1 Introduction

The Sasol Synfuels, Secunda, Charlie 1 Landfill site was authorised in 1993 as a Class II Site, in terms of the Environmental Conservation Act (ECA) (No 73 of 1989). The landfill has been in operation since 1993, receiving domestic waste, office waste and plant waste of a non-hazardous nature from the Synfuels plant.

Furthermore, with the promulgation of the National Environmental Management: Waste Act, 2008 [NEM:WA] (No 59 of 2008) and the Waste Classification and Management Regulations, 2013 (GN R.634) as well as GN R.635 of 2013 (National Norms and Standards for Assessment of Waste for Landfill Disposal) and GN R.636 of 2013 (National Norms and Standards for Disposal of Waste to Landfill), there is a need to improve waste and water management at waste disposal sites like the Charlie 1 Landfill site.

Sasol South Africa Pty Ltd (Sasol) therefore propose to construct a contaminated leachate and stormwater pollution control ponds, adjacent to the western boundary of the existing landfill site on the farm Driehoek 275 IS, to ensure compliance with the existing permit requirements and ensure the effective management of leachate and stormwater at the Charlie 1 Landfill site (Figure 1).

The estimated size of the ponds is as follows:

- Contaminated leachate pond (CLP) – 1500 m^3.
- Contaminated stormwater pond (CSP) – 15000 m^3.

Sasol also proposes increasing the existing landfill height up to 20 m to achieve the required airspace for the remaining life of the landfill.

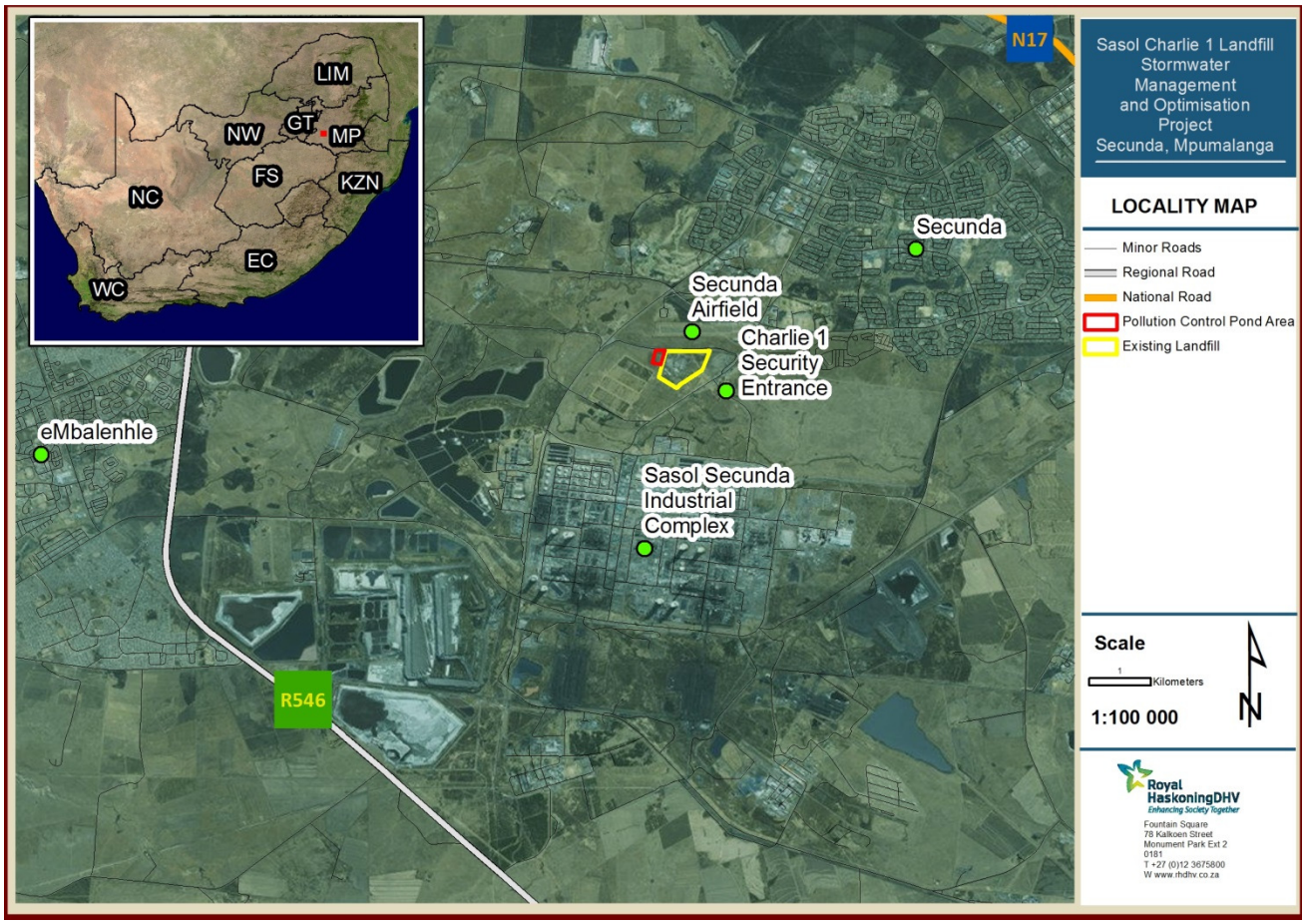

Figure 1: Locality map

The sensitivity map is presented in Figure 2.

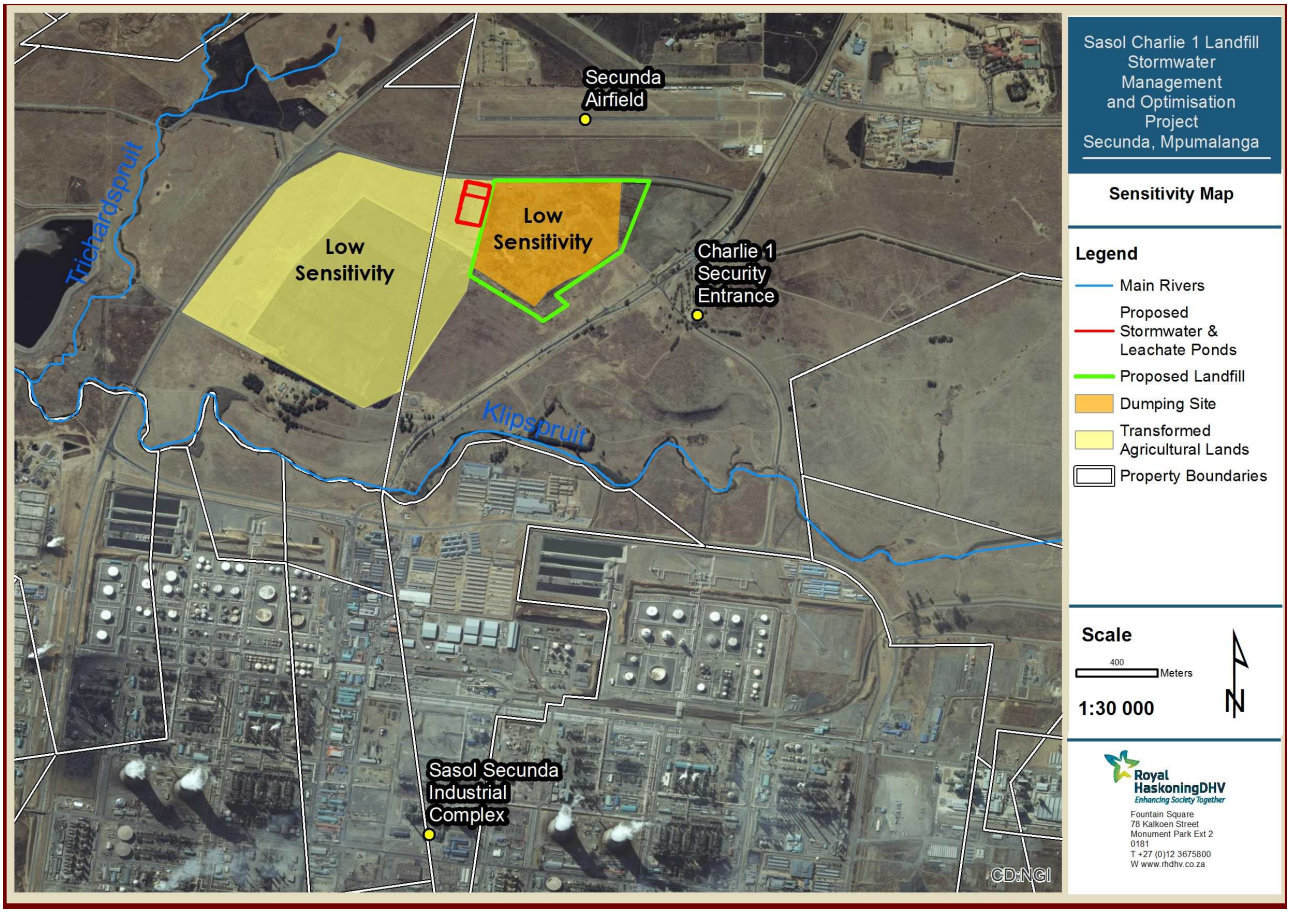

Figure 2: Sensitivity map

1.1 Key Project Objectives

The key objectives of the proposed project are to:

- Develop the contaminated groundwater interception system and stormwater management system to serve both the current site as well as any extension thereof within the permit boundaries, ensuring that the systems are within the applicable legislation, guidelines, regulations and standards, as a minimum requirement;
- Optimize the remaining airspace volume to maximize the life of the site; and
- Extend the life of the site within the bounds of the existing landfill permit requirements/conditions.

