Environmental Management Group (Pty) Ltd

EMPr FOR:

PROPOSED FUEL STATION AND ITS ASSOCIATED FACILITIES AND KFC OUTLET ON ERVEN 1058, GRAAFF-REINET, EASTERN CAPE

1. Definitions:

1.1. ***Alien Vegetation:*** Alien vegetation is defined as undesirable plant growth within the construction area, which consists of species that are not indigenous and are listed under the NEM:BA Alien and Invasive Species List (2020)., which shall include, but not be limited to; species listed as Category 1a, 1b, 2 and 3 under the National Environmental Management: Biodiversity Act (Act 10 0f 2004)'s or NEM:BA's National list of alien and invasive species.. Other vegetation deemed to be alien shall be those plant species that show the potential to occupy in, number, any area within the defined construction area and which are declared undesirable.

1.2. ***Aspect:*** Element of an organization's activities, products or services that can interact with the environment.

1.3. ***Auditing:*** A systematic, documented, periodic and objective evaluation of how well the environmental management plan is being implemented and is performing to help to safeguard the environment by facilitating management control which would include meeting regulatory requirements. Results of the audit results help the organization environmental policies and management systems.

1.4. ***Built environment:*** Physical surroundings created by human activity, e.g., buildings, houses, roads, bridges, and harbors.

1.5. ***Contamination:*** Polluting or making something impure.

1.6. ***Corrective (or remedial) action:*** Response required addressing an environmental problem that conflicts with the Environmental Management Program (EMPr) requirements. The nee Monitoring, audits, or management review may determine the need for corrective action.

1.7. ***Degradation:*** The lowering of quality of the environment through human activities, e.g., river degradation, soil degradation.

1.8. ***Ecology:*** The scientific study of the relationship between all living beings (animals, plants, insects, and humans) and their environment.

1.9. ***Ecosystem:*** The relationship and interaction between plants, animals, and the physical, non-living environment.

1.10. ***Environment:*** Environment means the surroundings within which humans exist, and that could be made up of –

- the land, water, and atmosphere of the earth;
- micro-organisms, plant, and animal life;
- any part or combination of (10.1) and (10.2) and the interrelationships among and between them; and
- the physical, chemical, aesthetic, and cultural properties and conditions of the foregoing that influence human health and well-being.

1.11. ***Environmental aspect:*** An environmental aspect is any component of a contractor's construction activity that is likely to interact with the environment.

1.12. ***Environmental authorisation:*** An environmental authorisation is a written statement from the National Department of Forestry, Fisheries, and the Environment (DFFE) that records its approval of a planned development.

1.13. ***Environmental impact:*** An impact or environmental impact is the change to the environment, whether desirable or undesirable, that will result from the effect of a construction activity. An impact may be the direct or indirect consequence of a construction activity.

1.14. ***Hazardous waste:*** Waste, even in small amounts that can cause damage to plants, animals, their habitat and the well-being of human beings, e.g., waste from factories, detergents, pesticides, hydrocarbons, etc.

1.15. ***Land use:*** The use of land for human activities, e.g., residential, commercial, industrial use.

1.16. ***Mitigation:*** Measures designed to avoid, reduce, or remedy adverse impacts

2. Introduction and background:

2.1. Scope:

Environmental Management Group (EMG), as independent environmental consultants, managers, and impact assessors, has been appointed by **Chargo Fuels (Pty) Ltd** to compile and submit an Environmental Management Programme report (EMPr) under the National Environmental Management Act (No 107 of 1998), for the proposed fuel station and its associated facilities and KFC outlet in Graaff-Reinet, within the De Breyers Naude Local Municipality, in the Eastern cape province.

