

OPERATIONAL ENVIRONMENTAL MANAGEMENT PROGRAMME (OEMPr)

BAY TERMINALS GROUP COEGA TANK FARM

DEDEAT Reference Number: ECm1/C/LN2/M/16-2018

DRAFT FOR PUBLIC REVIEW

Proponent:

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ACRONYMS

AQIA	<i>Air Quality Impact Assessment</i>
BTG	<i>Bay Terminals Group</i>
CDC	<i>Coega Development Corporation</i>
CEMPr	<i>Construction Environmental Management Programme</i>
COM	<i>Chief Operational Officer</i>
DEA	<i>Department of Environmental Affairs</i>
DEAT	<i>Department of Environmental Affairs and Tourism</i>
DEDEAT	<i>Department of Economic Development, Environmental Affairs and Tourism of the Eastern Cape</i>
EA	<i>Environmental Authorisation</i>
EAP	<i>Environmental Assessment Practitioner</i>
ECO	<i>Environmental Control Officer</i>
EIA	<i>Environmental Impact Assessment</i>
EMPr	<i>Environmental Management Programme</i>
EMS	<i>Environmental Management Systems</i>
HAZMAT	<i>Hazardous Materials</i>
IDZ	<i>Industrial Development Zone</i>
NEM: AQA	<i>Management: Air Quality Act</i>
NEMA	<i>National Environmental Management Act</i>
OEMPr	<i>Operation Environmental Management Programme</i>
PPE	<i>Personal Protective Equipment</i>
SDS	<i>Safety Data Sheet</i>
S&EIA	<i>Scoping and Environmental Impact Assessment</i>

1 INTRODUCTION

1.1 Overview

Bay Terminals Group proposes to develop a new bulk petrochemical fuel store with piping, custody metering and numerous tanks and road tanker loading at a new facility in the Coega Industrial Development Zone 7, near Port Elizabeth, on Erf 351 of Coega.

Two pipeline route alternatives were assessed as part of the Scoping and Environmental Impact Assessment (EIA) Process in addition to the No-Go Alternative. These included:

Two routes are proposed for the pipeline, from the battery limit (indicated on) to the BTG boundary. The proposed route is indicated in yellow and black and the alternative route in pink and black on Figure 1.

Coega Development Corporation approved the concept of the first route in principle. Both options are within a services corridor identified in the Open Space Management Plan of the Coega IDZ.

Proposed pipeline route:

The proposed route was provided by the CDC and is approximately 1 300 m in length.

Alternative pipeline route:

The alternative route will run alongside the Port of Ngqura Boundary to the south-east and then it will turn to the east and run alongside the road reserve after which it will turn south-east again to follow the same route from the site boundary to the point of connection with the proposed BTG tank farm. This pipeline will be approximately 1 100m in length and is therefore, slightly shorter than the proposed pipeline route. CDC need to confirm if this option is a feasible option in terms of available space within the services corridor and road reserve and practicality.

Bay Terminals Group has appointed Prism Environmental Management Services (Prism EMS) as the independent Environmental Assessment Practitioner (EAP) to compile the required environmental management programme required by a host of environmental legislation.

Based on the impact assessment undertaken as well as the findings of the specialist studies and the need for the project, it is the opinion of the EAP, that the **Proposed pipeline route be approved.** It should be noted that mitigation measures contained in this report apply to both alternatives.

1.2 Project Location

1.2.1 Proposal

The proposed development occurs in the Coega Industrial Development Zone 7, near Port Elizabeth, on Erf 351 of Coega, located along the Algoa Bay coastline to the north-east of the Port of Ngqura. The coordinates for the project are provided in Table 1.

Table 1: Centre Coordinates

	Coordinates	
Centre Point	33°46'24.67" S	25° 42'16.56" E

The Surveyor General 21-digit diagram number for Erf 351 of Coega Industrial Development Zone 7 is provided in Table 2 below.

Table 2: Surveyor General Diagram Number

Portion	Surveyor General Diagram number
Remainder of Portion 1	C07600230000035100000

An overview of the location of the development is provided in Figure 1.



PROJECT:
Proposed BTG Coega
Tank Farm
Environmental Authorisation
Application



GENERAL NOTES:
Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Degree

Locality Plan

Legend

Project Boundary

Pipeline Routes

Name

Proposed Pipeline Route

Alternative Pipeline Route

CDC - Ervan Delineation

REVISIONS:
Final

	SCALE: 1:50 000
	DRAWING REF: 21803_Locality_Map
	DRAWING STATUS: FINAL
	CLIENT:

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Figure 1: Aerial Locality Map

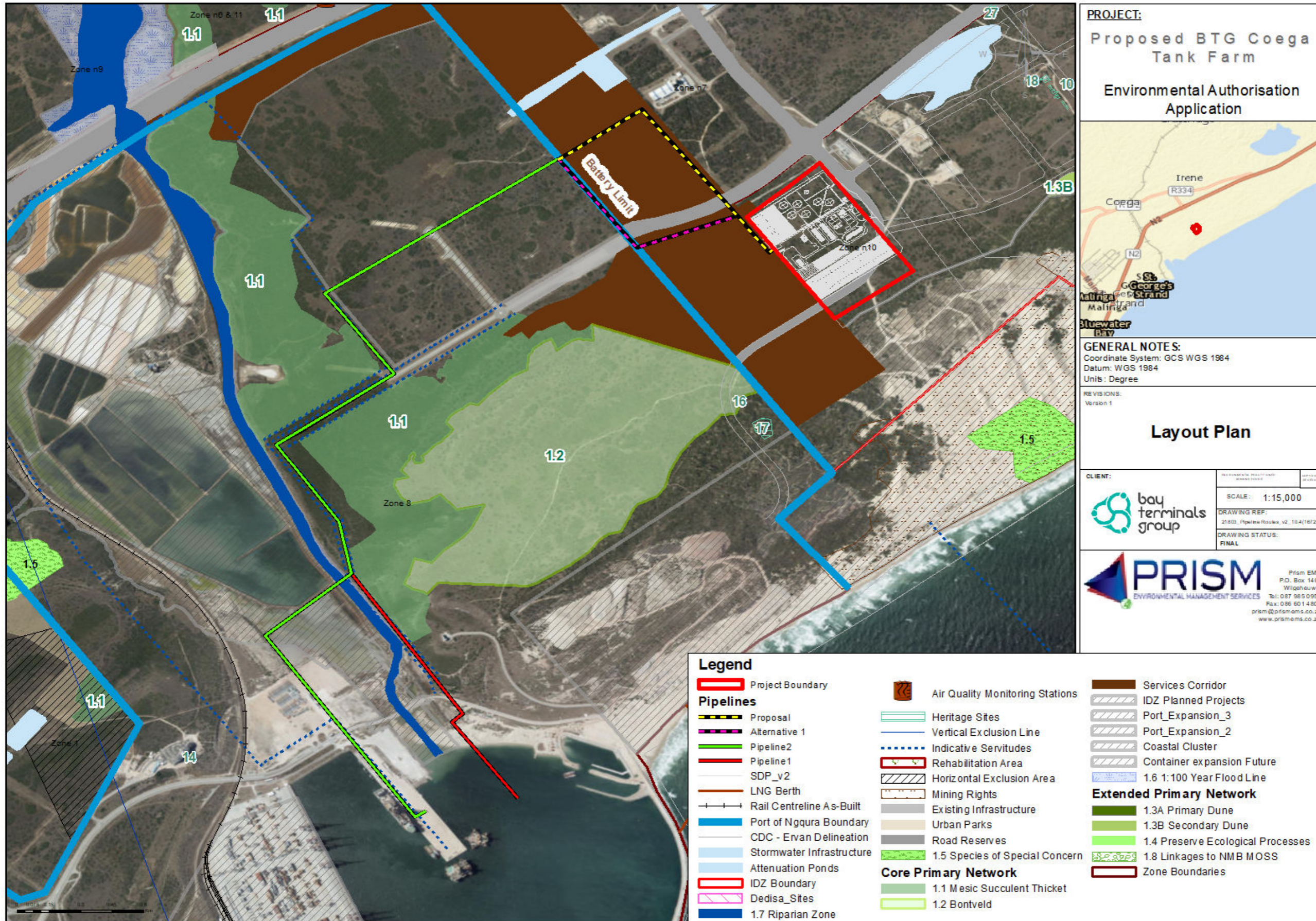


Figure 2: Pipeline Routes

2 EMPr REQUIREMENTS AND REPORT OUTLINE

The contents of this EMPr has been compiled according to the prescribed minimum legal requirements contained in Appendix 4 of the EIA Regulations, 2014 [as amended in 2017]. Refer to Table 3. Additional sections have been added to the report for purposes of best environmental practice.

Table 3: Contents of EMPr

Chapter Number	Chapter Name	Requirements included in Appendix 4 of 2014 EIA Regulations [as amended in 2017]
1.	Introduction	-
2.	OEMPr Requirements and Report Outline	-
3.	Details of EAP	(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;
4.	Project Description and Operational Activities, Aspects, and Impacts	(b) a detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description.
5.	Environmental Sensitivity	(c) a map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;
6.	Goals and Objectives	(d) a description of the impact management outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed, and mitigated as identified through the environmental impact assessment process for all phases of the development including- (i) planning and design; (ii) pre-construction activities; (iii) construction activities; (iv) rehabilitation of the environment after construction and where applicable post closure; and (v) where relevant, operation activities;
7.	General Roles and Responsibilities	(i) an indication of the persons who will be responsible for the implementation of the impact management actions
8.	Environmental Awareness Plan	(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

Chapter Number	Chapter Name	Requirements included in Appendix 4 of 2014 EIA Regulations [as amended in 2017]
		(ii) risks must be dealt with in order to avoid pollution or the degradation of the environment; and
9.	Integrated Waste Water and Waste Management Plan	-
10.	Emergency Preparedness Plan/ Incident Management Plan	-
11.	Monitoring Plan	(g) the method of monitoring the implementation of the impact management actions contemplated in paragraph (f); (h) the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f); (j) the time periods within which the impact management actions contemplated in paragraph (f) must be implemented; (k) the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f); (l) a program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;
12.	EMPr review and amendment	-
13.	EMPr	(f) a description of proposed impact management actions, identifying the manner in which the impact management outcomes contemplated in paragraphs (d) will be achieved, and must, where applicable, include actions to - (i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; (ii) comply with any prescribed environmental management standards or practices; (iii) comply with any applicable provisions of the Act regarding closure, where applicable; and (iv) comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable;

3 DETAILS OF THE EAP

Prism EMS have been appointed to undertake the required Environmental Authorisation process in terms of the 2014 Environmental Impact Assessment (EIA) Regulations as amended in 2017. Details and expertise of the Environmental Assessment Practitioner (EAP) who prepared the OEMPr is provided in Table 4 and Curriculum Vitae is appended in Appendix 1 of the Environmental Impact Assessment Report.

Table 4: Details of the EAP

EAP:	Monica Niehof			
Company:	Prism Environmental Management Services			
Qualifications:	BSc. (Hons) Environmental Management			
Experience:	11 Years			
Address:	PO Box 1401, Wilgeheuwel, 1736			
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Prism EMS Team				
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Designation	Name	Qualification	Professional Registration	Experience:
Project Director	De Wet Botha	M.A. (Env.Man.) (PHED)	Founder Member of Environmental Assessment Practitioners Association of South Africa (EAPASA) Member of the International Association for Impact Assessors (IAIAsa)(1653) Member of the Gauteng Wetland Forum Member of the South African Wetland Society	15 Years
Project Principle	Vanessa Stippel	MSc. Ecology, Environment and Conservation	SACNASP– Pr. Sci. Nat.(116221).	7 Years

4 OPERATIONAL ACTIVITIES

4.1 Process Description

4.1.1 Background information

This process description was prepared at the preliminary engineering design stage with a view to inform the EIA specialists for the necessary Environmental studies and the Engineers to inform the preliminary cost estimate. It must be read in conjunction with the Site Development Plan (refer to Figure 3) and the Process Flow Diagram [PFD] (refer to Figure 4).

It should be noted that Bay Terminals Group is currently in negotiations with Oiltanking Grindrod Calulo (Pty) Ltd (OTGC) to provide the services of ship offloading of materials and transfer of materials from the Berth within the Port of Ngqura up to the battery limit indicated on Figure 2). Transnet has an environmental authorisation for a pipeline reserve of 30 m wide (DEA EIA Reference Number: 14/12/16/3/3/1/675 NEAS Reference Number: DEA/EIA/0001386/2012), to be used by OTGC. OTGC has an environmental authorisation for two pipeline alternatives of 30 m wide: DEDEAT EIA Reference Number: ECm1/LN2/M/11-57. These reserves run from the OTGC boundary to the existing and proposed berths locations within the Port. Figure 2 indicates the approved pipeline reserves from the battery limit at the port boundary to the Berths locations (green line indicates the Alternative route, if B100 Berth is utilised and the red line indicates the alternative route, if the A-series Berth is utilised).

4.1.2 Site Overview

The Site Development Plan (Figure 3) shows the proposed tank farm layout, which has the following infrastructure components:

- 2,4m high security fence complete with truck entry / exit gates and emergency exits;
- Associated lighting and closed-circuit television (CCTV);
- Pigging Station;
- Import manifold;
- Four bunded storage areas containing;
 - 4 off Diesel tanks, combined working capacity 80 000 m³;
 - 4 off ULP tanks, combined working capacity 80 000 m³;
 - 2 off HFO tanks, combined working capacity 30 000 m³;
 - 1 off JET tank working capacity 4 000 m³;
 - 1 off Paraffin tank, capacity 4 000m³;
- A separate unbunded (open) area will contain 15 off LPG vessel vessels, with a combined working capacity of 15 000 m³.
- Road Tanker loading pump bays as follows:
 - Diesel – 4 off 2000 l/m pumps (3 operating, 1 standby);

- ULP – 4 off 2000 l/m pumps (3 operating, 1 standby);
- HFO – 3 off 2000 l/m pumps (2 operating, 1 standby);
- Jet – 2 off 2000 l/m pumps (1 operating, 1 standby);
- Paraffin – 2 off 1 l/m pumps (1 operating, 1 standby);
- Fire Water Tank with Fire / Foam pump Station;
- Vapour Recovery Unit (VRU);
- Necessary Buildings:
 - Admin Building 684m²;
 - Ablution and Rest Room 293 m²;
 - Store Room 293 m²;
 - Workshop 382 m²;
 - Warehouse 302 m²;
 - Electrical Sub Station 302 m²;
 - Security Building 130 m²;
 - Small laboratory for critical testing of the final product.
- Loading Gantries
 - 18 bays for liquid fuels (Diesel 3; ULP 3; HFO 2; JET 1; Paraffin 1);
 - 4 bays for LPG.
- Additive Bay
- Pump Bays
- Compressor Bay
- Generator Bay
- Boiler Room with Steam Reticulation System and dedicated Boiler Fuel Oil tank
- Tanker Wash Bay
- Effluent Handling
 - Drainage channels
 - Effluent Containment
 - Interceptor Oil-water Separator
- Slops Handling System:
 - 450m³ Slops Tank (including freeboard);
- Pipe Racks, Pipe Bridges and inter connecting pipes
- Parking.