1.2 Applicable Documentation

The following environmental documentation is applicable for the project, and will be read in conjunction with this Environmental Management Programme (EMPr):

- Environmental Impact Assessment Report for the Charlie 1 Landfill Optimisation and Stormwater Management Project.
- Waste Management Licence from the Department of Environmental Affairs (once issued).

1.3 Purpose of the EMPr

In terms of The Constitution of the Republic of South Africa (1996), everyone has the right to an environment that is not harmful to their health or well-being and to have the environment protected, for benefit of present and future generations, through reasonable legislation and other measures that prevent pollution and

ecological degradation, promote conservation and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development (Section 24). The needs of the environment as well as affected parties should thus be integrated into overall project management.

The Constitution is underpinned by the suite of Specific Environmental Management Acts (SEMAs) – including the National Environmental Management Act [NEMA] (No 107 of 1998), National Environmental Management: Waste Act [NEM:WA] (No 59 of 2008), National Environmental Management: Air Quality Act [NEM:AQA] (No 39 of 2004), National Environmental Management Biodiversity Act [NEM:BA] (No 10 of 2004), National Environmental Management Protected Areas Act [NEM:PAA] (No 57 of 2003), and the National Water Act [NWA] (No 36 of 1998) – which combined, serve to control all relevant facets of the environment so as to ensure that Section 24 of the Constitution is upheld.

This EMPr is developed in terms of the SEMAs and ensures that construction, operation, and decommissioning activities meet the requirements of existing environmental legislation and good environmental practice in terms of international norms and standards. This is achieved by identifying those activities for the proposed development that may have a negative impact on the environment; outlining the mitigation measures that will need to be taken and the steps necessary for their implementation and describing the reporting system to be undertaken during construction.

1.4 Objectives of the EMPr

The EMPr has the following objectives:

- To ensure compliance with regulatory authority stipulations and guidelines; which may be local, provincial, national, and/or, international;
- To outline functions and responsibilities of responsible persons;
- To state standards and guidelines, which are required to be achieved in terms of environmental legislation;
- To outline mitigation measures and environmental specifications, which are required to be implemented for all phases of the project in order to minimise the extent of environmental impacts, and to manage environmental impacts;
- To prevent long-term or permanent environmental degradation;
- To establish a method of monitoring and auditing environmental management practices during all phases of development;
- Detail specific actions deemed necessary to assist in mitigating the environmental impact of the project;
- Ensure that all workers, subcontractors and other involved in the project and operations meet legal and other requirements with regard to environmental management;
- Incorporate environmental management into project design and operating procedures; and
- Address concerns and issues addressed in the EIA's stakeholder consultation process and those that will likely to continue to arise during the project's lifetime.

The EMPr will be considered an extension of the Conditions of Approval as set forth by the Department of Environmental Affairs (DEA). Non-compliance with the EMPr will constitute non-compliance with the said Conditions.

1.5 Structure of the EMPr

The EMPr will be compiled in accordance with Appendix 4 of GN R.982 of the EIA Regulations (2014). The EMPr provides the actions for the management of identified environmental impacts emanating from the proposed pollution control pond area and expansion of the Charlie 1 Landfill and a detailed outline of the implementation programme to minimise and/or eliminate the anticipated negative environmental impacts. The draft EMPr provides strategies to be used to address the roles and responsibilities of environmental management personnel on site, and a framework for environmental compliance and monitoring.

The EMPr provides mitigation and management measures for the following key phases of the project:

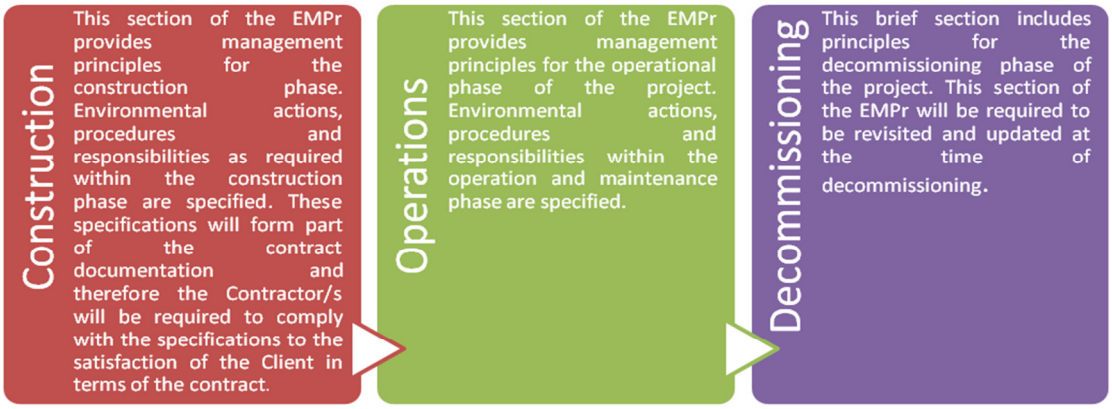

Figure 3: Different phases of the project life-cycle

The structure of this EMPr includes the following:

EMPr Requirements according to Appendix 4 of GN R. 982	Chapter/Sections
(a) details of- (i) the EAP who prepared the EMPr; and (ii) the expertise of that EAP to prepare an EMPr, including a curriculum vitae;	1.7
(b) a detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;	1
(c) a map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that any areas that should be avoided, including buffers;	Figure 2 **& Appendix A**
(d) a description of the impact management objectives, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including- (i) planning and design; (ii) pre-construction activities; (iii) construction activities; (iv) rehabilitation of the environment after construction and where applicable post closure; and (v) where relevant, operation activities;	5; 6; 7; and 8
(e) a description and identification of impact management outcomes required for the aspects contemplated in paragraph (d);	5; 6; 7; and 8
(f) a description of proposed impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraphs (d) and (e) will be achieved, and must, where applicable, include actions to- (i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; (ii) comply with any prescribed environmental management standards or practices; (iii) comply with any applicable provisions of the Act regarding closure, where applicable; and (iv) comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable;	5; 6; 7; and 8
(g) the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	5; 6; 7; and 8
(h) the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	5; 6; 7; and 8
(i) an indication of the persons who will be responsible for the implementation of the impact management actions;	5; 6; 7; and 8
(j) the time periods within which the impact management actions contemplated in	5; 6; 7; and 8

	paragraph (f) must be implemented;	
(k)	the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	5; 6; 7; and 8
(l)	a program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	3.3
(m)	an environmental awareness plan describing the manner in which- (i) the applicant intends to inform his or her employees of any environmental risk which may result from their work; and (ii) risks must be dealt with in order to avoid pollution or the degradation of the environment; and	4
(n)	any specific information that may be required by the competent authority.	-

1.6 The EMPr as a 'living' Document

The approach adopted for this EMPr is derived from the Deming Cycle (Figure 4), a cycle of continuous improvement that entails the reiterative actions of plan, do, check, act, and critically to then return to the planning phase.