This document is compiled in accordance with the Integrated Environmental Management (IEM) philosophy which aims to achieve a desirable balance between conservation and development (DEAT, 1992). IEM is a key instrument of the National Environmental Management Act [NEMA] (Act No. 107 of 1998). NEMA promotes the integrated environmental management of activities that may have a significant effect on the environment, while IEM prescribes a methodology for ensuring that environmental management principles are fully integrated into all stages of the development process. It advocates the use of several environmental management tools that are appropriate for the various levels of decision-making. One such tool is an EMPr. The IEM guidelines encourage a pro-active approach to sourcing, collating, and presenting information in a manner that can be interpreted at all levels. The basic principles underpinning IEM are that there be:

- informed decision-making;
- accountability for information on which decisions are taken;
- accountability for decisions taken;
- a broad meaning given to the term environment (i.e. one that includes physical, biological,
- social, economic, cultural, historical and political components);
- an open, participatory approach in the planning of proposals;
- consultation with interested and affected parties;
- due consideration of alternative options;
- an attempt to mitigate negative impacts and enhance positive aspects of proposals;
- an attempt to ensure that the 'social costs' of development proposals (those borne by society, rather than the developers) be outweighed by the 'social benefits' (benefits to society as a result of the actions of the developers);
- democratic regard for individual rights and obligations;
- compliance with these principles during all stages of the planning, implementation and decommissioning of the proposals (i.e. from 'cradle to grave');
- and the opportunity for public and specialist input in the decision-making process.

The Environmental Impact Assessment Regulations that took effect in December 2014 regulate the procedures and criteria for the submission, processing, consideration and decision on applications for environmental authorization of listed activities.

The general principles contained within this document apply to all **planning phase**, **construction phase**, and **operational phase** activities regarding the proposed development.

2.2. Site Specific Information and overall project description:

Chargo Fuels (Pty) Ltd appointed **Environmental Management Group** (**EMG**) to compile the Environmental Management Programme report (EMPr). The proposed development is located in the southern parts of Graaff Reinet. The proposed development falls within the jurisdiction of Dr. Beyers Naudé Local Municipality, which ranks as the third-largest local municipality in the country. The municipality itself operates under the governance of Sarah Baartman District Municipality, situated in the Eastern Cape region of South Africa. Please refer to **figure 1** for the location of the proposed development

According to the architectural designs and site plans from the designers of the proposed development **(refer to Appendix A**), the proposed development will incorporate spaces such as:

- Canopy covered forecourt with 10 vehicle refuelling bays,
- Pump island (above-ground fuel pumps and hose dispensers),
- Total belowground storage volume of approximately 120,000 litres of fuel,
- Convenience store (including fast food outlet),
- ATM,
- Delivery parking areas,
- Two access roads,
- Landscaped area and,
- Delivery bay (loading and unloading goods)