4.1.3 Project Activities

Bay Terminals Group (BTG) will be responsible for the pipeline from the battery limit to the BTG site boundary. The scope of the Operational Environmental Management Programme is therefore, for the operations on the proposed Coega Tank Farm and the pipeline from the BTG site boundary up to the battery limit. The operation of the facility will, as a basic requirement, include an EMS (Environmental Management Systems) containing operational management measures such as, amongst other, provisions for spill

control, fire safety, and adequate infrastructure maintenance. Please refer to the Process Description attached in Appendix A.

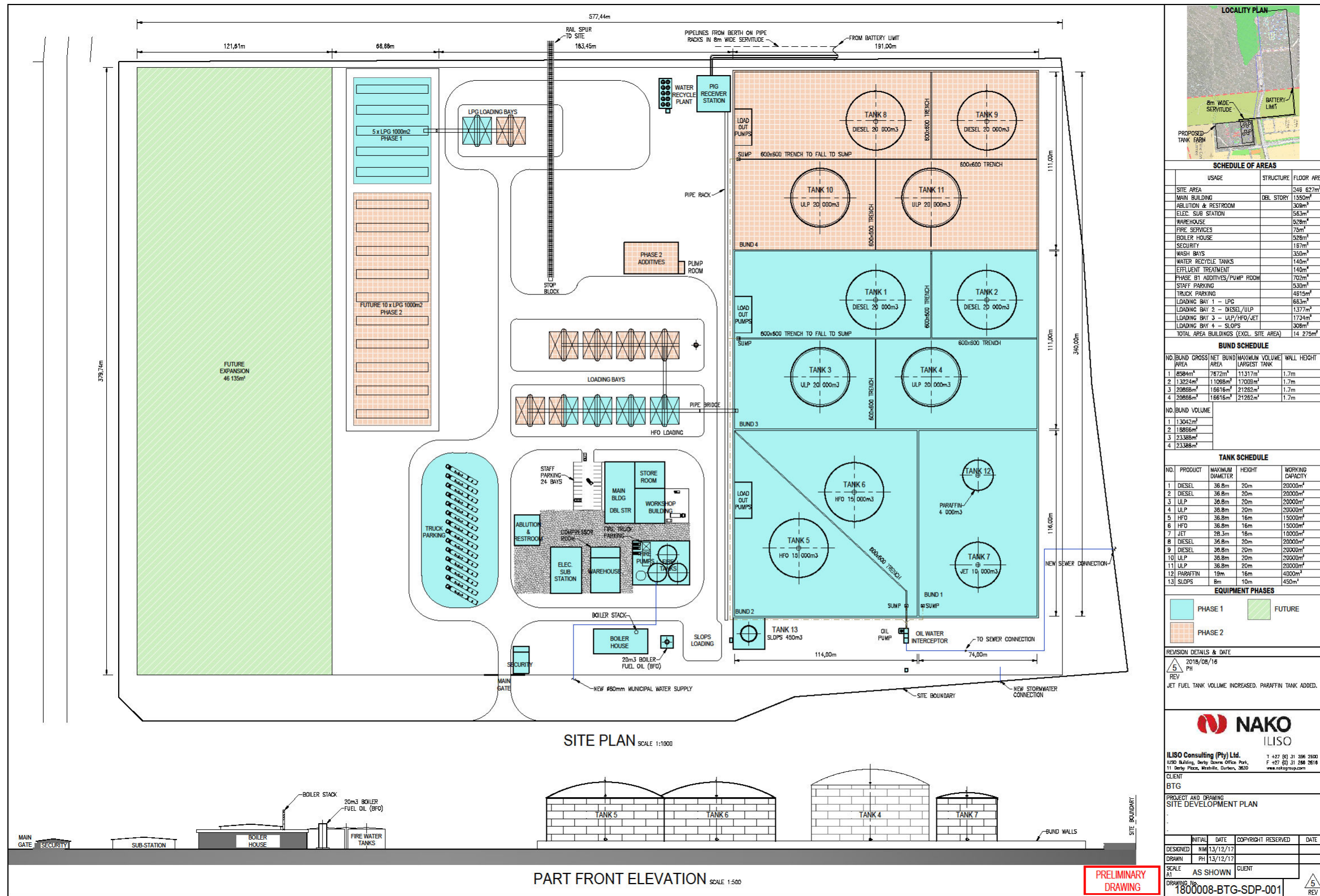


Figure 3: Proposed Draft Site Development Plan

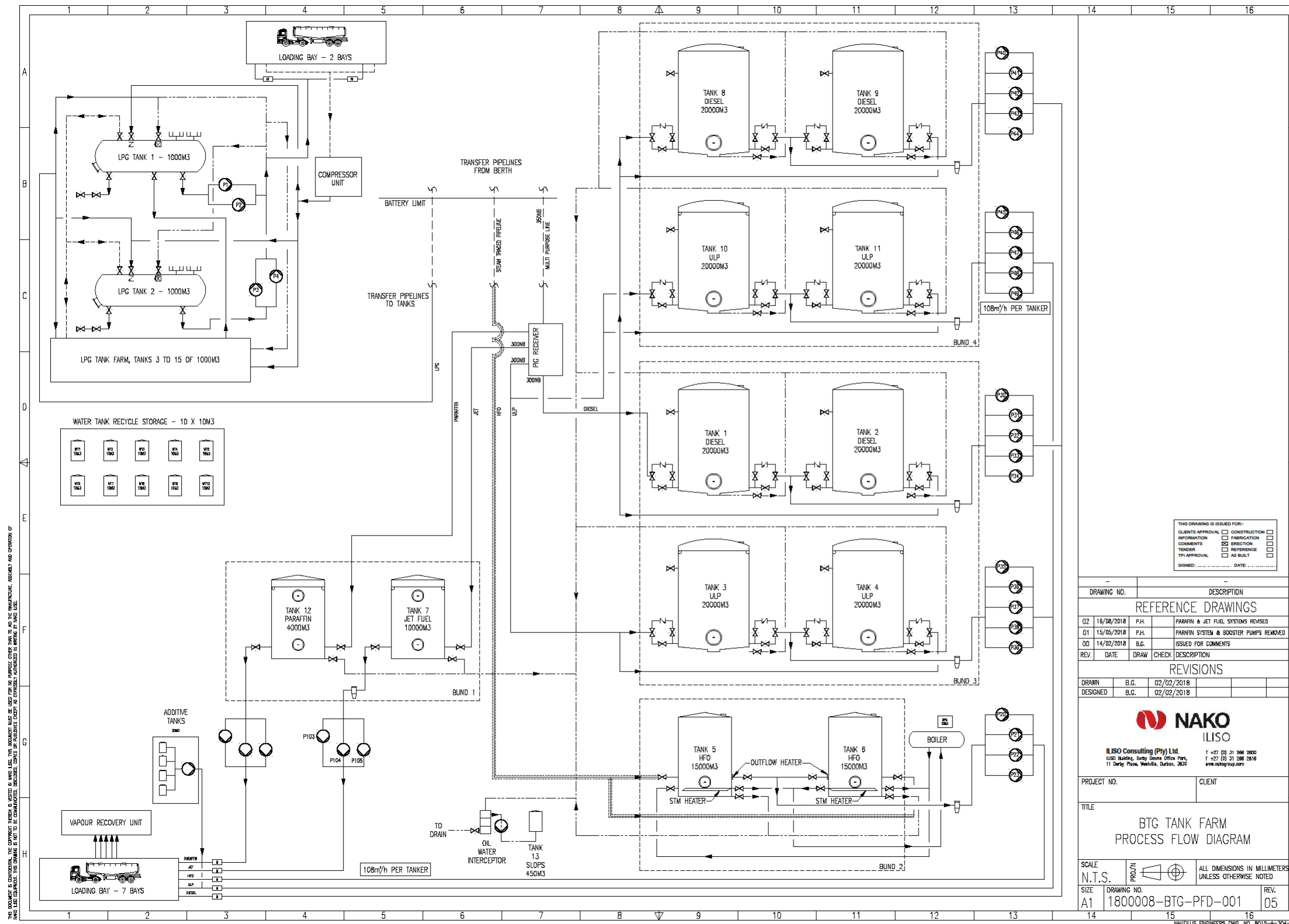


Figure 4: Proposed Coega Tank Farm Draft Process Flow Diagram

5 GOALS AND OBJECTIVES

The **Operational EMPr** provides performance criteria required to address potential environmental impacts during the operational phase of the proposed development.

This document incorporates the relevant recommendations of the Scoping Report, Environmental Impact Assessment Report, and other environmental studies and ultimately aims to provide the following:

- Establish **management objectives** for the Development in order to enhance benefits and minimise adverse environmental impacts;
- Describe **actions** required to achieve management objectives; and
- Outline institutional structures and roles required to implement the Operational EMPr.

5.1 Key Objectives of the EMPr

The key objectives of this EMPr for the operational phase of the proposed Development are as follows:

- To ensure effective communication with stakeholders and regulatory authorities;
- To ensure good housekeeping practices and general neatness on site;
- To mitigate any possible negative impacts identified in the EMPr for the operational phase of the development;
- To prevent pollution, especially from hazardous materials to the receiving environment that may emanate directly or indirectly from the source (development activities) during the operational phase;
- To prevent or mitigate atmospheric emissions and associated impacts;
- To reduce/eliminate the risk of fire and or explosions as a result of operational activities;
- To preserve surrounding flora and fauna;
- To prevent excessive noise and associated impacts;
- To establish the various additional requirements in terms of required Environmental Management Systems (EMS's);
- Provide documentation requirements;
- To ensure benefits of the proposed development are maximised;
- Ensure that all environmental legislative requirements for the operation of the activity are met.

Finally, the OEMPr provides methods to ensure compliance, verification of compliance, and performance assessments to ensure that all the above-mentioned objectives are achieved or that appropriate protocol is established if the objectives are not / cannot be met.

5.2 Impact Management Outcomes

Through effective implementation of the environmental management measures, the following outcomes must be achieved:

- Correct protocol is followed in terms of the appointment of the required qualified personnel;
- Effective communication between relevant role players (such as the competent authority) must be ensured;
- Environmental awareness creation and training is undertaken throughout the operational phase to minimise environmental impacts and ensure compliance to relevant legislation and authorisations;
- A safe working environment for contractors/construction workers and the public is provided;
- Ensure access to sensitive environmental features is restricted and proper access control is in place;
- Minimal disturbances to traffic;
- Proper management of labour force is undertaken to ensure that:
 - There are no security-related issues or disturbance to tenants or landowners outside the construction footprint'
 - There is optimal use of local labourers;
 - There is no disturbance to sensitive environmental features on or around the study area;
- Minimise environmental impacts associated with ablution facilities;
- Waste separation and recycling must be undertaken as part of operation;
- Effective and safe management of hazardous and non-hazardous materials on site, in order to minimise the impact of materials on the environment;
- Ensure that all potential causes of pollution are mitigated as far as possible to minimise impacts to the surrounding environment;
- Prevent polluted water from entering the surface water;
- Minimise noise disturbance to surrounding areas;
- Control alien plants and noxious weeds;
- Minimal impact to surrounding fauna;
- Proper stormwater management as required by the Stormwater Management Plan to be implemented;
- To have no adverse impact on the historical inheritance of the area;
- Water conservation mechanisms to be implemented; and
- Energy conservation mechanisms to be implemented.

6 GENERAL ROLES AND RESPONSIBILITIES

There are various role players that are involved in responsible environmental management. An overview of the applicable role players and institutional arrangements are hereby provided. Information on each role player is subsequently.

6.1 Competent Authorities

The following competent authorities are involved in the decision-making process:

- The Eastern Cape Department of Economic Development, Environmental Affairs and Tourism with reference to activities triggered in terms of the:
 - National Environmental Management Act, 1998 (Act No. 107 of 1998) [as amended] (NEMA);
and
- The Nelson Mandela Bay Metropolitan Municipality with reference to activities in terms of the:
 - National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) [as amended] (NEMAQA).

Amendments may be required to the EMPr, based on adaptive management to the site conditions and the technical requirements of the project. These amendments will need to be approved by DEDEAT.

6.2 Authorisation Holder

Bay Terminals Group is the applicant in terms of NEMA and NEMAQA and is ultimately responsible for the development and implementation of the EMPr and ensuring that the conditions in the EA are satisfied. The liability for non-compliance also rests with the Authorisation Holder. Details of the Authorisation holder are contained in Table 5.

Table 5: Details of the Applicant

Applicant:	Bay Terminals Group
Contact Person:	Ms. T Mjacu

6.3 Consultants

6.3.1 Chief Operational Officer and Staff

The Chief Operational Officer and his/her department is responsible for the daily operations of the tank farm and is responsible for the handling of all hazardous materials. In order to ensure that the operation of the facility is as per the relevant designs and requirements, the Chief Operational Officer will be responsible for supervising the management of the environmental aspects during the operational phase of the project.