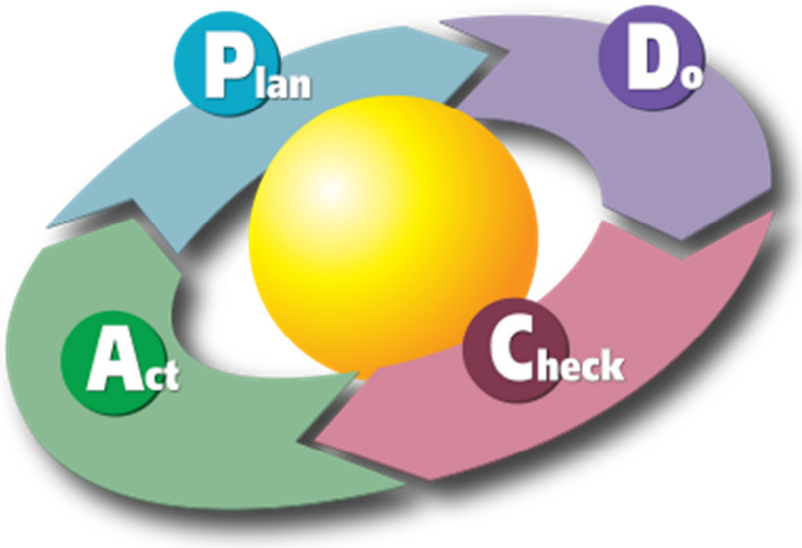

Figure 4: Deming cycle of continuing improvement

1.6.1 Plan

Project-specific planning for the proposed project involves consideration of the legal triggers, the specifics of the proposed development, and the nature of the receiving environment. This provides a starting point for targeted environmental management objectives. Environmental performance indicators are then determined with measurable targets prescribed to monitor the environmental performance of the project. Achieving the targets depends on compliance with this EMPr and the legislative requirements that underpin it.

1.6.2 Do

Throughout the development's life-span, the developer and operator will be required to develop and maintain a Quality Management System – designed to ensure that best management practices are implemented in day-to-day management. Such a QMS should at least include the following information:

- Location and extent of associated infrastructure;
- Associated activities, such as the transportation of people and equipment;
- Resources and experience required (staffing);

- Materials and equipment to be used;
- Management actions;
- Human resources used;
- Construction-monitoring activities;
- Emergency / disaster incident and reaction procedures; and
- Rehabilitation procedures for the impacted environment.

These topics will be cross-linked into the contracts related to the development and operational phases of the project.

1.6.3 Check

A system of assessing monitoring results has been developed to check the environmental management performance. Continuous assessment facilitates proactive management of the environmental issues. Mitigation measures can then be successfully implemented on an ongoing basis to keep environmental indicators within their target thresholds. Moreover, the assessment system also enables the assessment of the efficacy of the EMPr. Regular auditing of environmental performance is prescribed to prove and preserve accountability.

1.6.4 Act

The assessments and monitoring of the results and findings of the regular audits must be documented within a reporting system. Precautionary mitigation measures and corrective actions will be prescribed and instructions will be given in order to implement these in the field. The findings of monitoring and auditing programmes can also be used to update the EMPr. Although the EMPr is a project-specific document, it is dynamic and should be updated regularly to address the changing circumstances of the project.

1.7 Details of the Environmental Assessment Practitioner

The particulars of the EAPs responsible for the compilation of this document are presented in Table 1 below:

Table 1: Details of the EAPs

Details	
Consultant:	Royal HaskoningDHV Pty) Ltd
Contact Persons:	Nicole Botham and Prashika Reddy
Postal Address	PO Box 25302, Monument Park, 0105
Telephone:	012 367 5916 / 012 367 5973
Facsimile:	012 367 5878
E-mail:	prashika.reddy@rhdhv.com nicole.botham@rhdhv.com
Expertise:	Nicole Botham is an Environmental Consultant with seven years experience in the mining sector, having undertaken work in Africa, Europe, Middle East, USA and Fiji. Ms Botham has focussed on management plan preparation, mine decommissioning (closure) and audits of mine investments. Areas of expertise include: Scoping Reports, Environmental Impact Assessment (EIA), Environmental Management Reports, Environmental Audits, and Baseline Studies. Key project experience includes: Sol Plaatje Municipality, Trekkopje Mine, Tshipi è ntle Mine, Bon Accord Mine, Wonderfontein Mine, Manganese mine in Burkina Faso, Vatukoula Gold Mine, Northland Mine, Antimony Process Plant in Oman, and a Biofuels project in Mozambique. Prashika Reddy is a Principal Associate (*Pr Sci Nat* 400133/10) with a BSc Honours in Geography and Botany. Ms Reddy has 14 years experience in various environmental fields including: environmental impact assessments, environmental management plans/programmes, public participation and environmental monitoring and auditing. Ms Reddy has extensive experience in compiling environmental reports (Screening, Scoping, EIA and *Status Quo* Reports). Ms Reddy is/has been part of numerous multi-faceted large scale projects, including the establishment of linear developments (roads, and power lines); industrial plants; electricity generation plants and mining-related projects.

2 Environmental Legislation, Policies and Guidelines

All relevant environmental legislation pertaining to the project from cradle to grave is listed within Table 2 below. The Applicant and Contractor are required to comply with this legislation for all phases of the project. This list is intended to serve as a guideline only and is not exhaustive. Additional aspects should be added once the Waste Management Licence is obtained and amended as construction commences.

Table 2: Relevant environmental legislation, guidelines and policies applicable to the project

Legislation	Section	Relates to
The Constitution (No 108 of 1996)	Chapter 2	Bill of Rights.
	Section 24	Environmental rights.
National Environmental Management Act (No 107 of 1998 [as amended])	Section 2	Defines the strategic environmental management goals and objectives of the government. Applies throughout the Republic to the actions of all organs of state that may significantly affect the environment.
	Section 24	Provides for the prohibition, restriction and control of activities which are likely to have a detrimental effect on the environment.
	Section 28	The developer has a general duty to care for the environment and to institute such measures as may be needed to demonstrate such care.
EIA Regulations (2014) – Government Notice 982 - 985	GN 982 – Sections 21-23, 39-44, and Appendix 2, 3, 4, and 6	Scoping and EIA requirements (Section 21-23). Content of the public participation process (Sections 39-44). Content of scoping reports (Appendix 2), Environmental Impact Assessment reports (Appendix 3), draft environmental management programmes (Appendix 4), and content of specialist reports (Appendix 6).
National Environmental Management: Waste Act (No 59 of 2008)	Section 19	A list of waste management activities (GN R.921) which have, or are likely to have a detrimental effect on the environmental have been published.
	Government Notice 921 – Category A	Activities requiring a Basic Assessment study to be undertaken as part of the waste management licence application.
	Government Notice 921 – Category B	Activities requiring a Scoping and Impact Assessment study to be undertaken as part of the waste management licence application.
	Government Notice Regulation 634	Waste Classification and Management Regulations.
	Government Notice Regulation 635	National Norms and Standards for the assessment of Waste for Landfill Disposal.
	Government Notice Regulation 636	National Norms and Standards for Disposal of Waste to Landfill.
National Water Act (No 36 of 1998)	Section 21	General principles for regulating water use.
National Heritage Resources Act (No 25 of 1999) and Regulations	Section 34	No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

Legislation	Section	Relates to
	Section 35	No person may, without a permit issued by the responsible heritage resources authority destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site.
	Section 36	No person may, without a permit issued by the South African Heritage Resource Agency (SAHRA) or a provincial heritage resources authority destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority. "Grave" is widely defined in the Act to include the contents, headstone or other marker of such a place, and any other structure on or associated with such place.
	Section 38	This section provides for Heritage Impact Assessments (HIAs), which are not already covered under the ECA. Where they are covered under the ECA the provincial heritage resources authorities must be notified of a proposed project and must be consulted during the HIA process. The Heritage Impact Assessment (HIA) will be approved by the authorising body of the provincial Directorate of Environmental Affairs, which is required to take the provincial heritage resources authorities' comments into account prior to making a decision on the HIA.
National Environmental Management: Air Quality Act (No 39 of 2004)	Section 32	Control of dust.
National Dust Control Regulations (2013)		The purpose of the Regulations is to prescribe general measures for the control of dust in all areas. A standard for the acceptable dust fall rate is prescribed for residential and non-residential areas. Failure to comply with the standard for dust fall may result in an air quality officer directing the person in question to undertake a dust fall monitoring programme, submission of dust fall monitoring reports and dust fall management plans as well as the undertaking of continuous ambient air quality monitoring.
National Environmental Management Biodiversity Act (Act No 10 of 2004) and regulations: ▪ **Threatened or protected species (GN 388)** ▪ **Lists of species that are threatened or protected (GN 389)** ▪ **Alien and invasive species regulations (GNR 506)** ▪ **Publication of exempted alien species (GNR 509)** ▪ **Publication of National list of invasive species (GNR 507)** ▪ **Publication of prohibited alien species (GNR 508)**		Provide for the protection of species and ecosystems that warrant national protection and the sustainable use of indigenous biological resources.
National Veld and Forest Fire Act (No 101 of 1998) Regulation 9		The application of control measures regarding the utilisation and protection of veld.