2.3. Maps

2.3.1. Locality Map

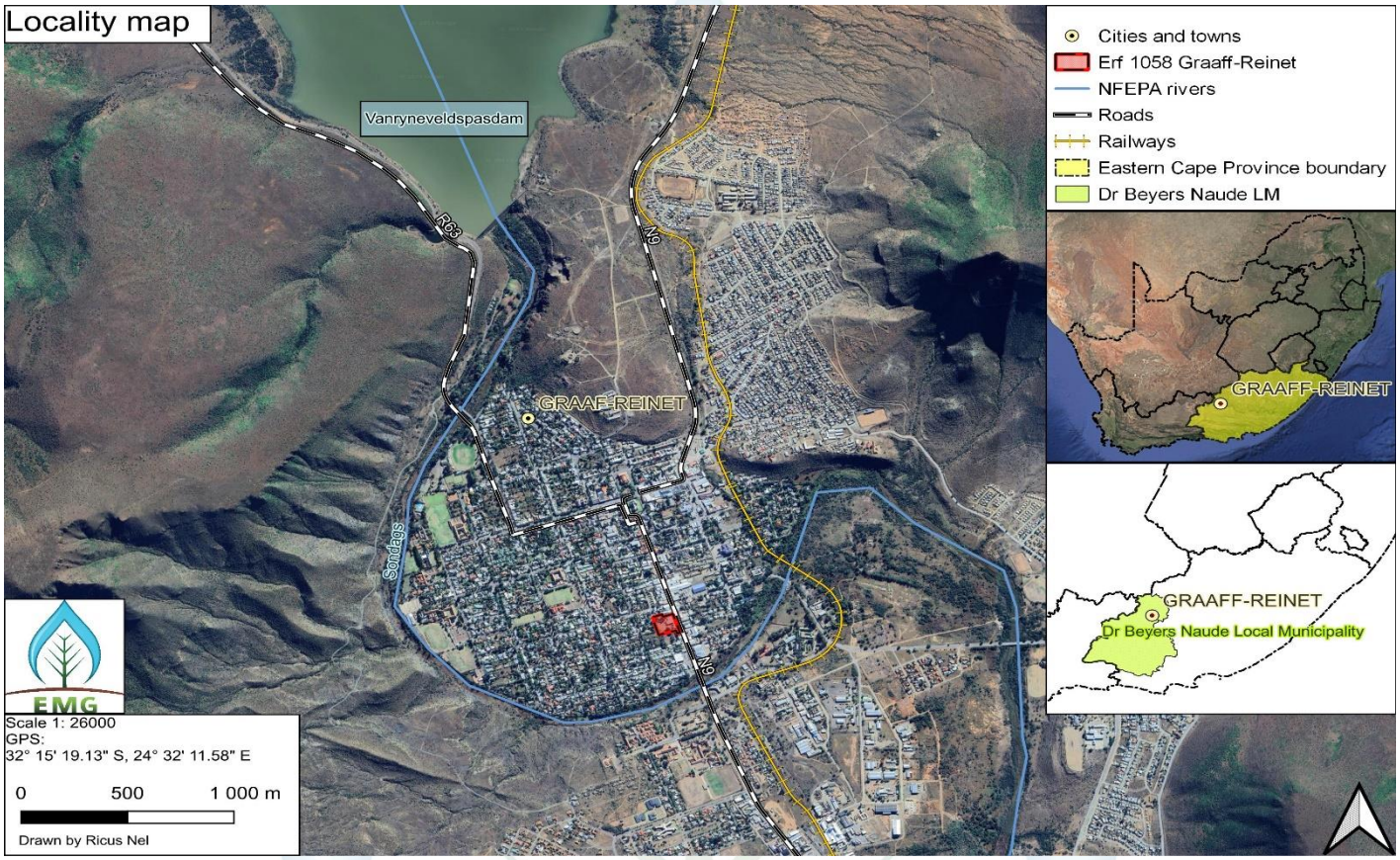

Figure 1: Locality map illustrating the proposed construction footprint in Graaff-Reinet, in the Eastern Cape.

3. Role players and responsibility matrix:

Co-operation amongst all role players involved in the project is required for the successful implementation of this EMPr. For this to happen, role players must clearly understand their roles and responsibilities in the project, must be professional, form respectful and transparent relationships, and maintain open lines of communication.

Table 1: Functions and Responsibilities of Project Team

Key	Function	Responsibility
P	Proponent	The P is ultimately accountable for ensuring compliance to the EMPr. The Environmental Controlling Officer (ECO) must be contracted by the P (full time or part time depending on the size of the project) as an independent appointment to objectively monitor implementation of relevant environmental legislation, conditions of the EMPr for the project. The P is further responsible for providing and giving mandate to enable the ECO to perform responsibilities. The developer must ensure that the ECO is integrated as part of the project team.
CE	Consulting Engineer	Contracted by the developer to design and specify the project engineering aspects. Generally, the CE runs the works contract. The CE may also fulfil the role of Project Manager (PM) on the proponent's behalf (See PM).
PM	Project Manager	The PM has over-all responsibility for managing the project, contractors, and consultants and for ensuring that the environmental management requirements are met. All decisions regarding environmental procedures must be approved by the PM. The PM has the authority to stop any decommissioning activity in contravention of the EMPr in accordance with an agreed warning procedure.
ER	Engineers Representative	Is the CE's representative on site. Has the power/mandate to issue site instructions and in some instances, variation orders to the contractor, following request by the EO or ECO. The ER oversees site works, and liaison with Contractor and ECO.
EO/EM	Environmental Officer / Environmental Manager	They are appointed by the CE as their environmental representative on site. The EO is not independent instead act on behalf of the CE with the mandate to enforce compliance under the project contract, which must include the EMPr. The EO has the directive to issue non-conformance and hazard certificates. Further, in terms of accepted industry practice, the EO could give the equivalent of a "cease works" instruction only in exceptional circumstances where environmentally severe harm has been or is about to be caused, i.e., in cases of extreme urgency and then only when the ER is absent.