The Chief Operational Officer will furthermore also be required to ensure that any environmental matters at the request of the External Environmental Auditor is attended to. The Chief Operational Officer shall ensure that the Internal Environmental Manager assists the External Environmental Auditor where necessary and shall have the following responsibilities in terms of the implementation of the Operational EMPr:

- Ultimately, it is the responsibility of the Chief Operational Officer (along with the Authorisation Holder) to ensure that the operation of the facility complies with all the conditions of the OEMPr, Environmental Authorisation (EA) and the Atmospheric Emissions Licence (AEL) (and other binding documentation). The Chief Operational Officer (along with the Authorisation Holder) must, therefore, with the assistance from the External Environmental Auditor receive and implement recommendations after evaluation of compliance with the conditions of this OEMPr;
- The Chief Operational Officer will ensure that he/she and his/her department and operational managers have the correct resources and training to implement the relevant environmental management actions and fulfil the requirements;
- Ensure regular site inspections are conducted by operational managers/supervisors;
- Reviewing and approving the Contractor's Method Statements and Standard Operating Procedures;
- Ensure the implementation of all Standard Operating Procedures and Contractor's Method Statements;
- Assisting the Internal Environmental Manager in finding environmentally responsible solutions to problems with input from the External Environmental Auditor where necessary; and
- Communicating all environmental issues to the External Environmental Auditor.

6.3.2 Internal Environmental Manager/Auditor

In order to ensure that the operation of the facility is as per the relevant designs and requirements, the Internal Environmental Manager and Auditor will be responsible for managing of the environmental aspects during the operational phase of the project. The Internal Environmental Manager and Auditor will furthermore also be required to tend to any environmental matters at the request of the External Environmental Auditor. The Internal Environmental Manager and Auditor shall assist the External Environmental Auditor where necessary and shall have the following responsibilities in terms of the implementation of the Operational EMPr:

- It is the responsibility of the Internal Environmental Manager and Auditor to ensure that the operation of the facility implements all the conditions of the OEMPr, Environmental Authorisation (EA) and the Atmospheric Emissions Licence (AEL) (and other binding documentation). The Internal Environmental Manager and Auditor must, therefore, with the assistance from the External Environmental Auditor receive and implement recommendations after evaluation of compliance with the conditions of this OEMPr;
- Regular site inspections;
- Reviewing and approving the Contractor's Method Statements and Standard Operating Procedures;

- Find environmentally responsible solutions to problems with input from the external Environmental Auditor, where necessary;
- Carry out periodic audits of the Operational Management Programme; and
- Communicating all environmental issues to the External Environmental Auditor.

More specifically, the Internal Environmental Manager and Auditor will maintain and check the following:

- Environmental Site file containing the following documents *inter alia*:
 - Operational EMPr;
 - Environmental Authorisation (EA);
 - Atmospheric Emissions License (AEL);
 - NEMA Risk Assessment;
 - Major Hazardous Installation (MHI) Risk Assessment;
 - Approved Air Quality Monitoring and Management Plan;
 - Environmental Impact Assessment Report;
 - Environmental Specialist Studies;
 - Stormwater management plan – approved;
 - Internal and External Audit Reports;
 - The public complaints register in which all complaints are recorded, as well as actions taken;
 - The record (incident register) of environmental incidents (spills, impacts, legal transgressions, etc.) as well as corrective and preventive actions taken;
 - Spill procedures;
 - Method statements;
 - Standard operating procedures;
 - Signed off as-built or construction designs;
 - Emergency response procedures;
 - Environmental monitoring results and reports;
 - Invasive species monitoring, control and eradication plan for the Coega SEZ;
 - Environmental awareness training plan and records (attendance registers etc.);
 - Safe Disposal Certificates from hazardous waste, used oil and general waste contractors;
 - Waste management register;
 - Water quality test results and any monitoring reports;
 - All applicable codes and standards that the tank farm must comply with; and
 - Proof of notification of Competent Authorities of commencement of construction.

In terms of Internal Audits, the Internal Environmental Manager and Auditor will be required to ensure the following:

- All documentation (e.g. audit/monitoring/compliance reports and notifications) required to be submitted to the Department in terms of the EA;

- That the authorisation holder submits environmental external audit reports to the Department within 30 days of the completion of any audits at intervals that will be determined by the EA;
- The Internal and External Environmental Audit Reports must indicate the date of the audit, the name of the auditor and the outcome of the audit in terms of compliance with the EA conditions as well as the requirements of an approved EMPr;
- Records relating to monitoring and auditing must be kept on site and made available for inspection to any relevant and competent authority in respect of this development.

6.3.3 Resident Engineer

The resident engineer that is employed by the Authorisation Holder will be responsible for the technical and contractual implementation, control and maintenance of the works to be undertaken. The responsibilities of the Engineer in terms of environmental matters include, but are not limited to:

- Inspecting all infrastructure on the tank farm for any engineering problems that may give rise to environmental pollution or safety incidents;
- Supervise maintenance on any of the tank farm infrastructure;
- Assisting the internal environmental manager and auditor in making decisions and finding solutions to environmental issues and risks;
- Review method statements from Contractors and Standard Operating Procedures;
- Order the removal of persons and equipment that are not complying with engineering specifications and operating procedures.

6.3.4 External Contractors

All contractor/s employed by the developer in respect of the subject site will be bound by all and any agreement between the developer and the contractor, to ensure compliance with the Environmental Authorisation, the Atmospheric Emissions Licence (AEL), mitigating measures included in the Specialist Studies, the Environmental Impact Assessment Report well as this OEMPr and any other binding documents. External Contractors may include, but are not limited to:

- Domestic cleaning contractor;
- Recyclables (paper, metal, timber etc.) removal contractors;
- Used oil removal contractor;
- Hazardous waste removal contractor; and
- General waste removal contractor.

The responsibilities of each external contractors include:

- Taking and accepting full responsibility for self, and/or employees;
- Be familiar with the contents, as well as the meaning of the contents, of the OEMPr and the specifications contained herein;
- Comply with the Environmental Specifications contained in the OEMPr and subsequent revisions;
- Confirm with legislative requirements and ensure that appropriate permissions and permits have been obtained before commencing activities;
- Prepare Method Statements, a programme of activities and drawings/plans for submission to the Internal and External Environmental Manager and Auditors when requested;
- Where applicable, undertake daily site inspections to monitor environmental performance and compliance with the Environmental Specifications and Standard Operating Procedures;
- Notify the Internal Environmental Manager and Auditor immediately in the event of any accident or infringements of the Environmental Specifications and Standard Operating Procedures and ensure appropriate remedial action is taken;
- Notify the Internal Environmental Manager and Auditor at least 10 working days in advance of any activity he has reason to believe may have significant adverse environmental impacts, with specific reference to blasting, so that mitigatory measures may be implemented timeously.

6.3.5 External Environmental Auditor

A competent and independent External Environmental Auditor must be appointed and will undertake inspections at an interval (to be established) that will satisfy the project specific needs. The aforementioned reports must be submitted to the Authorisation Holder and DEDEAT for their records.

In terms of Audits, the External Environmental Auditor will be required to ensure the following:

- All documentation (e.g. audit/monitoring/compliance reports and notifications) required to be submitted to the Department in terms of the EA;
- The holder of the EA must submit an external environmental audit report to the Department within 30 days of the completion of any audits at intervals that will be determined by the EA;
- The Environmental Audit Reports must indicate the date of the audit, the name of the auditor and the outcome of the audit in terms of compliance with the EA conditions as well as the requirements of an approved EMPr;
- Records relating to monitoring and auditing must be kept on site and made available for inspection to any relevant and competent authority in respect of this development.

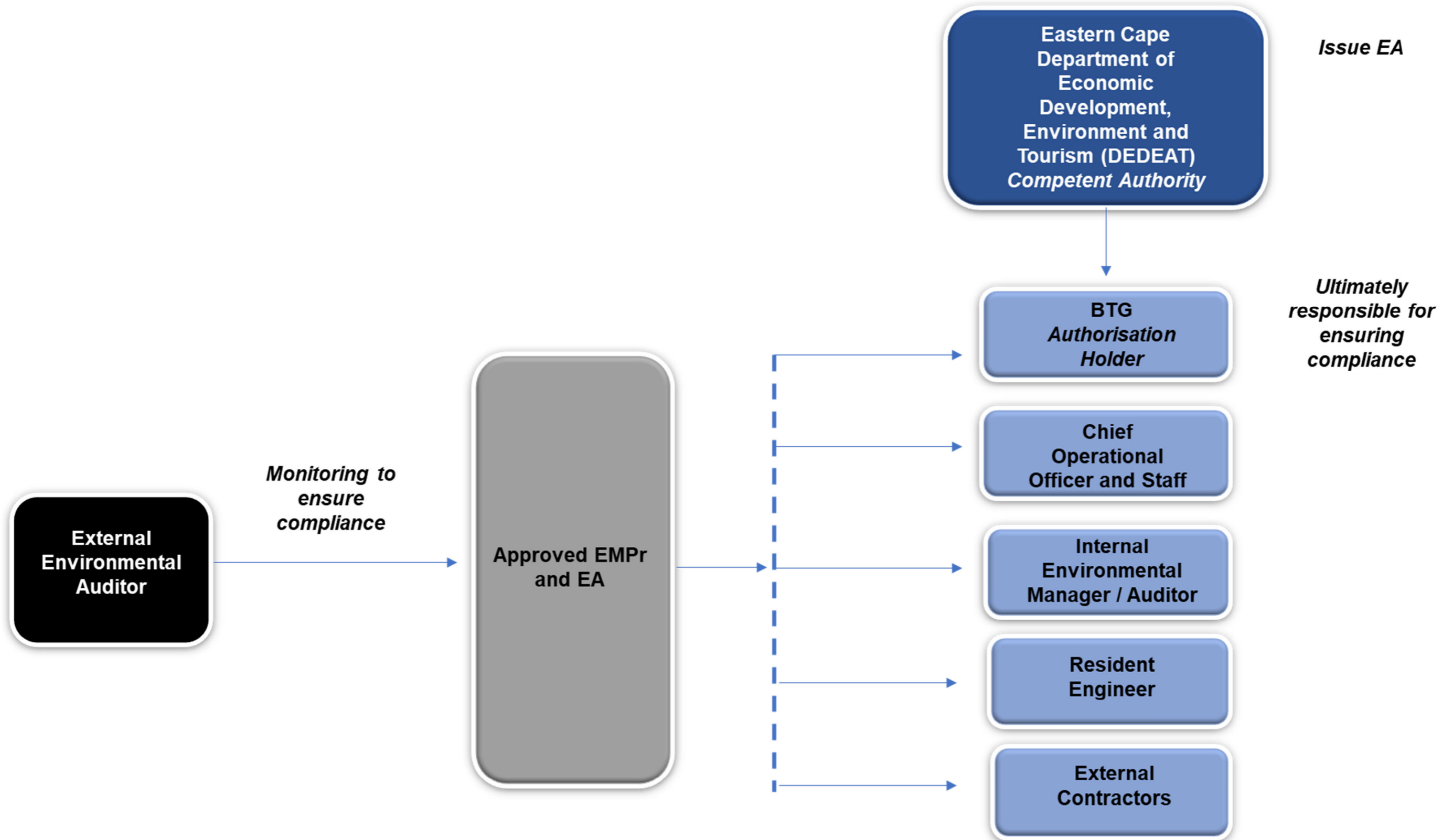


Figure 5: Roles and Responsibilities

7 ENVIRONMENTAL AWARENESS PLAN

Training aims to create an understanding of environmental management obligations and prescriptive measures governing the execution of the project. It is generally geared towards project team members that require a higher-level of appreciation of the environmental management context and implementation framework for the project. In contrast, **Environmental Awareness Creation** strives to foster a general attentiveness amongst the workforce to sensitive environmental features and an understanding of implementing environmental best practices. The Environmental Awareness Plan for the Development incorporates both training and environmental awareness to ensure that the proposed development is implemented in line with the requirements of the EMPr and that environmental sensitivities on site are managed correctly.

As part of this, Bay Terminals Group is committed to remaining responsible and accountable for environmental practices on site. Being accountable for environmental practices undertaken during working tasks and activities remain the responsibility of both employer and employee awareness of the potential environmental impacts that could result from these activities.

All potential incidents to the environment may be effectively minimised through effective training and awareness of the employees using any of the following methods:

- Supervisory meetings (weekly);
- Induction training (annually);
- EMPr Training (annually); and
- External environmental and/or health and safety courses (when applicable).

These methods are discussed below in more detail.

7.1 Meetings

Weekly supervisory meetings are ideal to facilitate awareness of specific environmental dangers pertaining to each week. Various topics may be discussed during these meetings and must be recorded or logged. All attendees at each meeting must sign an attendance register, these records must be kept on file at the administration office. Topics for discussion may include:

- Topics applicable to the entire operation;
- Area specific topics (e.g. heritage); and
- General environmental awareness:
 - Waste and waste water management;
 - Spillages;
 - Saving water;
 - Electricity consumption;
 - Dust control;

- Noise generation;
- Housekeeping;
- Indigenous Vegetation;
- Fauna;
- Alien vegetation; and
- Fire-making.

Should issues be identified by the Internal Environmental Manager, these can also be addressed during these weekly meetings.

7.2 EMPr Training

Aspects of the EMPr must be selected and discussed at training workshops at least annually or when a new employee is employed or contractor contracted. Such training topics may be focused around the incidents that are frequently reported during the previous year or specific to the work of the employee or contractor and may be focused around the following:

- Hydrocarbon spillages;
- Stormwater control;
- Waste management;
- Monitoring protocols; and
- Safety topics.

Workers should be informed that they may refuse work that is harmful to human health and/or the environment.

7.3 Induction Training

All new employees are required to undergo induction training prior to commencement of work. Returning and existing employees must undergo repeat induction training at least annually. Environmental awareness training must form part of the induction and must include the basic topics relating to the environment:

- Main environmental legislation (e.g. NEMA, NEMAQA; NEM:WA¹ or NWA²);
- Constitutional right pertaining to the environment;
- Waste management hierarchy;
- Environmental, social and economic concerns;
- Sensitive environmental features; and
- Prevention of poaching.

¹ National Environmental Management Waste Act (NEM:WA), 2008 (Act No. 59 of 2008)

² National Water Act (NWA), 1998, (Act No. 36 of 1998)

8 EMERGENCY PREPAREDNESS PLAN/ INCIDENT MANAGEMENT PLAN

8.1 Potential Emergencies

The following potential emergencies that may occur on site include:

- Environmental Incidents:
 - Fuel and hydrocarbon spillages;
 - Sewage spillages from the ablution facilities and sewer pipelines; and
 - Fire Hazards;
 - Explosion Hazards.
- Safety Incidents:
 - Injuries related to operation of heavy machinery;
 - Driving related accidents and incidents from Trucks on site during operation;
 - Criminal incidents such as theft or potential violent crime during construction and operation.