Legislation	Section	Relates to
Occupational Health and Safety Act (No 85 of 1993)	Section 8	General duties of employers to their employees.
	Section 9	General duties of employers and self employed persons to persons other than their employees.
Fencing Act (No 31 of 1963)	Section 17	Any person erecting a boundary fence may clean any bush along the line of the fence up to 1.5 meters on each side thereof and remove any tree standing in the immediate line of the fence. However, this provision must be read in conjunction with the environmental legal provisions relevant to protection of flora.
Construction Regulations 2014		Contractors must comply with the Construction Regulations which lay out the framework for construction related activities.
SANS 10103 (Noise Regulations)		The measurement and rating of environmental noise with respect to annoyance and to speech communication.
Department of Water Affairs and Forestry. Guidelines for the Utilisation and Disposal of Wastewater Sludge Selection of management options: Volume 1 (2006)		
Department of Water Affairs and Forestry. Guidelines for the Utilisation and Disposal of Wastewater Sludge Requirements for the agricultural use of wastewater sludge: Volume 2 (2006)		
Department of Water Affairs and Forestry: Guidelines for the Utilisation and Disposal of Wastewater Sludge: Requirements for the on-site and off-site disposal of wastewater sludge: Volume 3 (2007)		
Department of Water Affairs and Forestry. Guidelines for the Utilisation and Disposal of Wastewater Sludge: Requirements for the beneficial use of sludge at high loading rates: Volume 4 (2008)		
Department of Water Affairs and Forestry. Guidelines for the Utilisation and Disposal of Wastewater Sludge: Requirements for thermal sludge management practices and for commercial products containing sludge: Volume 5 (2008)		
Gert Sibande District Municipality Spatial Development Framework (2009)		
Gert Sibande District Municipality IDP (2012-13 – 2016-17)		
Govan Mbeki Municipality Local Municipality IDP (2014-2015)		
Govan Mbeki Municipality By-Laws		

3 Management and Monitoring Procedures

3.1 Organisational Structure and Responsibilities

The key personnel from an environmental perspective are the Project Manager (PM), Construction Manager (CM), Environmental Control Officer (ECO), and the Contractors during the construction phase. During the operational phase the key personnel are the Senior Manager (SM), Area Manager (AM), Foreman, Sasol Environmental Specialist/ Co-ordinator.

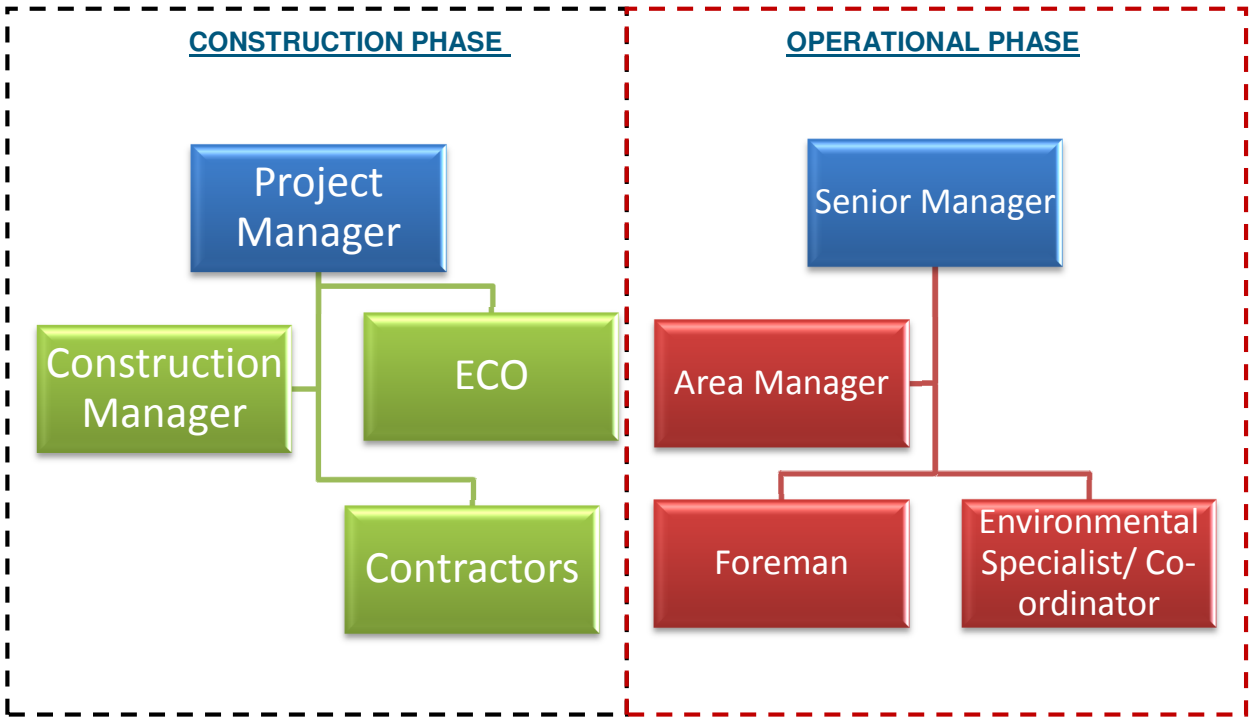

Figure 5: Organogram

3.1.1 Construction Phase

Text Box 1: Project Manager

Project Manager
The Project Manager (PM) will: ▪ Appoint a Construction Manager (CM) to assume ultimate project responsibility. ▪ Be familiar with the contents of the EMPr. ▪ Ensure the EMPr is in the tender documentation issued to prospective Contractors. ▪ Request for, review and approve the Method Statements prepared by the Contractor. ▪ Review and comment on environmental assessments and/or reports produced by the Contractor and ECO. ▪ Undertake ad hoc site visits and ensure environmental specifications are implemented. ▪ Arrange information meetings for consultation with Interested and Affected Parties (I&APs) about the impending construction activities. ▪ May on the recommendation of the Lead Engineer and/or Environmental Officer order the Contractor to suspend any or all works on site if the Contractor or his Sub-Contractor/Supplier fails to comply with the said specifications. ▪ Maintain a register of complaints and queries by members of the public at the site office; and ▪ Ensure the EMPr is implemented as well as revised and updated as and when required.

Text Box 2: Construction Manager

Construction Manager
The Construction Manager (CM) shall be: ▪ Responsible for the day-to-day coordination of environmental management awareness, training and performance of the Charlie 1 Landfill. ▪ He/she shall also ensure that the EMS and EMPr is effectively implemented. ▪ Be familiar with the contents of the EMPr. ▪ Request for, review and approve the Method Statements prepared by the Contractors. ▪ Review and comment on environmental assessments and/or reports produced by the Contractors and ECO. ▪ Undertake regular site visits and ensure environmental specifications are implemented.

Text Box 3: Environmental Control Officer's role

Environmental Control Officer (ECO)
The Environmental Control Officer (ECO) will: ▪ Be fully conversant with the Environmental Impact Report (EIR). ▪ Be fully conversant with the conditions of the Waste Management Licence (WML). ▪ Be fully conversant with the EMPr. ▪ Be fully conversant with all relevant environmental legislation and Sasol environmental policies and procedures, and ensure compliance with them. ▪ Convey the contents of this document to the Contractor site staff and discuss the contents in detail with the Project Manager and Contractor. Undertake regular and comprehensive inspection of the site in order to monitor compliance with the EMPr and WML. ▪ Take appropriate action if the specifications contained in the EMPr are not followed. ▪ Monitor and verify that environmental impacts are kept to a minimum, as far as possible. ▪ Ensure that activities on site comply with all relevant environmental legislation. ▪ Order the removal from the construction site of any person(s) and/or equipment in contravention of the specifications of the EMPr. ▪ Report any non-compliance or remedial measures that need to be applied via the Sasol Communication Structure to the Department of Environmental Affairs (DEA), in line with the requirements of the WML. ▪ Keep record of all incidents that have occurred during construction period. This should be available during audits. ▪ Maintaining a public complaints register. ▪ Arrange for all employees and those of subcontractors to receive training before the commencement of construction in order that they are aware of the conditions of the WML and the EMPr.

