be considered.<br>• Daily compaction and cover of waste must be implemented. | Fetakgomo Tubatse Municipality, contractor | On-going |
| 14. | **Geology and Soil**<br><br>Loss of soil and change in the geology of the area | • Storm water management plan must be implemented on site, so as to avoid erosion and sedimentation.<br>• The rehabilitation of the active cells must be implemented concurrent with operations.<br>• Daily compaction and cover of waste must be implemented.<br>• The site must be lined with appropriate lining material as recommended in the Geotechnical report (a Maccaferri drainage geocomposite (GCD) for planar drainage recommended). | Fetakgomo Tubatse Municipality, contractor | On-going |
| 15. | **Visual and aesthetic impact** | • The compaction and cover approach should be implemented on a daily basis<br>• Rehabilitation of cells should begin immediately after the cell has been filled to capacity.<br>• The rehabilitation can occur concurrently with the operation and filling of the cell where applicable<br>• Areas should be landscaped using indigenous vegetation<br>• All litter that gathers around the fence should be regularly cleaned<br>• Comply with the rehabilitation and stability management plan | Fetakgomo Tubatse Municipality, Operator | |

| Item | Aspect Impact/Issues | Mitigation Measures/Actions | Responsible party | Frequency of Action |
|---|---|---|---|---|
| | | • The site must be fenced with walls or palisade to obscure the inside operations and contain any windblown litter<br>• Operation activities must observe good housekeeping principles and the site must be kept neat at all times.<br>• Daily compaction of waste and cover must be maintained to prevent windblown litter leaving the site.<br>• Recommendations as per the VIA study conducted should be adhered to. | | |
| 16. | **Environmental Awareness** | • The hunting of fauna within and outside the boundary of the site is prohibited.<br>• Environmental awareness and training should be provided to all personnel on site<br>• All fauna on site should be relocated; however, this should be communicated to the competent authority prior.<br>• Health awareness programmes should be implemented and held on site. | Fetakgomo Tubatse Municipality, Operator | Once-Off |
| 17. | **Heritage Resources** | • The HIA report recommends that any heritage resources encountered during the construction phase of the proposed development should be reported to the relevant Heritage Agency.<br>• All activities should stop for further indication in terms of commencement from the competent authority after investigations have been commissioned and concluded with recommendations.<br>• All personnel should be made aware of any existence of heritage resources and the procedure to follow when encountering such resources. | Fetakgomo Tubatse Municipality, Operator | As and when required |
| 18. | **Safety & Security**<br><br>During the operational phase the safety of employees must be | • During operation the area must be fenced off or demarcated, with a security personnel managing the access point(s). | Fetakgomo Tubatse Municipality, Contractor | On-going |

| Item | Aspect Impact/Issues | Mitigation Measures/Actions | Responsible party | Frequency of Action |
|---|---|---|---|---|
| | taken to account. Safety of general public must be compromised during construction and operational phases. | • Any unauthorised entry of the public to the site must be restricted.<br>• The fence must be inspected and its integrity maintained on daily basis.<br>• The operational plan must be implemented.<br>• Scavenging by unauthorized persons represents a security and health and safety risk and must not be permitted on site.<br>• Controlled salvaging of waste must be encouraged | | |
| 19. | **Vermin and Disease vectors** | • Compaction of waste and cover must be maintained Dust generated from un-surfaced areas must be suppressed by watering.<br>• Personnel on site must be provided with Personal Protection Equipment (PPE) for their health and safety. | Fetakgomo Tubatse Municipality, Contractor | On-going |

# 11 Conclusion

This Environmental Management Programme (EMPr) must be used as an on-site reference document during all phases of this development, and auditing must take place in order to monitor compliance with the EMPr. Parties responsible for transgression of this EMPr must be held liable for any rehabilitation that may be required. Parties found liable for environmental degradation through irresponsible behaviour, negligence and/ or non-compliance with the EMPr must receive penalties such as an order to cease activities, withdrawal of the authorisation and/or civil or criminal proceedings to enforce compliance with the environmental authorisation and this EMPr.

This EMPr was prepared in terms of the well-recognised integrated environmental management principles and some occupational health and safety principles. It is based on the strengths of the information prepared at the time. It must therefore be a living document that is updated and revised based on challenges which arise on site during monitoring. If there are any queries please address them to:

Miss Fadzai C.A. Pwiti

Engineerex

Email: carolpwiti@yahoo.com

# 12 Annexures

## APPENDIX 1: ENVIRONMENTAL AND SAFETY INCIDENT LOG

| DATE | ENVIRONMENTAL /SAFETY CONDITION | COMMENTS (Include any possible explanations for current condition and possible responsible parties. Include photographs, records etc. if available) | CORRECTIVE ACTION TAKEN (Give details and attach documentation as far as possible) | SIGNATURE |
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