8.2 Emergency Plan

8.2.1 Emergency Assemblage Area

A central area on site must be demarcated with appropriate signage for the gathering of all employees and visitors on site in the event of an emergency.

8.2.2 Emergency Procedures

The following procedures must be compiled in order for the identified potential emergencies to be managed effectively:

- Drill and evacuation procedure for any emergency related incidents containing information on the following:
 - Reporting structure for all incidents;
 - Emergency contact information (e.g. telephone numbers);
 - Procedure to be followed for the specific emergency;
 - First Aid information;
- Spillages of fuel and hydrocarbons:
 - Immediate action plan (e.g. use of spill kits) to prevent spill for spreading;
 - Reporting of incident to manager and supervisor to advise on next steps;
- Procedure for theft and crime:
 - Details on security system on site;
 - Emergency response units;

- Panic alarms;
- Details of community response units.

8.2.3 Emergency Contact Information

A list of potential emergency contact centers specific to the area must be drawn up and displayed on common notice boards for all employees to access. The following emergency centers must be sourced:

- Nationwide emergency response;
- Cell phone Emergency;
- Ambulance;
- Hospitals;
- Fire Response; and
- Police.

This list must be checked and updated at least weekly to ensure that the information remains up to date.

9 INTEGRATED WASTE AND WASTE WATER MANAGEMENT PLAN

In order to ensure waste is properly dealt with, waste management is included in the EMPr. In addition, a **Waste Management Plan** is discussed below.

9.1 Legal Requirements

Section 16 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), as amended states that –

“A holder of waste must, within the holder’s power, take all reasonable measures to –

- *Avoid the generation of waste and where such generation cannot be avoided, to minimise the toxicity and amounts of waste that are generated;*
- **Reduce, reuse, recycle and recover waste;**
- *Where waste must be disposed of, ensure that the waste is treated and disposed of in an environmentally sound manner;*
- *Manage the waste in such a manner that it does not endanger health or the environment or cause a nuisance through noise, odour or visual impacts;*
- *Prevent any employee or any person under his or her supervision from contravening this Act;*
- *Prevent the waste from being used for any unauthorised purpose.*

Only temporary storage of waste is allowed (once of storage of waste for a period less than 90 days). The volume of material should be limited to less than 100m³ of general waste and less than 80m³ of hazardous

waste. Should this be exceeded the Norms and Standards for the Storage of Waste will need to be complied with.

9.2 Waste Hierarchy

Management objectives provided in this EMPr are aligned to the waste management hierarchy indicated in Figure 6.

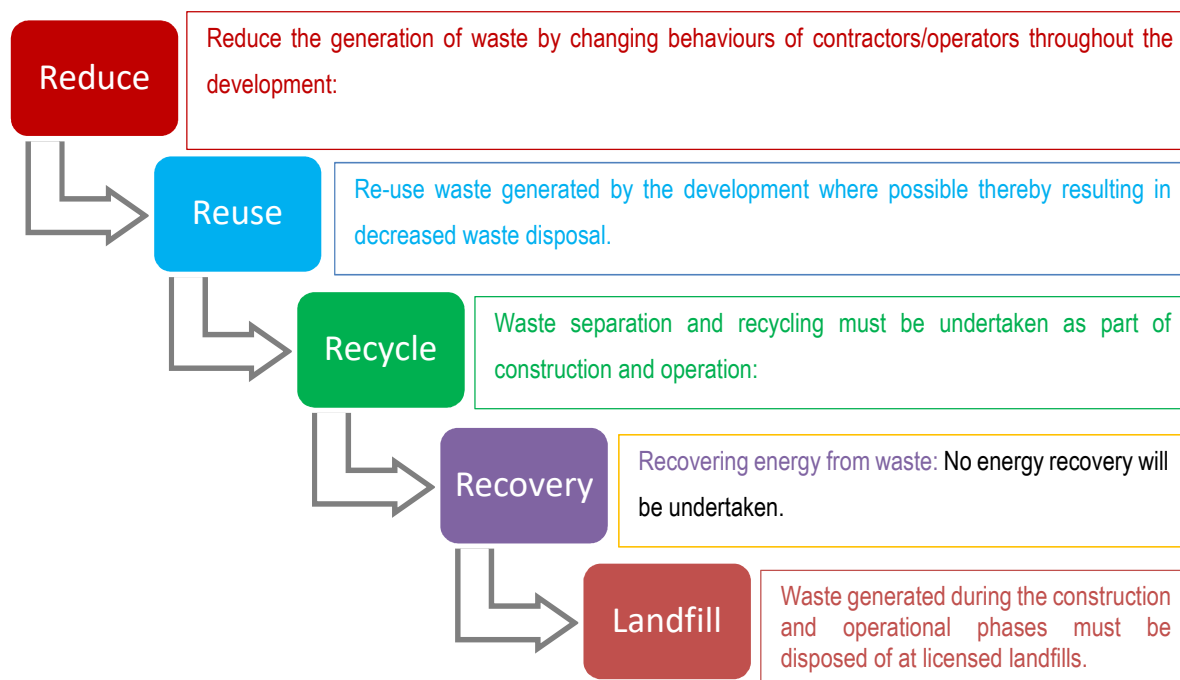


Figure 6: Waste Hierarchy

9.3 Waste Management Actions

The following waste management actions must be implemented in order to ensure the objectives included in the waste hierarchy above are met.

9.3.1 Waste Avoidance and Reduction

Avoidance and reduction should be practiced wherever possible. Recommended actions include: but are not limited to:

- Bulk buying of materials to reduce the volume of packaging required;
- Avoidance of materials/items/brands that are heavily packaged, have a short lifespan or are low quality;
- Buying items that last longer and can be repaired;
- Buying items in refillable containers;

- Environmental awareness training should focus on management of waste and all construction workers should be aware of the importance of waste minimisation and avoidance.

9.3.2 Recycling

Recycling should be practiced whenever waste prevention or reuse is not possible, provided that any such recycling is cost effective, taking into consideration environmental benefits, financial costs and community interests.

Potential priority recyclable waste streams include:

- Used Oil;
- Paper;
- Glass;
- Tyres;
- Plastics;
- Timber;
- Building rubble; and
- Electronic waste.

The following actions must be implemented:

- To reduce or avoid the need for sorting after collection, the categories of distinctively marked waste receptacles must be provided in order to receive waste as it is generated.
- These receptacles shall be fitted with a tight cover;
- All types of waste collection receptacles shall be clearly marked with the type of waste they are receiving;
- Obtain and label recycling containers for office waste, aluminium, steel, glass, ferrous metals, nonferrous metals, waste timber;
- Locate these containers within office buildings and trailers;
- Establish a recycled material collection schedule; and
- Arrange full bins to be hauled away.

9.3.3 Waste Disposal

The contractor is responsible for removal of all waste from the site, generated through the contractor's activities. The contractor shall ensure that all waste is removed to an appropriately licensed waste management facilities (the following source may be utilised – www.sawic.org.za). During operation, waste that is not collected for recycling must be collected by the municipality or by a municipality approved 3rd party collector.

In addition, it should be noted that the classification of waste determines the handling methods and the ultimate disposal of the material. All **hazardous waste** that may be generated by operational activities must be managed as follows:

- Characterise the waste to determine if it is general or hazardous (Use the Appendix 1 of the Norms and Standards for the Classification of Waste for landfill to determine whether additional classification is required);
- Obtain and provide an acceptable container with a label;
- Place hazardous waste material in the container;
- Inspect the container on a regular basis;
- Haul the full container to the licenced and correct disposal site;
- Provide documentary evidence of proper disposal of the waste.

In addition, the following actions must also be undertaken:

- Provide waste skips on site. These skips should be sufficient in number, the skip storage area should be kept clean, skips should be emptied and replaced before overflowing or spillage occurs;
- Skips should be covered to prevent waste blowing away;
- Vermin / weatherproof bins will be provided in sufficient numbers and capacity to store domestic waste. These bins must be kept closed to reduce odour build-up and emptied regularly to avoid overfilling and other associated nuisances;
- Ensure that solid waste is transported to avoid waste spills en-route;
- No waste shall be buried or burned anywhere on the site;
- Permits to transport/dispose of waste must be in place.

9.3.4 Waste Water Management

9.3.4.1 Process water

Process wastewater (oily water) will consist mainly of tank bottom draining, and contaminated stormwater runoff, including water from tank leaks and spills that collect in the oil water interceptor containment sump. Oily water will be channeled via the oily water sewer to the oil-water INTERCEPTOR separator. Recovered oil will be pumped to the Slops Tank, and water from the separator will be sampled to ensure compliance with the requirements of the Water Quality Act prior to release to the sewer water system.

9.3.4.2 Domestic waste water

Wastewater generated from the toilet facilities, ablutions and domestic use will be disposed of into the municipal sewer system.

9.3.4.3 Stormwater

It is envisaged that the site will be separated into three stepped platforms, each with a slight slope falling to the north-east. Generally, the surface water will be directed towards the roadways, which will act as the principal stormwater collectors. Where necessary, surface water will be collected in catch pits and piped below the surface to the nearest municipal stormwater system. Recycled water will be treated for re-use or discharged to the sewer system if no longer required.

Areas that could become [potentially] contaminated are contained, in the main tank area Bunds, and low banded loading areas – tank bunds and loading areas are isolated with sumps and valves, and drained separately to the oil water interceptor, that discharges to sewer under controlled conditions by opening a valve under supervision according to the SOP and EMS. Loading areas and wash bays will be covered to reduce the risk to contaminated storm water and reduce these volumes to be handled.

Clean paved areas not subject to process spillages shall be contoured to ensure run-off is directed away from potentially contaminated areas to the storm water sewer system.

All contaminated areas will be drained to the Interceptor per SANS 10089-1. Parking will be drained to standard stormwater system per SANS 0252.

9.3.4.4 Slops Handling

Slops is hazardous chemical or petrochemical contaminated “oily” water. This must be handled responsibly and treated to correct effluent management policies. These must be written into the EMS for the site. Standard operating procedures (SOP) must be drafted, with appropriate staff training for the handling and operations around both the effluent discharges and slop oil and sludges. These liquids contain petrochemical traces and out of specification contaminated water to be removed from site for on-processing as required. This is by specialist waste oil companies approved by the local and national authorities. Where tank cleaning sludge is solid this must be inerted and disposed of responsibly to High Hazard solid waste systems. Solids skips and inerting materials must be used for solid wastes. Spill kits and booms must be available for emergency procedures.

Where required slops may be removed from site by approved specialist waste oil operators, who are typically ROSE foundation members. This will be loaded into tankers in the allocated bay. Only temporary storage of waste is allowed (once of storage of waste for a period less than 90 days). The volume of material should be limited to less than 100m³ of general waste and less than 80m³ of hazardous waste. Should this be exceeded the Norms and Standards for the Storage of Waste will need to be complied with.

The slops handling facility on site have a capacity to hold 450 m³ of potentially hazardous waste and therefore, the Norms and Standards for the Storage of Waste is applicable to the proposed development

and should be implemented by the Authorisation Holder. The Norms and Standards are attached in Appendix B of the OEMPR.

10 MONITORING PLAN

Monitoring is required to ensure that the receiving environment at the proposed development is suitably safeguarded against the identified potential impacts during the operational phase, and to ensure that the environmental management requirements are adequately implemented and adhered to throughout the project.

A method of monitoring, with the goal to ensure environmental compliance will be constructed. The method will indicate whether the inspection is to be Internal, External, or third party related. Furthermore, the method will chronologically display the frequencies of monitoring to take place as well as the entity responsible to check that corresponding management objective and ensure its outcome.

10.1 Compliance Monitoring and Auditing

10.1.1 Environmental Audits

The mechanism for monitoring compliance with the management and mitigation measures stipulated within the EMPr must include an audit undertaken by an External (Independent) Environmental Auditor.

The objective of the environmental audit is to:

- Report on the level of compliance with the conditions of the environmental authorisation and the management and mitigation measures stipulated within the OEMPr;
- The extent to which the avoidance, management and mitigation measures provided in Section 12 achieve the objectives and outcomes in Section 5;
- Identify and assess new impacts and risks as a result of undertaking the activities;
- Evaluate the effectiveness of the management and mitigation measures generated in the OEMPr;
- Identify shortcomings in the OEMPr;
- Identify the need for any changes to the avoidance, management and mitigation measures provided for in the OEMPr.

The conditions of the Environmental Authorisation and Atmospheric Emissions Licence may also require that internal environmental audits be conducted periodically, usually more frequent than external audits, and require the audit reports to be submitted to the Department.

10.1.2 Procedure

The following methodology or procedure is suggested for the assessment of the management and mitigation measures of the OEMPr:

- Pre-site preparation: prior to the site inspection a review of the management measures contained in the OEMPr, and a checklist must be drawn up;
- Site inspection: The site must be traversed on foot and must include an assessment of each major component of the facility.
- Documentation review: after the site inspection a documentation review must be undertaken by requesting specific key documentation relating to the proposed development.

10.1.3 Evaluation Criteria

During evaluation of the EMPr, the following criteria must be used:

- Management measures stipulated in the plan;
- Environmental monitoring required;
- Legal requirements; and
- Best practice observations.

10.1.4 Reporting

All inspections undertaken as part of internal / external auditing must be provided in the form of a report. External audits will be submitted to the competent authority as required by the EIA Regulations, 2014 [as amended in 2017]. The Environmental audit report must provide for recommendations regarding the need to amend the EMPr. The Competent Authorities may require that internal be conducted and audit reports be submitted as well, usually more frequent than external audits.

Objectives of the environmental audit report as per the EIA Regulations, 2014 [as amended in 2017] is to:

- (a) report on-
 - (i) The level of compliance with the conditions of the environmental authorisation;
 - (ii) The extent to which the avoidance, management and mitigation measures provided for in the EMPr, and where applicable, the closure plan achieve the objectives and outcomes of the EMPr;
- (b) identify and assess any new impacts and risks as a result of undertaking the activity;
- (c) evaluate the effectiveness of the EMPr;
- (d) identify any shortcomings in the EMPr;
- (e) identify the need for any changes to the avoidance, management and mitigation measures provided for in the EMPr.