Text Box 4: Contractors

Contractor
The Contractor is required to: ▪ Be fully conversant with the EMPr and all conditions of the WML. ▪ Complying with the environmental management specifications. ▪ Adhering to any instructions issued by the Project Manager ▪ Keep record of all incidents that have occurred during construction period. This should be available during audits. ▪ Maintaining a public complaints register. ▪ Conduct environmental training and awareness to employees. ▪ Arrange for all employees and those of subcontractors to receive training before the commencement of construction in order that they are aware of the conditions of the WML and the EMPr.

3.1.2 Operational Phase

Text Box 5: Senior Manager

Senior Manager

The Senior Manager (SM) shall be:

- Be familiar with the contents of the WML and EMPr.
- He/she shall also ensure that the EMS and EMPr is effectively implemented.
- Take overall accountability for the implementation of the requirements as specified in the WML and EMPr.
- Ensure the availability of resources to manage Charlie 1 Landfill effectively
- Ensure the availability of resources to provide environmental awareness and competence training.

Text Box 6: Area Manager

Area Manager
The Area Manager (AM) shall be: ▪ Responsible for the day-to-day coordination of environmental management awareness, training and performance of the Charlie 1 Landfill. ▪ Be familiar with the contents of the WML and EMPr. ▪ He/she shall also ensure that the EMS and EMPr is effectively implemented . ▪ Undertake regular site visits and ensure environmental specifications are implemented. ▪ Ensure that the relevant records are available to proof compliance with the WML and EMPr.

Text Box 7: Foreman

Foreman
The Foreman will: ▪ Enforce the environmental specifications/procedures on site. ▪ Be familiar with the contents of the WML and EMPr ▪ Undertake regular site visits and ensure environmental specifications/procedures are implemented. ▪ Monitor compliance with the requirements of the specification/procedures. ▪ Take appropriate action if the specifications contained in the EMPr are not followed ▪ Ensure that the relevant records are available to proof compliance with the WML and EMPr.

Text Box 8: Sasol Environmental Specialist

Environmental Specialist / Co-ordinator
The Sasol Environmental Specialist is required to: ▪ Direct the implementation of the EMPr during operational phase. ▪ Ensure that the requirements of the EMPr are communicated, understood and enforced by personnel ▪ Advise management on environmental issues. ▪ Conduct audits to ensure that all records of compliance with WML and EMPr are available.

3.2 Conformance with the Sasol Environmental Management System

Sasol Synfuels Operations is accredited with ISO 14001 certification and thereby requires all development to be undertaken within this philosophy. The ISO 14001 Environmental Management System (EMS) is the internationally recognised standard for the environmental management of organisations. It prescribes controls for those activities that have an effect on the environment. These include the use of natural resources, handling and treatment of waste, energy consumption, water resource management and so forth.

This standard specifies requirements for an EMS to enable an organisation to develop and implement a policy and objectives which takes into account legal and other requirements to which the organisation subscribes, and information about significant environmental aspects. It applies to those environmental aspects that the organisation identifies as those which it can control and those which it can influence. It does not itself state specific environmental performance criteria.

All the requirements in ISO 14001 are intended to be incorporated into any EMS. The extent of the application will depend on factors such as the environmental policy of the organisation, the nature of its

activities, products and services, the location and the conditions in which it functions. The ISO 14000 family addresses various aspects of environmental management. It provides practical tools for companies and organisations looking to identify and control their environmental impact and constantly improve their environmental performance. The aim of the ISO 14001 standard is to achieve continuous improvement through the cycle outlined in Figure 6.

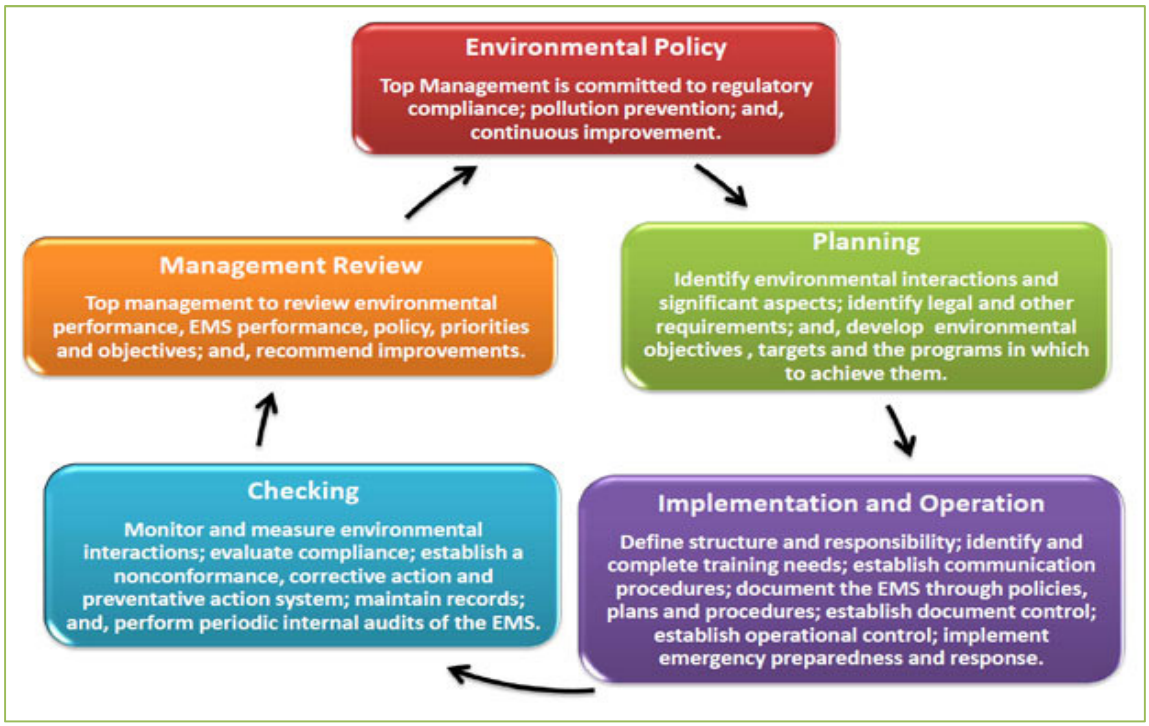

Figure 6: The ISO 14001 EMS cycle of continuous improvement

As part of the ISO 14001 certification, Sasol have a number of Standard Operating Procedures (SOPs) pertaining to environmental management. These include:

a. Environmental Legal and other Register.
b. Environmental Management Plan Guideline.
c. Structure and Responsibility SHE Training.
d. Environmental Management System Audit.
e. Environmental Management Review Guideline.
f. Sasol Safety, Health, Environmental and Quality Policy.
g. The Identification of SHE Hazards, Risk Assessment and Risk Control.
h. SHE Objectives and Targets.

3.3 Reporting Procedures

3.3.1 Documentation

The following documentation must be kept on site by the ECO in order to record compliance with the EMPr:

- An Environmental File which includes:
  - Copy of the EMPr;
  - Copy of the WML;

- Copy of all other licences/permits;
- Copy of the Stormwater Management Plan;
- Environmental Policy of the Main Contractor;
- Environmental Method Statements compiled by the Contractor;
- Non-conformance Reports;
- Environmental register, which shall include:
  - Communications Register – including records of complaints.
  - Monitoring Results – including environmental monitoring reports, register of audits, non-conformance reports.
  - Incident book – including copies of notification of Emergencies and Incidents, this must be accompanied by a photographic record.

- Waste Documentation such as, but not necessarily limited to: Waste Manifest Documents and Safe Disposal Certificates (SDCs);
- Dust suppression register;
- Water Quality Monitoring reports (if necessary);
- Written Corrective Action Instructions;
- Notification of Emergencies and Incidents; and
- Minutes and attendance registers of all environmental meetings.

3.3.2 Environmental Register

The Developers will put in place an Environmental Register. The Contractor will ensure that the following information is recorded for all complaints / incidents:

- Nature of complaint / incident.
- Causes of complaint / incident.
- Party/parties responsible for causing complaint / incident.
- Immediate actions undertaken to stop / reduce / contain the causes of the complaint / incident.
- Additional corrective or remedial action taken and/or to be taken to address and to prevent reoccurrence of the complaint / incident.
- Timeframes and the parties responsible for the implementation of the corrective or remedial actions.
- Procedures to be undertaken and/or penalties to be applied if corrective or remedial actions are not implemented.
- Copies of all correspondence received regarding complaints/incidents.