Content of environmental audit reports

- (1) An environmental audit report prepared in terms of the Regulations must contain-
 - (a) Details of the-
 - (i) Independent person who prepared the environmental audit report; and
 - (ii) Expertise of the independent person that compiled the environmental audit report;
 - (b) A declaration that the independent auditor is independent in a form as may be specified by the competent authority;
 - (c) An indication of the scope of, and the purpose for which, the environmental audit report was prepared;
 - (d) A description of the methodology adopted in preparing the environmental auditor report;
 - (e) An indication of the ability of the EMPr to-
 - (i) Sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity on an ongoing basis;
 - (ii) Sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the closure of the facility; and
 - (iii) Ensure compliance with the provisions of environmental authorisation and EMPr;
 - (f) A description of any assumptions made, and any uncertainties or gaps in knowledge;
 - (g) A description of any consultation process that was undertaken during the course of carrying out the environmental audit report;
 - (h) A summary and copies of any comments that were received during any consultation process; and
 - (i) Any other information requested by the competent authority.

10.1.5 Penalties

In order to ensure that there is adequate motivation for the contractor to comply with the conditions set out in the OEMPr, the following applies with regards to penalties:

- The Contractor and / or employees will comply with the environmental requirements on an ongoing basis, and any failure on their part to do so will entitle the Chief Operational Officer, in consultation with the Internal Environmental Manager, to certify the imposition of a fine subject to the details set out in the OEMPr;
- The Chief Operational Officer, Internal Environmental Manager and Auditor and any other specific personnel as designated by the Chief Operational Officer may alter the Schedule of Fines for this specific project;
- Fines may be issued per incident at the discretion of the Chief Operational Officer. Such fines will be issued in addition to any remedial costs incurred as a result of non-compliance with the requirements of the OEMPr and documents supporting thereof. Fines may be omitted from construction guarantees as supplied by the contractor.

- The Chief Operational Officer and Internal Environmental Manager and Auditor will be the judge as to what constitutes a transgression in terms of the above clause. Further, note that in the event that transgressions continue to an unacceptable level the client may cancel the contract of any contractors or employees;
- Where the Contractor/employee inflicts non-repairable damage upon the environment or fails to comply with any of the environmental requirements, he will be liable to pay a penalty fine over and above any other contractual consequence. This may also lead into a Rectification Application in terms of Section 24G of the NEMA, which could lead to certain fines and / or prosecution.
- The Contractor/employee is deemed NOT to have complied with this specification if:
 - Within the boundaries of the site, site extensions and access roads there is evidence of contravention of the requirements of the EMPr;
 - Environmental damage ensues due to negligence;
 - The Contractor/employee fails to respond adequately to complaints from the public;
 - Legal action is instituted against the authorization holder in terms of Environmental laws due to any action / activities undertaken by the Contractor/employee;
- Payment of any fines in terms of the contract will not absolve the offender from being liable from prosecution in terms of any law; and
- A record of penalties will be maintained within the procurement department and may influence later commissions awarded to the contractor.

11 OEMPR REVIEW AND AMENDMENT

This is the first draft OEMPr in regard to the application. Future amendments, additions and changes are anticipated. The section within this document is dedicated, hereon, to indicate such amendments, additions, and changes to the OEMPr. An adaptive strategy must be followed in terms of the OEMPr requirements, to ensure, regardless of any reasonable circumstance, the best possible outcomes and management of the environment.

12 OPERATIONAL ENVIRONMENTAL MANAGEMENT PROGRAMME

Mitigation measures for all activities related to operation of the facility are provided below. The mitigation measures from various specialist studies and technical studies have been included. Management actions are linked to a specific impact, project activity and overall management objective. Information on the institutional responsibilities and the frequency of the actions is provided as well.

The objective of the following OEMPr management measures is to prevent and or mitigate all potential impacts on the environment potentially caused by the operational phase of the proposed activity. The OEMPr also aims to provide a tool to monitor the continuous compliance of the operational phase of the facility in terms of all envisioned environmental aspects. The recommended actions regarding the

management, in relation to the specific project activity, of the facility's operation are provided below. The recommended actions were, determined by the following listed related specialist and technical studies. Management actions are linked to a specific impact and overall management objective.

Furthermore, third-party verification in terms of compliance with all the conditions contained herein are recommended, including methodology, frequency and responsibilities. Lastly, although great care has been taken to ensure that this OEMPr considers all the necessary aspects to ensure environmental compliance, an added input may be required to ensure that a best practice approach (and the most preferred outcomes) is established. Environmental Management Systems should also be developed at commissioning of the activity and Standard Operating Procedures before operation starts.

The following specialist studies and technical studies were consulted in the compilation of this OEMPr, especially in terms of the recommended mitigation measures:

- Draft Engineering Process Description Report;
- AQIA (Air Quality Impact Assessment) Report;
- Ecological Impact Assessment Report;
- NEMA Risk Assessment Report; and
- Traffic Impact Assessment Report.

Table 6: Management measures to be implemented before the operational phase

Potential Impact	Project Activities	Management Objectives	Proposed Mitigation Measures/ Management Actions	Performance Indicator	Monitoring Method	Monitoring Frequency	Monitoring Responsibility
LEGISLATIVE REQUIREMENTS AND DOCUMENT CONTROL							
General requirements	Commissioning of the tank farm operations including, storage, handling and transfer of fuel.	All relevant authorisations, licences and approvals are in place prior to the commencement of operation.	<ul style="list-style-type: none"> Approvals to be in place prior to operational phase. 	Copies of approvals (EA, MHI Risk Assessment) AEL) available in environmental site file (hard copy or electronic).	Maintaining environmental site file.	Once off prior to operational phase.	Chief Operational Officer
	Commissioning of the tank farm operations including, storage, handling and transfer of fuel.	A formal document control system is in place to ensure all relevant documents are in place prior to commencement.	<p>An environmental file/document control system must be designed and put in place.</p> <ul style="list-style-type: none"> Prior to the operational phase, the following documents must be included in the file: <ul style="list-style-type: none"> Operational OEMPr; Environmental Authorisation (EA); Atmospheric Emissions License (AEL); NEMA Risk Assessment; Major Hazardous Installation (MHI) Risk Assessment; Approved Air Quality Monitoring and Management Plan; Environmental Impact Assessment Report; Environmental Specialist Studies; Stormwater management plan – approved; Internal and External Audit Reports; The public complaints register in which all complaints are recorded, as well as actions taken; The record (incident register) of environmental incidents (spills, impacts, legal transgressions, etc.) as well as corrective and preventive actions taken; Spill procedures; Method statements; Standard operating procedures; Signed off as-built or construction designs; Emergency response procedures; Environmental monitoring results and reports; Invasive species monitoring, control and eradication plan for the Coega SEZ; Environmental awareness training plan and records (attendance registers etc.); 	An environmental file/document control system are in place on site.	Maintaining environmental site file, preferably electronically.	Once off prior to operational phase and maintaining documents and file throughout the operational phase.	Internal Environmental Manager and Auditor Chief Operational Officer

Potential Impact	Project Activities	Management Objectives	Proposed Mitigation Measures/ Management Actions	Performance Indicator	Monitoring Method	Monitoring Frequency	Monitoring Responsibility
			<ul style="list-style-type: none"> o Safe Disposal Certificates from hazardous waste, used oil and general waste contractors; o Waste management register; o Water quality test results and any monitoring reports; o All applicable codes and standards that the tank farm must comply with; and o Proof of notification of Competent Authorities of commencement of construction. 				
	Commissioning of the tank farm operations including, storage, handling and transfer of fuel.	Nelson Mandela Metropolitan Municipality (NMBM) requirements regarding notification have been met.	<ul style="list-style-type: none"> • NMBM should be notified of the commencement of operation. 	Proof of notification in environmental site file.	Maintaining environmental site file, preferably electronically.	Once off prior to operational phase	Internal Environmental Manager and Auditor Chief Operational Officer
	Commissioning of the tank farm operations including, storage, handling and transfer of fuel.	Eastern Cape Department of Economic Development, Environment and Tourism (EC DEDEAT) requirements regarding notification have been met.	<ul style="list-style-type: none"> • EC DEDEAT should be notified of the commencement of operation. 	Proof of notification in environmental site file.	Maintaining environmental site file, preferably electronically.	Once off prior to operational phase	Internal Environmental Manager and Auditor Chief Operational Officer
	Commissioning of the tank farm operations including, storage, handling and transfer of fuel.	Site specific method statements from external contractors are compiled and approved.	<ul style="list-style-type: none"> • Based on the EMPr, the external contractors must compile specific method statements which must be approved by the Chief Operational Officer prior to operation. At a minimum this should include: <ul style="list-style-type: none"> o Method statement for domestic cleaning; o Method statement for hazardous waste removal; o Method statement for general waste removal; o Method statement for removal of recyclables (paper, metal, timber etc.) removal contractors; o Method statement for used oil removal. 	Method statements signed off by the Chief Operational Officer in environmental site file.	Maintaining environmental site file, preferably electronically.	Once off prior to operational phase	Chief Operational Officer
	Commissioning of the tank farm operations including, storage, handling and transfer of fuel.	Site specific method statements are compiled and approved.	<ul style="list-style-type: none"> • Based on the EMPr, Internal Environmental Manager and Auditor must compile specific method statements which must be approved by the Chief Operational Officer prior to operation. At a minimum this should include: <ul style="list-style-type: none"> o Method statement regarding waste and wastewater management; 		Maintaining environmental site file, preferably electronically.	Once off prior to operational phase	Internal Environmental Manager and Auditor

Potential Impact	Project Activities	Management Objectives	Proposed Mitigation Measures/ Management Actions	Performance Indicator	Monitoring Method	Monitoring Frequency	Monitoring Responsibility
			<ul style="list-style-type: none"> Method statement to show procedures for dealing with possible emergencies that can occur, such as fire and accidental leaks and spillage of carbon fuels and oils; Method Statement for air quality control; Method statement for the storage and handling of hazardous substances; Method statement for controlling alien invasive species and noxious weeds. 				
	Commissioning of the tank farm operations including, storage, handling and transfer of fuel.	Site specific Standard Operating Procedures	<ul style="list-style-type: none"> Based on the EMPr and MHI Risk assessment, the Chief Operational Officer must compile specific Standard Operating Procedures, which must be approved by the relevant authorities. 	Standard Operating Procedures and approval thereof occurring in the site file.	Maintaining environmental site file.	Once-off prior to operation.	Chief Operational Officer Internal Environmental Manager and Auditor
	Commissioning of the tank farm operations including, storage, handling and transfer of fuel.	Approval of installation of all tank farm and pipeline infrastructure	<ul style="list-style-type: none"> Based on the as-built engineering drawings and MHI risk assessment, the Resident Engineer, Design Engineers and MHI Risk assessor must inspect and approve the installation of all tank farm infrastructure and pipelines. 	Signed off as-built drawings.	Maintaining environmental site file.	Once-off prior to operation.	Chief Operational Officer Resident Engineer
ENVIRONMENTAL AWARENESS CREATION – INDUCTION							
General Requirements	Commissioning of the tank farm operations including, storage, handling and transfer of fuel.	Environmental awareness creation and training is undertaken prior to operation commencement to minimise environmental impacts and ensure compliance to relevant legislation and authorisations.	<ul style="list-style-type: none"> Internal Environmental Manager and Auditor to induct relevant external contractor managers and employees of the tank farm at the start of the project. This induction should provide an overview of the authorisation and the OEMPr. The environmental awareness training course for management shall include all management and foremen; The external contractors must arrange that all of his employees and those of his sub-contractor go through the project specific environmental awareness induction before the commencement of operation and as and when new staff or sub-contractors are brought on site; A system must be in place to ensure all new employees have received training; All attendees shall remain for the duration of the course and sign an attendance register that clearly indicates participant's names on completion. 	A copy of the attendance registers is to be retained within the environmental site file.	Maintain environmental site file. Spot checks by Chief Operational Officer	Prior to operation and thereafter, at least bi-annually and with every new employee at the tank farm.	Internal Environmental Manager and Auditor Chief Operational Officer

Table 7: Management measures to be implemented during the operational phase

Potential Impact	Project Activities	Management Objectives	Proposed Mitigation Measures/ Management Actions	Performance Indicator	Monitoring Method	Monitoring Frequency	Monitoring Responsibility
ATMOSPHERIC EMISSIONS							
Emissions from vehicles and equipment (CO ² , NO _x , SO _x , VOC's etc.)	Operation of machinery on site and driving of trucks on local, provincial and national roads to transport fuel to retailers.	All vehicles and machinery on site must be properly maintained to reduce emission sources.	<ul style="list-style-type: none"> All vehicles and machinery will be maintained such as to operate efficiently. Idling times of vehicles and machinery to be minimised; In terms of transportation of workers and materials, collective transportation arrangements should be made to reduce individual car journeys where possible; All vehicles and other machinery should comply with road worthy requirements and comply with legislation in terms of allowable emissions. 	Signed, up to date maintenance schedules of all machinery and vehicles available on request.	Documentation review, maintaining site file.	Daily and as required by maintenance schedule	Internal Environmental Manager and Auditor Operations Manager and/ or Chief Operational Officer.
Point source emissions from HFO boiler including SO ₂ ; PM10; NO ₂ and CO may alter air quality.	Operation of the HFO Boiler/s.	Reduce emissions from HFO Boilers and associated impacts on air quality.	<ul style="list-style-type: none"> Use low sulphur content Heavy Fuel Oil (HFO) as energy source to Boiler, as prescribed by the NMBM as specified in AEL; Develop and maintain environmental management system for emission control as per Atmospheric Emissions License; Monitoring: <ul style="list-style-type: none"> Manual emissions measurements as per Annexure A of Government Notice No. 831 of 2013 (Declaration of a small boiler as a controlled emitter and establishment of emission standards; 3 measurements measured over a minimum sample period of 60 minutes; Parameters: Particulate Matter (PM10), Sulphur dioxide (SO₂), Nitrogen dioxide (NO₂) and Carbon monoxide (CO). 	Safety Data Sheet /product sheet for HFO received by supplier indicating low Sulphur content of the HFO. Monitoring sampling results and air quality monitoring report with emissions below the emissions standards.	Documentation review, maintaining site file.	Monthly Ongoing Annually	Internal Environmental Manager and Auditor Operations Manager and/ or Chief Operational Officer.
Area source emissions including Volatile Organic Compounds (VOCs) (BTEX), from the whole site during operation may alter air quality and impact on surrounding land	Handling of fuel, especially at the loading bays. Storage of fuel.	Reduce emission from VOC's and associated impacts.	<ul style="list-style-type: none"> ULP and JET fuel tanks should have a fixed dome roof with internal floating roof. Diesel tanks – should have a fixed dome roof with facility of nitrogen-inerting for vapour space. Vapour Recovery Unit (VRU) - A vapour recovery system to be included at the loading gantry to alleviate pressure differences while loading product. The vapour recovery shall extract vapour from the road tankers and re-liquefy through a compressor to pump back to the tanks. A vapour recovery system will be in place to recover vapours displaced during filling activities at the storage tanks as well as at the road tanker filling facilities. The VRU processes surplus vapours providing both an ecological and economic aspect of 	Ground-level concentrations should be below the concomitant air quality standards.	Fence-line VOC monitoring system	Continuous	Internal Environmental Manager and Chief Operational Officer

Potential Impact	Project Activities	Management Objectives	Proposed Mitigation Measures/ Management Actions	Performance Indicator	Monitoring Method	Monitoring Frequency	Monitoring Responsibility
uses and sensitive species.			<p>recovering products, with an average 1,5 litres/m³ of hydrocarbon vapours. The vapour recovery system will most probably be a Membrane Technology system, or a Carbon Technology system. The liquified hydrocarbons are then pumped to the Slops Tank.</p> <ul style="list-style-type: none"> As is required by GN893, all fuel transfer points will be serviced by vapour recovery units which must have a minimum efficiency of 95%. Emission testing should be conducted as per Schedule A of Government Notice 248. Environmental Management System to be developed as per the Atmospheric Emissions Licence Application. 				
Noise nuisance to surrounding land owners and animals.	General operational activities, vehicles speeding or operation of vehicles of machinery that are in poor condition.	Ensure that noise disturbance to surrounding areas are minimised and that construction activities comply with the Noise Control Regulations and the provisions of South African National Standards; Environmental, Health and Safety (EHS) Guidelines, World Health Organisation (WHO, 2002).	<ul style="list-style-type: none"> The provisions of SANS 10103:2008 will apply to all areas within audible distance of residents or adjacent landowners; Equipment and/or machinery which will be used must comply with the manufacturer's specifications on acceptable noise levels; When required noise mufflers should be utilised to reduced noise; It is important to keep an open channel of communication between all stakeholders and keep record of any concerns raised. 	<p>Noise mufflers are in use. Complaints register in file and should any noise complaints be recorded should also describe how it has been resolved.</p> <p>Compliance with SANS 10103:2008.</p>	<p>Noise monitoring as spot checks.</p> <p>Maintaining complaints register.</p>	Daily and when complaints are received.	<p>Internal Environmental Manager and Auditor</p> <p>Chief Operational Officer</p>
WATER IMPACTS (SURFACE AND GROUNDWATER)							
Liquid waste including sewage may cause stormwater and groundwater pollution if not managed and disposed of correctly.	Storage and handling of waste water and contaminated stormwater. Maintenance of infrastructure (e.g. sewer pipelines).	Activities are managed correctly to ensure no negative impacts to water quality is incurred. This includes proper management of ablution facilities and waste water.	<ul style="list-style-type: none"> Management of Ablution Facilities: <ul style="list-style-type: none"> Adequate ablution facilities to be provided and maintained to the permanent staff and clients. Management of waste water: <ul style="list-style-type: none"> Ensure that clean run-off water is diverted away from potentially contaminated areas of the construction site; Safe disposal of liquid waste; Waste and waste water management plan as per this EMPr (Section) to be implemented. 	<p>Ablution facilities are kept in a hygienic condition and are in good working order.</p> <p>No visible spillages or leaks form internal or external sewer pipelines.</p> <p>Safe disposal certificates in the site file.</p>	Spot checks	Daily	<p>Internal Environmental Manager and Auditor</p> <p>Chief Operations Manager</p>

Potential Impact	Project Activities	Management Objectives	Proposed Mitigation Measures/ Management Actions	Performance Indicator	Monitoring Method	Monitoring Frequency	Monitoring Responsibility
Diversion and increased velocity of surface water flows – Changes to the hydrological regime and increased potential for erosion.	Stormwater management on site.	Reduce the impacts associated with infrastructure to be constructed as part of the proposed development such as roads and pipelines and stormwater management structures.	<ul style="list-style-type: none"> Approved stormwater management plan to be implemented; Stormwater and any runoff generated by the hard surfaces should be discharged into energy dissipation structures, where required. These could be used to enhance the sense of place, if they are planted with indigenous vegetation. These energy dissipation structures should be placed in a manner that flows are managed prior to being discharged back into the environment, thus preventing erosion. 	<p>Approved stormwater management plan implemented and maintained.</p> <p>No signs of erosion or loss of vegetation as a result of stormwater emanating from the site or from the pipeline reserve and service road.</p>	Inspection of stormwater infrastructure and along the pipeline reserve and around the site.	Monthly and after rain	Internal Environmental Manager and Auditor Chief Operational Officer
Diversion and increased velocity of surface water flows – reduction in permeable surfaces.	Stormwater management on site.	Reduce the impacts associated with infrastructure to be constructed as part of the proposed development such as roads and pipelines and stormwater management structures.	<ul style="list-style-type: none"> Approved stormwater management plan to be implemented; Stormwater and any runoff generated by the hard surfaces should be discharged into energy dissipation structures, where required. These could be used to enhance the sense of place, if they are planted with indigenous vegetation. These energy dissipation structures should be placed in a manner that flows are managed prior to being discharged back into the environment, thus also supporting the maintenance of natural base flows within these systems, i.e. hydrological regime (water quantity and quality) is maintained; The stormwater structures and infrastructure should be maintained on a regular basis. 	<p>Approved stormwater management plan implemented and maintained.</p> <p>No signs of erosion, loss of vegetation or drying out of areas as a result of stormwater emanating from the site or from the pipeline reserve and service road.</p>	Inspection of stormwater infrastructure and along the pipeline reserve and around the site.	Monthly and after rain	Internal Environmental Manager and Auditor Chief Operational Officer
Impact of changes to water quality through operational materials such as sediments and hydrocarbon spillages, may pose a threat to the instream and adjacent vegetated areas, if by chance it is dispersed via surface run-off or allowed to	<p>Storage and handling of fuel.</p> <p>General operational activities.</p> <p>Maintenance of infrastructure.</p> <p>Stormwater management on site.</p>	<p>Ensure no spillages through proper management of storage and handling of fuel.</p> <p>Ensure stormwater is properly managed.</p> <p>Effective and safe management of hazardous materials on site, to minimise the impact of materials on the environment by following approved Standard Operating Procedures full</p>	<ul style="list-style-type: none"> Littering and contamination of water sources during operation must be prevented by effective waste and waste water management and prevention of spills; Spill procedures must be in place in case of spillages onto road surfaces; Implement approved method statements for managing of waste and waste water and removal; Implement approved standard operating procedures for waste and waste water management; Implement approved standard operating procedures for handling of fuel/product; Maintain tank farm and pipeline infrastructure in a good condition; Maintain silt traps, sumps and oil separators as part of the Stormwater Management System; Ensure that clean run-off water is diverted away from potentially contaminated areas of the construction site; 	<p>No signs of hydrocarbon spillages.</p> <p>No sign of contaminated water within the municipal stormwater system or clean stormwater areas or release into the environment.</p> <p>Spill procedure and standard operating procedure present in the site file and included in environmental awareness training plan.</p>	<p>Maintain environmental site file.</p> <p>Spot checks</p>	Daily	Internal Environmental Manager and Auditor Chief Operational Officer Resident Engineer

Potential Impact	Project Activities	Management Objectives	Proposed Mitigation Measures/ Management Actions	Performance Indicator	Monitoring Method	Monitoring Frequency	Monitoring Responsibility
permeate groundwater.		compliance with relevant standards and codes.	<ul style="list-style-type: none"> Safe disposal of liquid waste; Waste and waste water management plan as per this EMPr (Section 9) to be implemented. 	Incident register maintained with any incidents of spillages and mitigating actions taken recorded.			
WASTE GENERATION							
Increased generation of hazardous waste by the activity put strain on service delivery institutions.	<p>Cleaning of fuel storage tanks.</p> <p>General operational activities.</p>	Effective and safe management of hazardous materials on site, to minimise the impact of materials on the environment by following approved Standard Operating Procedures full compliance with relevant standards and codes.	<ul style="list-style-type: none"> The classification of waste determines the handling methods and the ultimate disposal of the material. The contractor shall manage hazardous waste that are anticipated to be generated by his operations as follows: <ul style="list-style-type: none"> Characterise the waste to determine if it is general or hazardous (Use the Appendix 1 of the Norms and Standards for the Classification of Waste for landfill to determine whether additional classification is required); Obtain and provide an acceptable container with a label; Place hazardous waste material in the container; Inspect the container on a regular basis; Haul the full container to the licenced and correct disposal site; Provide documentary evidence of proper disposal of the waste. Only temporary storage of waste is allowed (once of storage of waste for a period less than 90 days). The volume of material should be limited to less than 80m³ of hazardous waste. Should this be exceeded the Norms and Standards for the Storage of Waste will need to be complied with; Containers must be emptied frequently before reaching capacity; All hazardous waste must be disposed of at the nearest hazardous landfill; Waste may not cause any nuisance (e.g. contamination) Records of waste manifest documents must be retained at the administration office; Certificates of registration must be retained for transporters of hazardous waste and retained in record at the administration office; Safe disposal of hazardous waste; Valid contract with external contractor in place and maintained; Approved external contractor method statement implemented; 	<p>Safe disposal certificates in the site file.</p> <p>Valid contract for the removal of hazardous waste available in site file.</p> <p>Approved Standard Operating Procedure for the slops handling facility available in the site file.</p> <p>Approved method statement available in site file.</p>	<p>Maintain environmental site file.</p> <p>Spot checks</p>	<p>Daily</p> <p>Weekly</p>	<p>Internal Environmental Manager and Auditor</p> <p>Chief Operational Officer</p>

Potential Impact	Project Activities	Management Objectives	Proposed Mitigation Measures/ Management Actions	Performance Indicator	Monitoring Method	Monitoring Frequency	Monitoring Responsibility
			<ul style="list-style-type: none"> Implementing approved Standard Operating Procedure for hazardous waste management; Implementing the Norms and Standards for the storage of waste, if above 80 m³ of hazardous waste is stored onsite; Waste and waste water management plan as per this EMPr (Section) to be implemented. 				
Increased generation of general waste by the activity put strain on service delivery institutions.	<p>Office activities.</p> <p>General operational activities.</p> <p>Utilising and maintaining ablution and wash-up facilities.</p>	General waste must be managed properly to ensure minimal impacts.	<ul style="list-style-type: none"> Safe disposal of waste; Valid contract with external contractor for removal of waste in place and maintained; Approved external contractor method statement implemented; Approved Standard Operating Procedure for waste management implemented; Waste and waste water management plan as per this EMPr (Section) to be implemented; Waste recycling to be put in place. Domestic waste must be stored in containers labelled or colour coded for general waste; Vermin / weatherproof bins will be provided in sufficient numbers and capacity to store domestic waste; Containers must be emptied frequently before reaching capacity; Solid waste shall only be stored in the designated general waste storage area which must be enclosed and impermeable; No waste shall be buried or burned anywhere on the site; All solid waste shall be disposed of by a certified contractor, off-site, at an approved landfill site if no municipal services is available; Avoidance, reduction and reuse should be practiced wherever possible – see Section 10; Waste may not cause any nuisance (e.g. odour) Records of waste manifest documents must be retained at the administration office. 	<p>Safe disposal certificates in the site file.</p> <p>Valid contract for the removal of general waste available in site file.</p> <p>Approved Standard Operating Procedure for waste management available in the site file.</p> <p>Approved method statement available in site file.</p> <p>Waste manifest documents available.</p>	<p>Maintain environmental site file.</p> <p>Spot checks</p>	<p>Daily</p> <p>Weekly</p>	<p>Internal Environmental Manager and Auditor</p> <p>Chief Operational Officer</p>
Solid waste from operational activities may cause visual impacts if not managed and disposed of correctly.	Waste management	All waste must be stored and managed properly to ensure minimal impacts.	<ul style="list-style-type: none"> Safe disposal of waste; Valid contract with external contractor for removal of waste in place and maintained; Approved external contractor method statement implemented; Approved Standard Operating Procedure for waste management implemented; Waste and waste water management plan as per this EMPr (Section) to be implemented. 	<p>Waste storage area are maintained in a hygienic and neat condition.</p> <p>Safe disposal certificates in the site file.</p>	<p>Maintain environmental site file.</p> <p>Spot checks</p>	<p>Daily</p> <p>Weekly</p>	<p>Internal Environmental Manager and Auditor</p> <ul style="list-style-type: none"> Chief Operational Officer