The above records will form an integral part of the Contractors' Records. These records will be kept with the EMPr, and will be made available for scrutiny if so requested by Sasol and the DEA.

3.3.3 Non-Conformance Report

A Non-Conformance Report (NCR) will be issued to the Contractor as a final step towards rectifying a failure in complying with a requirement of the EMPr. The Sasol SHE Representative has the authority to issue a non-conformance report to any contractor after discussing it with the Project Manager for not complying to the SHE requirements on the site, with the necessary required rectification action required within a specific timeframe. Actions requiring a "recovery plan" shall be presented to the Sasol SHE Representative.

SHE officers and other personnel have the authority to stop work if there is a life threatening situation and / or the danger of substantial material loss / damage and direct immediate remedial action under the supervision of the contractors and/or site manager is required.

Any "stop work order" shall be followed up; the contractor's site manager shall present a written recovery report including remedial actions to avoid re-occurrence and the subject will be discussed at the next project and safety meeting.

The following information should be recorded in the NCR:

- Details of non-conformance;
- Any equipment involved;
- Any chemicals or hazardous substances involved;
- Work procedures not followed;
- Any other physical aspects;
- Nature of the risk;
- Actions agreed to by all parties following consultation to adequately address the non-conformance in terms of specific control measures and should take the hierarchy of controls into account;
- Agreed timeframe by which the actions documented in the NCR must be carried out; and
- Sasol SHE Representative should verify that the agreed actions have taken place by the agreed completion date, when completed satisfactorily; the Sasol SHE Representative and Contractor should sign the Close-Out portion of the NCR and file it with the contract documentation.

3.3.4 Environmental Emergency Response

The Contractor's environmental emergency procedures must ensure appropriate responses to unexpected / accidental actions / incidents that could cause environmental impacts. Such incidents may include:

- Accidental leakage of leachate and contaminated stormwater into soil and water resources (i.e. into the downstream watercourse and groundwater);
- Accidental spillage of hazardous substances (typically oil, petrol, and diesel);
- Accidental damage to existing utilities e.g. sewer and water pipelines;
- Generation of dust; and
- Specific environmental and ecosystem effects from accidental releases or incidents.

The Environmental Emergency Response Plan is separate to the Health and Safety Plan as it is aimed at responding specifically to environmental incidents and must ensure and include the following:

- Construction employees shall be adequately trained in terms of incidents and emergency situations;
- Details of the organisation (i.e. manpower) and responsibilities, accountability and liability of personnel;
- A list of key personnel and contact numbers;
- Details of emergency services (e.g. the fire department / on-site fire detail, spill clean-up services) shall be listed;
- Internal and external communication plans, including prescribed reporting procedures;
- Actions to be taken in the event of different types of emergencies;
- Incident recording, progress reporting and remediation measures to be implemented; and
- Information on hazardous materials, including the potential impact associated with each, and measures to be taken in the event of accidental release.

The Contractor and their sub-contractor(s) must comply with the environmental emergency preparedness and incident and accident-reporting requirements as per the relevant legal requirements.

3.3.5 Method Statements

It is a statutory requirement to ensure the wellbeing of employees and the environment. To allow the mitigation measures in this document to be implemented, task-specific method statements should be developed for each set of tasks.

A Method Statement details how and when a process will be carried out, detailing possible dangers/risks, and the methods of control required.

The Contractor will be accountable for all actions taken in non-compliance of the approved Method Statements. The Contractor shall keep all the Method Statements and subsequent revisions on file, copies of which must be distributed to all relevant personnel for implementation.

As a minimum the following Method Statements will be required to be generated:

- Contaminated water;
- Dust management;
- Environmental awareness course(s);
- Environmental monitoring;
- Erosion control;
- Fire, hazardous and/or poisonous substances;
- Fuels and fuel spills (may form part of the item above);
- Personnel, public and animal safety;
- Rehabilitation of modified environment(s);
- Solid and liquid waste management;
- Sources of materials;
- Topsoil management;
- Haulage, stockpiling and management of surplus fill material;
- Stormwater Management.

3.3.6 Public Communication and Liaison with I&APs

The Developers must ensure that the adjacent landowners are informed and updated throughout the construction phases.

Sufficient signage should be erected around the site (including at the entrance), informing the public of the construction activities taking place. The signboards should include the following information:

- The name of the Contractor; and
- The name and contact details of the site representative to be contacted in the event of emergencies or complaint registration.

4 Environmental Awareness Plan

Sasol is committed to promoting and implementing sustainability throughout their operations. As part of this commitment, Sasol recognises the importance of making all employees aware of the potential environmental impacts that could result from conducting their jobs and how this potential can be minimised through effective training. Environmental awareness to the employees of the project will be provided by implementing environmental awareness training in the following forums:

- Toolbox Talks (Daily)
- SHE Induction courses (Annually)
- Bulletins
- Environmental Awareness Courses (Ad hoc)
- EMPr Awareness (Annually)

The above mentioned awareness activities will be used to share information and to ensure that all personnel are aware of the environment in which they operate and what environmental aspects require attention during their daily operations/activities/tasks. Additionally, personnel awareness training will be undertaken if and when required to strengthen the personnel's understanding of environmental issues.

The method and medium of communication during the environmental meetings will be determined by the site manager facilitating the meetings. The topics discussed in meetings will be recorded, with all employees present signing an attendance register.

As potential environmental impacts differ in each department of the operation, the environmental topics selected for discussion can either be:

- General topics that are applicable to the entire operation/activity;
- Area specific topics as identified in the impacts assessment section of the EIA report, or
- Topics that can be "taken home" and implemented off-site.

4.1 General Topics

There are a number of environmental impacts resulting from the proposed Charlie 1 Landfill expansion and pollution control pond area that are applicable throughout the project. General topics include, but are not limited to, the following:

- Water consumption and conservation;
- Dust generation related impacts (including health-related) ;
- Noise generation and related impact (including health-related);
- Domestic waste minimisation and recycling;
- Practical training regarding the clean-up of major and minor hydrocarbon spills/use of spill management kit;
- Practical training on using a fire extinguisher;
- Alien vegetation identification and removal, and the importance of indigenous vegetation; and
- Importance of wildlife, snakes and other reptiles in support of ecosystem.

4.2 Activity Specific Topics

Some activities may have environmental impacts that are unique to each area. These must be addressed in the SHEQ meetings. Area specific topics include and some of these topics may be a repeat of those covered under general topics.

- Stormwater management;
- Potential for water pollution and the related impacts;
- Identification and management of erosion;
- Vehicle emissions and related impacts (including health related);

- Practical training regarding the clean-up of major and minor hydrocarbon spills;
- The importance of the waste management system and implementing good housekeeping; and
- Dust generation and why and how to reduce dust.
- Biodiversity interaction awareness

4.3 Take-home Topics

Environmental awareness should not stop at the work place. Many of the concepts learned at work can be applied to employees' life style at home. Topics that can be covered under "take home topics" include, but are not limited to:

- Water consumption and conservation; and
- Domestic waste minimisation and recycling - "Reduce, Reuse and Recycle".

5 Environmental Management Programme: Pre-construction

Requirements for the pre-construction phase include:

- Proper, timeous, and continuous liaison between the developer and the Contractor to ensure all parties are appropriately informed at all times.
- The adjacent landowners must be informed of the starting date of construction as well as the phases in which the construction shall take place.
- The Contractor must adhere to all conditions of contract including the EMPr and WML conditions.
- Adequate planning of the construction programme to allow for disruptions due to rain and wet conditions.
- Proper documentation and record keeping of all complaints and actions taken.
- A formal communications protocol should be set up during this phase. The aim of the protocol is to ensure that effective communication on key issues that may arise during construction is maintained between key parties such as the ECO, SM, AM and Contractor. The protocol should also ensure that concerns / issues raised by I&APs are formally recorded and considered and where necessary acted upon. The communications protocol should be maintained throughout the construction phase.