Potential Impact	Project Activities	Management Objectives	Proposed Mitigation Measures/ Management Actions	Performance Indicator	Monitoring Method	Monitoring Frequency	Monitoring Responsibility
				Valid contract for the removal of general waste available in site file. Approved Standard Operating Procedure for waste management available in the site file. Approved method statement available in site file.			
SOIL ALTERATION							
Loss of topsoil and erosion through inefficient landscaping and landscaping maintenance, as well as poor stormwater management and maintenance of infrastructure.	Landscaping and landscaping maintenance. Stormwater management. Maintenance of stormwater and road infrastructure.	Effective management of topsoil, stormwater and roads, in order to minimise the impact.	<ul style="list-style-type: none"> During landscaping practices, topsoil and subsoil must be stripped separately from each other and must be stored separately from spoil material for later use; Topsoil should be protected from wind and rain, as well as contamination from diesel, concrete or wastewater; Topsoil should be used in landscaping and rehabilitation where possible. 	Topsoil and subsoil stored separately. Topsoil stockpiles are protected from wind and contamination. Topsoil are re-used.	Spot checks Visual inspection	As and when landscaping is taking place.	Internal Environmental Manager and Auditor.
Liquid waste including sewage may cause soil pollution if not managed and disposed of correctly.	Maintenance of sewer pipelines and ablution facilities. Maintenance of slops handling facility and tanks. Stormwater and waste water management on site.	Ensure that all possible causes of soil pollution are mitigated as far as possible to minimise impacts to the site and surrounding environment	<ul style="list-style-type: none"> Management of Ablution Facilities: <ul style="list-style-type: none"> Adequate ablution facilities to be provided and maintained to the permanent staff and clients. Management of waste water: <ul style="list-style-type: none"> Ensure that clean run-off water is diverted away from potentially contaminated areas of the construction site; Safe disposal of liquid waste; Waste and waste water management plan as per this EMPr (Section) to be implemented. 	Ablution facilities are kept in a hygienic condition and are in good working order. No visible spillages or leaks form internal or external sewer pipelines. Safe disposal certificates in the site file.	Spot checks	Daily	Internal Environmental Manager and Auditor Chief Operations Manager
Soil pollution through contamination	Storage and handling of fuel.	Ensure no spillages through proper	<ul style="list-style-type: none"> Littering and contamination of soil during operation must be prevented by effective waste and waste water management and prevention of spills; 	No signs of hydrocarbon spillages.	Maintain environmental site file.	Daily	Internal Environmental

Potential Impact	Project Activities	Management Objectives	Proposed Mitigation Measures/ Management Actions	Performance Indicator	Monitoring Method	Monitoring Frequency	Monitoring Responsibility
with hazardous substances.	Maintenance of infrastructure containing hazardous substances. Cleaning of trucks. Parking areas runoff. Stormwater and waste water management.	management of storage and handling of fuel. Ensure stormwater is properly managed. Effective and safe management of hazardous materials on site, to minimise the impact of materials on the environment by following approved Standard Operating Procedures full compliance with relevant standards and codes.	<ul style="list-style-type: none"> Spill procedures must be in place in case of spillages onto road surfaces; Implement approved method statements for managing of waste and waste water and removal; Implement approved standard operating procedures for waste and waste water management; Implement approved standard operating procedures for handling of fuel/product; Maintain tank farm and pipeline infrastructure in a good condition; Maintain silt traps, sumps and oil separators as part of the Stormwater Management System; Ensure that clean run-off water is diverted away from potentially contaminated areas of the construction site; Safe disposal of liquid waste; Waste and waste water management plan as per this EMPr (Section 9) to be implemented. 	No signs of contaminated soil on and around the study area and along the pipeline reserve to the battery limit. Spill procedure and standard operating procedure present in the site file and included in environmental awareness training plan. Incident register maintained with any incidents of spillages and mitigating actions taken recorded.	Spot checks		Manager and Auditor Chief Operational Officer Resident Engineer
RESOURCE CONSUMPTION							
Electricity consumption	General operations including office activities.	Electricity reduction mechanisms to be implemented.	<ul style="list-style-type: none"> Enforce electricity reduction strategies; Environmental awareness training. 	Signed attendance registers of environmental awareness training including electricity use reduction strategies available on request.	Maintaining environmental site file with records of electricity reduction strategies and attendance registers of environmental awareness training.	Ongoing	Internal Environmental Manager and Auditor Chief Operational Officer
Water consumption	General operations including domestic activities. Management of ablution facilities. Management of water and waste water.	Water conservation mechanisms to be implemented.	<ul style="list-style-type: none"> Enforce water saving strategies including design of recycling and reuse, rainwater harvesting etc.; Environmental awareness training. 	Signed attendance registers of environmental awareness training including water conservation as topic available on request.	Maintaining environmental site file with records of water conservation strategies and attendance registers of environmental	Ongoing	Internal Environmental Manager and Auditor Chief Operational Officer

Potential Impact	Project Activities	Management Objectives	Proposed Mitigation Measures/ Management Actions	Performance Indicator	Monitoring Method	Monitoring Frequency	Monitoring Responsibility
	Water recycling facility. Washing trucks/vehicles on site.				awareness training.		
EFFECTS ON BIODIVERSITY							
Loss of vegetation and open space management habitat.	Imposing on adjacent undisturbed areas or entering no-go areas.	No loss of habitat outside the approved footprint. Ensuring that no employees/vehicles enter adjacent sensitive areas as per the Open Space Management Plan.	<ul style="list-style-type: none"> The natural areas surrounding the tank farm site and the pipeline reserve should be declared 'no-go' area's and all efforts must be made to prevent access to these areas from workers, clients, machinery and the general public. 	No persons or vehicles from the BTG tank farm imposing on adjacent natural areas.	Spot checks Visual inspection	Daily	Internal Environmental Manager and Auditor and Chief Operational Officer
Loss of species of special concern and their habitats.	Imposing on adjacent undisturbed areas or entering no-go areas.	No loss of habitat outside the approved footprint. Ensuring that no employees/vehicles enter adjacent sensitive areas as per the Open Space Management Plan.	<ul style="list-style-type: none"> The natural areas surrounding the tank farm site and the pipeline reserve should be declared 'no-go' area's and all efforts must be made to prevent access to these areas from workers, clients, machinery and the general public. 	No persons or vehicles from the BTG tank farm imposing on adjacent natural areas.	Spot checks Visual inspection	Daily	Internal Environmental Manager and Auditor and Chief Operational Officer
Increased risk of alien plant invasion.	Landscaping and landscaping maintenance.	To ensure alien plants are eradicated and controlled, to prevent invasion.	<ul style="list-style-type: none"> A condition of the Environmental Authorisation issued by the Department of Environmental Affairs to the Coega Development Corporation for the removal of vegetation within the Coega IDZ area indicate that an Alien Invasive Species monitoring and control plan must be implemented. The CDC has such a plan, called "Invasive species monitoring, control and eradication plan for the Coega SEZ", dated 9 February 2017. This plan must be implemented on site and along the pipeline reserve. 	<p>"Invasive species monitoring, control and eradication plan for the Coega SEZ", occurring in environmental site file.</p> <p>No signs of alien or invasive plants occurring on or around the tank farm site and along the pipeline reserve.</p>	Visual inspection	Monthly	Internal Environmental Manager and Auditor Chief Operational Officer
Loss of faunal species community composition and diversity.	Permanent barriers along the pipelines and site.	Minimal disturbance to fauna occurs.	<ul style="list-style-type: none"> No hunting trapping and killing of animals are allowed. This aspect should be dealt with as part of Environmental Awareness Training; Comply with the requirements of the National Environmental Management: Biodiversity Act (No. 10 of 2004), Natal Nature 	No signs of animals being poached observed.	Documentation review	Ongoing	Internal Environmental Manager and Auditor

Potential Impact	Project Activities	Management Objectives	Proposed Mitigation Measures/ Management Actions	Performance Indicator	Monitoring Method	Monitoring Frequency	Monitoring Responsibility
	Loss of fauna through poaching etc.		<p>Conservation Ordinance 15 of 1974 and Animal Protection Act (No. 71 of 1962);</p> <ul style="list-style-type: none"> All domesticated animals are forbidden within the entire site and along the pipeline reserve (especially feral cats); The use of “migratory friendly” property borders, such as palisade fencing or wire fencing with large gaps, should be considered along the pipeline, as this will allow for the ongoing survival of most species presently inhabiting the property. This will allow for the free movement of small mobile organisms (such as rodents). 	<p>Signed attendance registers of environmental awareness training including animals as topic available on request.</p>	<p>Maintain environmental site file</p> <p>Visual inspection</p>		Chief Operational Officer
Hunting, trapping and killing of animals.	<p>Illegal activities during operational phase.</p> <p>Environmental Awareness Training.</p>	Minimal disturbance to fauna.	<ul style="list-style-type: none"> No hunting trapping and killing of animals are allowed. This aspect should be dealt with as part of Environmental Awareness Training; Comply with the requirements of the National Environmental Management: Biodiversity Act (No. 10 of 2004), Natal Nature Conservation Ordinance 15 of 1974 and Animal Protection Act (No. 71 of 1962); The use of “migratory friendly” property borders, such as palisade fencing or wire fencing with large gaps, should be considered along the pipeline, as this will allow for the ongoing survival of most species presently inhabiting the property. This will allow for the free movement of small mobile organisms (such as rodents). 	<p>No signs of animals being poached observed.</p> <p>Signed attendance registers of environmental awareness training including animals as topic available on request.</p>	<p>Documentation review</p> <p>Maintain environmental site file</p> <p>Visual inspection</p>	Ongoing	<p>Internal Environmental Manager and Auditor</p> <p>Chief Operational Officer</p>
Increased animal road mortality.	<p>Vehicles speeding or driving recklessly.</p> <p>Permanent barriers along the pipelines and around the site, with no other way for animals to migrate than to cross roads.</p>	Ensure no accidental deaths of fauna on the roads.	<ul style="list-style-type: none"> The use of “migratory friendly” property borders, such as palisade fencing or wire fencing with large gaps, should be considered along the pipeline, as this will allow for the ongoing survival of most species presently inhabiting the property. This will allow for the free movement of small mobile organisms (such as rodents); Speed limits must be adhered to by all workers and visitors to the tank farm; This aspect should be included in the Environmental Awareness Training Manual; Clearly visible traffic signs indicating speed limits and other traffic signs to occur on site and along the pipeline reserve. 	<p>No signs of accidental deaths of animals on the nearby roads and no incidents of animal road deaths recorded in the incident register.</p> <p>Signed attendance registers of environmental awareness training including animal road mortality as topic available on request.</p>	<p>Spot checks</p> <p>Visual inspection</p> <p>Documentation Review</p>	Ongoing	Internal Environmental Manager
Changes to migration corridors.	Permanent barriers along the pipelines and around the site.	Ensure that minimal disturbance of ecological systems and natural corridors takes place during operation.	<ul style="list-style-type: none"> Comply with the requirements of the National Environmental Management: Biodiversity Act (No. 10 of 2004), Natal Nature Conservation Ordinance 15 of 1974 and Animal Protection Act (No. 71 of 1962); The use of “migratory friendly” property borders, such as palisade fencing or wire fencing with large gaps, should be considered along 	Inspection of the site and pipeline reserve security fences.	Visual inspection	Ongoing	<p>Internal Environmental Manager and Auditor</p> <p>Chief Operational Officer</p>

Potential Impact	Project Activities	Management Objectives	Proposed Mitigation Measures/ Management Actions	Performance Indicator	Monitoring Method	Monitoring Frequency	Monitoring Responsibility
			the pipeline, as this will allow for the ongoing survival of most species presently inhabiting the property. This will allow for the free movement of small mobile organisms (such as rodents).				
Cumulative impact on marine ecology.	Increased numbers of vessels carrying hydrocarbon cargoes as a direct consequence of the commissioning of the BTG facilities in combination with other tank farm operations within the Coega IDZ and berth activities in the Port of Ngqura.	Reduce likelihood of acute and chronic effects on marine and avian communities.	<ul style="list-style-type: none"> Ensure that the authorisation holder contributes to Transnet's/third party oil spill contingency plan of the harbour and pipelines. Ensure signed memorandum of understanding are confirmed by a signed contract with the third party/ and or Transnet. 	<p>Proof of contribution to third party / Transnet's oil spill contingency plan for the harbour and pipelines.</p> <p>Signed, detailed contract with Transnet / third party for the provision of services to BTG.</p>	Documentation review	During internal environmental audits	<p>Chief Operations Manager</p> <p>Authorisation Holder</p> <p>Internal Environmental Manager and Auditor</p>
Destruction and or major disruption of marine communities within the Port of Ngqura.	Accidental hydrocarbon spills and or major release of fuels and or products within the Port of Ngqura harbour.	Reduce the risk and / or disruption of marine communities within the Port of Ngqura as a result of catastrophic release of hydrocarbons in the Port of Ngqura.	<ul style="list-style-type: none"> Ensure that the authorisation holder contributes to Transnet's/third party oil spill contingency plan of the harbour and pipelines. Ensure signed memorandum of understanding are confirmed by a signed contract with the third party/ and or Transnet. 	<p>Proof of contribution to third party / Transnet's oil spill contingency plan for the harbour and pipelines.</p> <p>Signed, detailed contract with Transnet / third party for the provision of services to BTG.</p>	Documentation review	During internal environmental audits	<p>Chief Operations Manager</p> <p>Authorisation Holder</p> <p>Internal Environmental Manager and Auditor</p>
Destruction and or major disruption of marine communities within Algoa Bay.	Accidental hydrocarbon spills and or major release of fuels and or products within Algoa Bay.	Reduce the risk and / or disruption of marine communities within Algoa Bay as a result of catastrophic release of hydrocarbons.	<ul style="list-style-type: none"> Ensure that the authorisation holder contributes to Transnet's/third party oil spill contingency plan of the harbour and pipelines. Ensure signed memorandum of understanding are confirmed by a signed contract with the third party/ and or Transnet. 	<p>Proof of contribution to third party / Transnet's oil spill contingency plan for the harbour and pipelines.</p> <p>Signed, detailed contract with Transnet / third party for the provision of services to BTG.</p>	Documentation review	During internal environmental audits	<p>Chief Operations Manager</p> <p>Authorisation Holder</p> <p>Internal Environmental Manager and Auditor</p>

Potential Impact	Project Activities	Management Objectives	Proposed Mitigation Measures/ Management Actions	Performance Indicator	Monitoring Method	Monitoring Frequency	Monitoring Responsibility
INCIDENTS, ACCIDENTS AND POTENTIAL EMERGENCY SITUATIONS							
Health and safety incidents e.g. injury to workers or visitors to the site.	Driving of vehicles. General operational activities including office activities. Storage and handling of fuels.	Reducing the risk of health and safety incidents occurring.	<ul style="list-style-type: none"> Personal Protective Equipment (or PPE) must always be issued to all employees and be worn at all times; The 'Occupational Health and Safety Act' must be complied with; Safety signs according to the installed onsite and along the pipeline reserve where relevant and clearly visible and in good condition. Safety signs need to comply with SANS 1186-1:2015 Symbolic safety signs; Appropriate Signage (warning and caution signs) must be visible at all appropriate and required locations on-site; This includes the visible display of all relevant emergency contact numbers in case of an emergency; Furthermore, the contact details of all relevant management and applicable authorities must be displayed; Occupational Health and Safety Act and regulations to be complied with; Storage and handling of fuels and chemicals on site to comply with the relevant method statements, safety data sheets, standard operating procedures and designs and approvals. 	<p>Safety signs comply with SANS 11861:2015 standard and are clearly visible.</p> <p>Employees wearing PPE</p> <p>Environmental site file updated with proof of issuing of PPE to each employee and any incidents of non-compliance and disciplinary action recorded in the register.</p> <p>Approved Standard Operating Procedures based on safety standards, safety data sheets, method statements, designs and approvals.</p>	<p>Visual inspection</p> <p>Review of SANS 1186-1:2015 standard</p>	Ongoing	<p>Chief Operations Manager</p> <p>Internal Environmental Manager and Auditor</p> <p>Resident Engineer</p>
Spills resulting from overfilling of the storage tanks at the tank farm.	Filling of storage tanks through pipelines.	Prevent overfilling of the storage tanks and associated impacts.	<ul style="list-style-type: none"> Handling of fuels and chemicals on site to comply with the relevant method statements, safety data sheets, standard operating procedures and designs and approvals. 	<p>No signs of spillages as a result of overfilling storage tanks.</p> <p>No incidents of spillages as a result of overfilling storage tanks occur within the incident register.</p> <p>Relevant SDS's, SOP's, method statements, designs and approvals available in the environmental site file.</p>	<p>Visual inspection</p> <p>Documentation review</p> <p>Maintaining Environmental Site file</p>	Daily	<p>Internal Environmental Manager and Auditor</p> <p>Chief Operational Officer</p>
INCIDENTS, ACCIDENTS AND POTENTIAL EMERGENCY SITUATIONS - RISK ASSESSMENT							
Impacts caused by loss of containment of hazardous liquid	Transfer of hazardous liquid materials from the	<ul style="list-style-type: none"> Prevent or reduce the risk of the loss of containment of hazardous liquid 	<ul style="list-style-type: none"> The conditions of the Major Hazard Installation risk assessment, which have been based on the final approved designs, and completed by a competent person, must be implemented. 	<p>MHI Risk Assessment and approval present in site file.</p> <p>Approved process hazard analysis (such as a HAZOP</p>	<p>Document review</p> <p>Visual inspection</p>	Annually / depending on recommendations	<p>Authorisation Holder</p>

Potential Impact	Project Activities	Management Objectives	Proposed Mitigation Measures/ Management Actions	Performance Indicator	Monitoring Method	Monitoring Frequency	Monitoring Responsibility
materials from the pipelines between the battery limit and the tank farm (fires and explosions).	battery limit to the tank farm. Maintenance of pipelines and associated infrastructure.	materials and, if containment is lost, prevent fires and explosions.		study, FMEA, etc.) present in site file. Approval by Risk Assessor MHI Risk Assessment approved by Competent Authority No accidents and incidents recorded within the incidents register No signs of spillages or any non-compliance with relevant documents as stipulated.		of the MHI Risk assessment.	Chief Operational Officer Internal Environmental Manager and Auditor Resident Engineer
Impacts caused by loss of containment of hazardous liquid materials from the pipelines between the battery limit and the tank farm. (liquid material spillages onto the ground or into surface and ground water).	Transfer of hazardous liquid materials from the battery limit to the tank farm. Maintenance of pipelines and associated infrastructure.	Prevent or reduce the risk of the loss of containment of hazardous liquid materials and, if containment is lost, prevent spillages onto ground and into surface and groundwater.	<ul style="list-style-type: none"> The conditions of the Major Hazard Installation risk assessment, which have been based on the final approved designs, and completed by a competent person, must be implemented. 	MHI Risk Assessment and approval present in site file. Approved process hazard analysis (such as a HAZOP study, FMEA, etc.) present in site file. Approval by Risk Assessor MHI Risk Assessment approved by Competent Authority No accidents and incidents recorded within the incidents register No signs of spillages or any non-compliance with relevant documents as stipulated.	Document review Visual inspection	Annually / depending on recommendations of the MHI Risk assessment.	Authorisation Holder Chief Operational Officer Internal Environmental Manager and Auditor Resident Engineer

Potential Impact	Project Activities	Management Objectives	Proposed Mitigation Measures/ Management Actions	Performance Indicator	Monitoring Method	Monitoring Frequency	Monitoring Responsibility
Impacts caused by loss of containment of LPG materials from transportation pipelines between the battery limit and the tank farm (formation of fires and explosions).	Transfer of LPG materials from the battery limit to the tank farm. Management and maintenance of LPG transfer pipelines.	Prevent or reduce the risk of the loss of containment of LPG and, if containment is lost, prevent fires and explosions.	<ul style="list-style-type: none"> The conditions of the Major Hazard Installation risk assessment, which have been based on the final approved designs, and completed by a competent person, must be implemented. 	<p>MHI Risk Assessment and approval present in site file.</p> <p>Approved process hazard analysis (such as a HAZOP study, FMEA, etc.) present in site file.</p> <p>Approval by Risk Assessor</p> <p>MHI Risk Assessment approved by Competent Authority</p> <p>No accidents and incidents recorded within the incidents register</p> <p>No signs of spillages or any non-compliance with relevant documents as stipulated.</p>	<p>Document review</p> <p>Visual inspection</p>	<p>Annually / depending on recommendations of the MHI Risk assessment.</p>	<p>Authorisation Holder</p> <p>Chief Operational Officer</p> <p>Internal Environmental Manager and Auditor</p> <p>Resident Engineer</p>
Impacts caused by loss of containment of hazardous liquid materials from the bulk atmospheric storage at the tank farm and road gantry (formation of fires and explosions).	<p>Management and maintenance of tank farm infrastructure.</p> <p>Storage and handling of hazardous liquid materials.</p> <p>Filling road tankers with hazardous liquid materials.</p>	Prevent or reduce the risk of the loss of containment of hazardous liquid materials and, if containment is lost, prevent fires and explosions.	<ul style="list-style-type: none"> The conditions of the Major Hazard Installation risk assessment, which have been based on the final approved designs, and completed by a competent person, must be implemented. 	<p>MHI Risk Assessment and approval present in site file.</p> <p>Approved process hazard analysis (such as a HAZOP study, FMEA, etc.) present in site file.</p> <p>Approval by Risk Assessor</p> <p>MHI Risk Assessment approved by Competent Authority</p> <p>No accidents and incidents recorded within the incidents register</p>	<p>Document review</p> <p>Visual inspection</p>	<p>Annually / depending on recommendations of the MHI Risk assessment.</p>	<p>Authorisation Holder</p> <p>Chief Operational Officer</p> <p>Internal Environmental Manager and Auditor</p> <p>Resident Engineer</p>

Potential Impact	Project Activities	Management Objectives	Proposed Mitigation Measures/ Management Actions	Performance Indicator	Monitoring Method	Monitoring Frequency	Monitoring Responsibility
				No signs of spillages or any non-compliance with relevant documents as stipulated.			
Impacts caused by loss of containment of hazardous liquid materials from the bulk atmospheric storage at the tank farm and road gantry (liquid materials spillages onto the ground or into surface and ground water).	<p>Management and maintenance of tank farm infrastructure.</p> <p>Storage and handling of hazardous liquid materials.</p> <p>Filling road tankers with hazardous liquid materials.</p>	Prevent the loss of containment of fuel products and, if containment is lost, prevent spillages onto ground and into surface and groundwater.	The conditions of the Major Hazard Installation risk assessment, which have been based on the final approved designs, and completed by a competent person, must be implemented.	<p>MHI Risk Assessment and approval present in site file.</p> <p>Approved process hazard analysis (such as a HAZOP study, FMEA, etc.) present in site file.</p> <p>Approval by Risk Assessor</p> <p>MHI Risk Assessment approved by Competent Authority</p> <p>No accidents and incidents recorded within the incidents register</p> <p>No signs of spillages or any non-compliance with relevant documents as stipulated.</p>	<p>Document review</p> <p>Visual inspection</p>	Annually / depending on recommendations of the MHI Risk assessment.	<p>Authorisation Holder</p> <p>Chief Operational Officer</p> <p>Internal Environmental Manager and Auditor</p> <p>Resident Engineer</p>
Loss of containment of LPG materials from the bulk atmospheric storage at the tank farm and road gantry (formation of fires and explosions).	<p>Management and maintenance of LPG materials storage infrastructure.</p> <p>Storage and handling of fuel.</p> <p>Filling of road tankers with LPG.</p>	Prevent or reduce the risk of the loss of containment of LPG materials and, if containment is lost, prevent fires and explosions.	<ul style="list-style-type: none"> The conditions of the Major Hazard Installation risk assessment, which have been based on the final approved designs, and completed by a competent person, must be implemented. 	<p>MHI Risk Assessment and approval present in site file.</p> <p>Approved process hazard analysis (such as a HAZOP study, FMEA, etc.) present in site file.</p> <p>Approval by Risk Assessor</p> <p>MHI Risk Assessment approved by Competent Authority</p>	<p>Document review</p> <p>Visual inspection</p>	Annually / depending on recommendations of the MHI Risk assessment.	<p>Authorisation Holder</p> <p>Chief Operational Officer</p> <p>Internal Environmental Manager and Auditor</p> <p>Resident Engineer</p>

Potential Impact	Project Activities	Management Objectives	Proposed Mitigation Measures/ Management Actions	Performance Indicator	Monitoring Method	Monitoring Frequency	Monitoring Responsibility
				<p>No accidents and incidents recorded within the incidents register</p> <p>No signs of spillages or any non-compliance with relevant documents as stipulated.</p>			
SOCIAL							
<p>Safety and security: Potential influx of work seekers. Unauthorised access.</p>	<p>Access control</p>	<p>Proper management of labour force and clients and / or any visitors to the tank farm and pipeline reserve is undertaken to ensure that there are no security-related issues or disturbance to tenants or landowners outside the site footprint.</p>	<ul style="list-style-type: none"> 24-hour access control to the site and 24-hour security. Workers found to be engaging in activities such as consumption of alcohol, drug use or selling of any such items on site must be disciplined. 	<p>Proper access control at all times</p> <p>Access control security book used with copies of signatures of all visitors to the study area.</p> <p>Records of any incidents recorded in the incident register.</p>	<p>Visual inspection</p> <p>Documentation review</p>	<p>Daily</p> <p>Weekly</p>	<p>Internal Environmental Manager</p> <p>Chief Operational Officer</p>
<p>Increased traffic due to the operational activities of the proposed tank farm.</p>	<p>Trucks collecting fuel for transport to retailers.</p> <p>External contractors such as waste removal contractors servicing the tank farm.</p> <p>Permanent employees commuting to and from the tank farm.</p>	<p>Reducing unnecessary trips by heavy vehicles smaller vehicles.</p>	<ul style="list-style-type: none"> Any vehicles relating to any part of the facility and its operation shall avoid (to a reasonable extent), operation during peak traffic hours; Detailed planning to be implemented to avoid unnecessary trips; In terms of transportation of workers and materials, collective transportation arrangements should be made to reduce individual car journeys where possible. 	<p>No traffic delays during peak time traffic</p>	<p>Visual inspection</p> <p>Documentation</p>	<p>Ongoing</p>	<p>Chief Operational Officer</p>
<p>Impact on road safety due to heavy vehicles.</p>	<p>Trucks collecting fuel for transport to retailers.</p>	<p>No accidents or incidents occurring on roads.</p>	<ul style="list-style-type: none"> Speed limits to be clearly marked and adhered to on and around the study area. Environmental awareness training to all workers and visitors to the site, especially drivers to include this aspect; 	<p>No records of any accidents on the road involving visitors, clients or employees of BTG,</p>	<p>Documentation review</p> <p>Visual inspection</p>	<p>Weekly</p>	<p>Internal Environmental Manager and Auditor</p>

Potential Impact	Project Activities	Management Objectives	Proposed Mitigation Measures/ Management Actions	Performance Indicator	Monitoring Method	Monitoring Frequency	Monitoring Responsibility
	External contractors such as waste removal contractors servicing the tank farm.		<ul style="list-style-type: none"> Report any poorly visible signs or when no signs occur to the relevant authority. 	<p>recorded in the incident register.</p> <p>Traffic warning and speed signs are clearly visible along the roads and if not, proof that it was reported to the relevant authority.</p>			Chief Operational Officer
Impact on road infrastructure due to heavy vehicles.	<p>Trucks collecting fuel for transport to retailers.</p> <p>External contractors such as waste removal contractors servicing the tank farm.</p>	Minimal disturbances to road infrastructure.	<ul style="list-style-type: none"> Detailed planning to be implemented to avoid unnecessary trips; In terms of transportation of workers and materials, collective transportation arrangements should be made to reduce individual car journeys where possible. 	No signs of damage to road infrastructure	Visual inspection	Ongoing	<p>Internal Environmental Manager and Auditor</p> <p>Chief Operational Officer</p>
ECONOMIC							
Increase in economy	Operation of the tank farm	Ensure local communities benefit from the operations of the tank farm.	<ul style="list-style-type: none"> Preferential use of local contractors and suppliers; Preferential use of local labour force. 	Proof that local labour is utilised and proof provided when local labour is not used due to unavailability (e.g. highly skilled positions).		Annually	<p>Authorisation Holder</p> <p>Chief Operational Officer</p>
Employment opportunities	<p>Operation of the tank farm</p> <p>External contractors requiring additional employees to service the tank farm.</p> <p>Fuel transport companies/</p>	Ensure local communities benefit from the operations of the tank farm.	<ul style="list-style-type: none"> Preferential use of local labour force. 	Proof that local labour is utilised and proof provided when local labour is not used due to unavailability (e.g. highly skilled positions).		Annually	<p>Authorisation Holder</p> <p>Chief Operational Officer</p>

Potential Impact	Project Activities	Management Objectives	Proposed Mitigation Measures/ Management Actions	Performance Indicator	Monitoring Method	Monitoring Frequency	Monitoring Responsibility
	distributors requiring additional employees to transport fuel from the tank farm to the retailers.						