Table 3: Pre-construction – general activities

Activity	Environmental Measures and Controls	Frequency	Responsible Person/s
Pre-construction.	• Sasol must ensure that this EMPr forms part of any contractual agreements with a Contractor(s) and sub-contractors for the execution of the proposed project. • Local labour and contractors must be used wherever possible. • Appoint an independent ECO.	Once-off	PM; CM & ECO
Pre-construction.	• Before construction begins, all areas to be developed must be clearly demarcated with fencing. • A 1.8 m high perimeter fence surrounding the ponds area has been included in the design. The landfill site itself only requires a 1.2 m high perimeter fence, however it is noted that the ponds are liquid containment facilities which pose a potential health and safety risk. For this reason the fence height was increased to 1.8 m for the ponds area. The fence surrounding the ponds and landfill area is to be regularly inspected for damage and timeously repaired in order to restrict unauthorised access. • Unskilled labourers should be drawn from the local market. • Site staff should be trained. Knowledge and skills necessary to achieve environmental objectives shall be identified and incorporated in the SHE Plan. The plan shall consider personnel responsible for implementing such objectives, training needs, development of appropriate skills and ongoing	Once-off	PM; ECO; CM & Contractor

Activity	Environmental Measures and Controls	Frequency	Responsible Person/s
	environmental education and awareness required to perform duties in an effective and competent manner. • Environmental awareness training should be conducted for construction staff, concerning the prevention of accidental spillage of hazardous chemicals and oil; pollution of water resources (both surface and groundwater), air pollution and litter control. • Continuous awareness and training programmes shall be implemented and updated. • The SM shall ensure that the training and capabilities of the Contractor's site staff are adequate to carry out the designated tasks. • Staff in charge of operating equipment (such as excavators, loaders, etc.) shall be adequately trained and sensitised to any potential hazards associated with their tasks. • No operator shall be permitted to operate critical mechanical equipment without having been trained by the Contractor and certified competent by the Engineer/SM. • Staff should be educated on the need to refrain from indiscriminate waste disposal and/or pollution of local soil and water resources and receive the necessary safety training. • Staff should be trained on reporting of environmental incidents.		

5.1 Open Space Management

Activity	Environmental Measures and Controls	Frequency	Responsible Person/s
Pre-construction.	• Open space areas deemed "no go" - strict access controls, fencing off from direct access, ensure agricultural species (e.g. cattle) excluded from such areas. • Determine an appropriate buffer area around such areas and indicate it on the site plans. • Ensure ECO has knowledge of when specific access activities may trigger permitting processes outside of those already in hand.	Prior to and during construction	PM & ECO

6 Environmental Management Programme – Construction

6.1 Site Preparation, Site Offices, Storage of Materials and Health & Safety

Aspect and Associated Impact	Measures and Controls	Monitoring Frequency	Responsible Person/s
Site preparation activities.	• Site clearing must take place in a phased matter (within the footprint), as and when required. • Areas which are not planned to be constructed within two (2) months must not be cleared so as to reduce risk of erosion. • The area to be cleared must be clearly demarcated and this footprint strictly maintained. • Topsoil obtained from site preparation activities will be stored until it can be used for rehabilitation of the pollution control pond area. The SHE Representative and ECO will identify a suitable area for the storage of topsoil. • The necessary erosion control measures must be implemented in areas where these risks are more prevalent.	Weekly	Contractor & ECO
Storage of materials including hazardous materials: improper storage of material has the potential to pollute groundwater and surface water resources as well as soils.	• The location of storage areas must take into account prevailing winds, distances to water bodies, general on site topography and water erosion potential of the soil. Impervious surfaces must be provided. • Storage areas must be designated, demarcated and fenced. • Storage areas should be secure so as to minimize the risk of theft. • Fire prevention facilities/equipment must be present at all storage facilities. • Proper storage facilities for the storage of oils, paints, grease, fuel, chemicals and any hazardous materials to be used must be provided to prevent the migration of spillages into the ground and groundwater regime around the temporary storage area(s). These pollution prevention measures for storage should include a bund wall high enough to contain at least 110% of any stored volume, and this should be situated away from drainage lines in a site selected with the approval of the SM, AM, SHE Representative and ECO. • Any water that collects in the bund must not be allowed to stand and must be removed and disposed of immediately in accordance with the stormwater management plan in the Feasibility Engineering Package (FEP) (**Appendix B**). • Contaminated stormwater must be drained from bunds and disposed of as liquid hazardous waste.	Weekly	Contractor & ECO

Aspect and Associated Impact	Measures and Controls	Monitoring Frequency	Responsible Person/s
	• All fuel storage tanks (temporary or permanent) and associated facilities must be designed and installed in accordance with the relevant oil industry standards, National codes, Local Authority and other relevant requirements. • Areas for storage of fuel and other flammable materials must comply with standard fire safety regulations and may require the approval of the relevant Fire Officer. • Symbolic safety signs depicting "No Smoking", "No Naked Flames" and "Danger" are to be prominently displayed in and around the fuel storage area. • The capacity and content of the tank must be clearly displayed and identified. • If fuel is dispensed from 200 litre drums, the proper dispensing equipment must be used. The drum must not be tipped in order to dispense fuel. The dispensing mechanism of the fuel storage tank must be stored in a waterproof container when not in use. • All waste fuel and chemical soiled rags must be stored in leak-proof containers and disposed of at an approved hazardous waste site. • These storage facilities (including any tanks) must be on an impermeable surface in order to ensure that accidental spillage does not pollute local soil or water resources. The facilities must also be protected from the ingress of stormwater from surrounding areas • The Contractor must ensure that its workers are made aware of the health risks associated with any hazardous substances used and that the workers are provided with the appropriate protective clothing / equipment in case of spillages or accidents and have received the necessary training. • Any spillage, which may occur, shall be investigated and immediate action must be taken. This must also be reported to the ECO and depending on the severity reported to the DEA as stipulated in the conditions of the Integrated Environmental Authorisation. • Keep written records detailing: the type of spill; the corrective and remedial measures implemented in the stopping or reduction of the spill; and the clean-up of the spill. Such progress reporting is important for monitoring and auditing purposes and the written reports may afterwards be used for training purposes in an effort to prevent similar future occurrences.		
Construction: Health and Safety of	• A Health and Safety Plan needs to be developed for the project	Weekly	Contractor & ECO

Aspect and Associated Impact	Measures and Controls	Monitoring Frequency	Responsible Person/s
construction workers and site staff.	in respect of construction worker safety and this plan must be adhered to at all times. • The Contractor must adhere to the prescriptions of the relevant health and safety legislation and standards. The contractor must familiarise himself and his employees with the contents of the aforementioned legislation. • Suitably stocked First Aid facility must be on hand at all times in accordance with international practice. All staff must be aware of its location. • The Contractor must implement adequate and mandatory safety precautions relating to all aspects of the construction. Such safety measures and work procedures/instructions must be communicated to all construction workers. • The wearing of Sasol approved PPE on site is mandatory for all personnel and construction workers. Minimum requirements must include the wearing of an approved safety helmet, safety boots, fire proof overalls, high visibility vests, safety goggles, ear plugs, etc. • PPE signs should be erected on site at the areas where it is required and the integrity and availability of the signs must be maintained. • All personnel must be trained in basic site safety procedures. • Construction staff handling chemicals or hazardous materials must be trained in the use of the substances and the environmental, health and safety consequences of incidents. • The Contractor must design, test / exercise appropriate emergency preparedness programmes (plans, schedules, procedures and methods) for addressing environmental accidents, incidents and events such as spills of fuel, oil or lubricants; fires etc. • Smoking will only be allowed at designated areas. • Overloading of equipment and construction vehicles is strictly prohibited to avoid accidents. • Safety files must be compiled and signed of by the SHE Representative prior to commencement of construction. • Adequate ablutions must be provided for construction workers.		
Access control.	• Access onto the Charlie 1 Landfill and pollution control pond area will be provided through a gravel access road that currently exists and is used by Waste Disposal Contractors to access the Charlie 1 Landfill. • The access road will be maintained, as far as periodical grading and shaping is concerned.	Daily	PM & CM

Aspect and Associated Impact	Measures and Controls	Monitoring Frequency	Responsible Person/s
	• Existing strict access control procedures will be implemented. • Vehicles entering the site will be recorded on a register and drivers will sign next to their names. • Ensure only legitimate entry takes place onto the site.		

6.2 Geotechnical

Aspect and Associated Impact	Measures and Controls	Monitoring Frequency	Responsible Person/s
Site instability during construction due to earthworks.	• Earthworks should be carried out as stipulated in the guidelines provided in SANS 1200 (*Standardised Specification for Civil Engineering Construction*). • Earthworks and drainage measures should be designed in such a way as to prevent ponding of, or high concentrations of, stormwater or groundwater anywhere on the sites. • Onsite inspections and evaluations should be conducted regularly.	Bi-monthly	Contractor & PM

6.3 Soils

Aspect and Associated Impact	Measures and Controls	Monitoring Frequency	Responsible Person/s
Soil compaction, stripping and removal.	• Prior to the commencement of earthworks, the Contractor should determine the average depth of topsoil, and agree on this with the ECO. • The full depth of topsoil should be stripped from areas affected by construction and related activities prior to the commencement of major earthworks (including the CLP and CSP). • Topsoil must be reused where possible to rehabilitate disturbed areas. • Removed polluted topsoil should be transported to a licenced hazardous landfill site.	Weekly	Contractor & ECO
Vehicle and machinery operation on site: • Spillage of lubricants, fuel, other petroleum products. • Incorrect handling of fuel and other hazardous materials.	• Limit vehicle movement on unpaved areas and vehicle speeds should be restricted on site. • Vehicles and machinery to be properly maintained to keep oil and diesel leaks in check. • Depending on the nature and extent of the spill, contaminated soil to be excavated / treated on-site. • Secondary containment for all fuel stored on site. • Accurate oil records must be kept. • Ensure clean up protocols are in place and followed.	Weekly	Contractor

6.4 Erosion Management Plan

Aspect and Associated Impact	Measures and Controls	Monitoring Frequency	Responsible Person/s
Construction activities related to erosion: • Vegetation removal and exposed soils; and • Surface and stormwater run-off.	• Disturbed areas of natural vegetation as well as cut and fills must be rehabilitated immediately to prevent soil erosion. • Erosion control measures will be implemented in areas that are susceptible to erosion. • Sensitive areas need to be identified prior to construction so that the necessary precautions can be implemented. • All erosion control mechanisms need to be regularly maintained. • Remove and store topsoil separately in areas where excavation/degradation takes place. Topsoil should be used for rehabilitation purposes. • Stockpiled topsoil should be free of deleterious matter such as large roots, stones, refuse, stiff or heavy clay and noxious weeds, which would adversely affect its suitability for planting. • Stockpiles not used in three (3) months after stripping must be seeded to prevent dust and erosion. • Vehicle movement should be restricted to an absolute minimum that is required for the construction. Unnecessary movement of vehicles will increase the degradation of paths and dirt roads leading to an increased erosion risk.	Weekly initially – Bi-monthly	Contractor & ECO

6.5 Geohydrology

Aspect and Associated Impact	Measures and Controls	Monitoring Frequency	Responsible Person/s
Construction activities related to groundwater contamination: • Spillage of fuel, lubricants and other chemicals; • Incorrect handling of fuel and other hazardous materials; and • Lack of provision of ablutions may lead to the creation of informal ablutions.	• Chemicals must be stored in bunded areas. • Temporary ablutions must be provided for construction employees. • Ensure clean up protocols are in place and followed. • Accurate oil records must be kept. • Secondary containment for all fuel stored on site. • Clean-up spills as soon as they occur and maintain an incident register. • Any spillage, which may occur, shall be investigated and immediate action must be taken. This must also be reported to the ECO and depending on the severity reported to the DEA. • Accurate oil records must be kept (purchased, disposal, and recycled).	Weekly	Contractor & ECO

Aspect and Associated Impact	Measures and Controls	Monitoring Frequency	Responsible Person/s
	• Implement appropriate actions and measures to reduce or prevent contamination of the groundwater as a result of a spill of potentially hazardous substances. • Keep written records detailing the type of spill, the corrective and remedial measures implemented in the stopping or reduction of the spill, and the clean-up of the spill. These reports may afterwards be used for training purposes in an effort to prevent similar future occurrences.		

6.6 Hydrology

Aspect and Associated Impact	Measures and Controls	Monitoring Frequency	Responsible Person/s
Contamination of surface water resources due to spillage, leakage, and incorrect handling of fuel and other hazardous materials.	• 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 all 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. • Wastewater must not be allowed to come into direct contact with exposed soils or run across the plant site. All wastewater must be collected and disposed of in a correct and environmentally suitable manner. • Machinery may not be washed on site.	Weekly	Contractor & ECO

6.7 Fauna and Flora

Aspect and Associated Impact	Measures and Controls	Monitoring Frequency	Responsible Person/s
Construction activities related to loss of habitat: • Clearance of vegetation could impact the remaining (albeit limited) faunal component, residing in or utilising the transformed agricultural lands on the site. • Construction of the pollution control pond area will alteration the transformed agricultural lands which will directly, and indirectly, impact	• Workers must be limited to areas under construction. • 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. • Demarcate construction areas by fences, in order to control movement of personnel, vehicles, providing boundaries for construction and operational sites. • Vehicles must utilise existing access routes.	Weekly	Contractor & ECO

Aspect and Associated Impact	Measures and Controls	Monitoring Frequency	Responsible Person/s
on the smaller sedentary species (insects, arachnids, reptiles, amphibian and mammals) adapted to their ground dwelling habitats.	• Only areas as instructed by the SM must be cleared. • Removal of vegetation/ plants shall be avoided until such time as soil stripping is required and similarly exposed surfaces must be re-vegetated or stabilised as soon as is practically possible. • Stored topsoil will be free of deleterious matter such as large roots, stones, refuse, stiff or heavy clay and noxious weeds, which would adversely affect its suitability for planting. • Disturbance of vegetation must be limited to areas of construction. • No killing or harming of animals.		
Using artificial lighting will disrupt natural faunal cycles, such as the reproductive cycle and foraging behaviour.	• Where lighting is required for safety or security reasons, this must be targeted at the areas requiring attention. • Yellow sodium lights are prescribed as they do not attract invertebrates at night and will not disturb the existing wildlife. Sodium lamps require a third less energy than conventional light bulbs.	Once off	Contractor

6.8 Alien Invasive Vegetation Management

Aspect and Associated Impact	Measures and Controls	Monitoring Frequency	Responsible Person/s
Alien invasive vegetation establishment.	• Weeds and alien vegetation must be removed and prevented from spreading into newly disturbed areas or areas cleared of vegetation. • The applicant must immediately take steps to remove alien vegetation. The size of areas subjected to land clearance will be kept to a minimum. • The establishment and re-growth of invasive and alien vegetation must be controlled after the removal of grass. • Monitoring the potential spread of declared weeds and invasive alien vegetation to neighbouring land and vice versa and protecting the agricultural resources and soil conservation works are regulated by the NEM:BA and Regulations must be addressed on a continual basis, through an alien vegetation control and monitoring programme.	Monthly	ECO

6.9 Waste Management

Aspect and Associated Impact	Measures and Controls	Monitoring Frequency	Responsible Person/s
Contamination of the site with general	• Waste management must be conducted in accordance to the	Weekly	Contractor & ECO

Aspect and Associated Impact	Measures and Controls	Monitoring Frequency	Responsible Person/s
and hazardous waste. General waste produced on site includes: • Building rubble; and • General domestic waste (food, cardboards, paper, plastic, bottles, tins). Hazardous waste produced on site includes: • Oil and other lubricants, diesel; • Containers that contained chemicals, oils or greases; and • Sewage.	Sasol Standard Operating Procedure (**Appendix C**). • General waste can be disposed of at the Charlie 1 disposal site with prior permission from the SM. • All hazardous waste will be stored in a safe and secure manner pending collection by third party contractors / service provider's recovery, recycling or disposal. • All waste will be stored in a manner that prevents its escape. • All waste that is recyclable will be collected by or sent to an approved contractor on site for recycling. • Temporary ablution facilities in the form of chemical toilets must be provided on site for construction staff. These toilets must be cleaned and emptied regularly by a registered service provider.		

6.10 Social

Aspect and Associated Impact	Measures and Controls	Monitoring Frequency	Responsible Person/s
Possible employment opportunities created.	• Should any employment opportunities be created, local labour should be used. • Sasol will implement and adhere to the conditions stipulated in the Labour Relations Act (No 66 of 1995).	Weekly	Contractor & PM

6.11 Air Quality

Aspect and Associated Impact	Measures and Controls	Monitoring Frequency	Responsible Person/s
Dust and emissions generated due to construction activities such as movement of vehicles, construction equipment set up and removal, and general construction.	• Dust must be suppressed on the construction site and during the transportation of material during dry periods by the regular application of water / watering or by use of environmentally acceptable / friendly binding chemicals. Water used for this purpose must be used in quantities that will not result in the generation of run-off. • Gravel access roads should be maintained regularly. • A speed limit of 20 km/hr should be set for all vehicles travelling over exposed areas. • Equipment and vehicles used by the contractor must be maintained in good working order to prevent smoke emissions. • Any temporary storage piles (cleared topsoil) should be	Weekly	Contractor; PM & ECO