		The EO must form part of the project team and be involved in all aspects of project planning that can influence environmental conditions on the site. On certain projects, such as linear developments (fences, pipelines, etc.), the EO must also be the liaison between the contractor and landowners. The EO must attend relevant project meetings, conduct daily inspections to monitor compliance with the EMPr, and be responsible for providing reports and feedback on potential environmental problems associated with the development to the project team and ECO. The EO must convey the contents of this EMPr to the Contractor site team and discuss the contents in detail with the Contractor and conduct an induction and an environmental awareness training session before site handover to all contractors and their workforce. The EO must be suitably experienced with the relevant qualifications and preferably competent in construction related methods and practices.
ECO	Environmental Control Officer	An independent appointment to objectively monitor implementation of relevant environmental legislation, conditions of Environmental Authorisations (EA's), and the EMPr for the project. The ECO must be on site prior to any site establishment and must endeavour to form an integral part of the project team. The ECO must be proactive and have access to specialist expertise as and when required. These specialists include botanists, ecologists, etc. Further, the ECO must also have access to expertise such as game capture, snake catching, etc. The ECO must conduct audits on compliance with relevant environmental legislation, EA conditions, and the project EMPr. The size and sensitivity of the development, based on the Environmental Impact Assessments (EIA), will determine the frequency at which the ECO will be required to conduct audits. (A minimum of a monthly site inspection must be undertaken). The ECO must be the liaison between the relevant authorities and the project team. The ECO must communicate and inform the developer and consulting engineers of any changes to environmental conditions as required by relevant authoritative bodies. The ECO must ensure that the registration and updating of all appropriate EMPr documentation are carried out. The ECO must be suitably experienced with the relevant environmental management qualifications and preferably competent in construction-related methods and practices.

		The ECO must handle information received from whistle-blowers as confidential and must address and report these incidents to the relevant authority as soon as possible. On small projects, where no EO is appointed, the ECO must convey the contents of this EMPr to the Contractor (C's) workforce and discuss the contents in detail with the C as well as undertake to conduct induction and an environmental awareness training session prior to site handover to all C's and their workforce.
C	Contractor	The principle contractor, hereafter known as the 'Contractor,' is responsible for implementation and compliance with the requirements of the EMPr and conditions of the EA's, contract and relevant environmental legislation. The C must ensure that all sub-contractors have a copy of and are fully aware of the content and requirements of this EMPr. Where specified, the C must provide Method Statements detailing that the management actions contained in the EMPr will be implemented.
ESO	Environmental Site Officer	Is employed by the C as their environmental representative to monitor, review and verify compliance with the EMPr by the C. This is not an independent appointment; the ESO must be a respected member of the C's management team. Dependent on the size of the development, the ESO must be on site one week before the commencement of construction. The ESO must ensure that they are involved at all construction phases (from site clearance to rehabilitation).
A	Lead Authority	Is the relevant environmental department that has issued the EA. The A is responsible for ensuring that the monitoring of the EMPr and other authorisation documentation is carried out, this will be achieved by reviewing audit reports submitted by the ECO and conducting regular site visits.
OA	Other Authorities	Are those that may be involved in the approval process of an EMPr. Their involvement may include reviewing EMPr's to ensure the accuracy of the information relevant to their specific mandate. OA may be involved in the development, review, or implementation of an EMPr. For example, if a specific development requires a water use licence for the relevant national authority, then that authority should review and comment on the content of the particular section pertaining to that mandate.
EAP	Environmental Assessment Practitioner	The definition of an EAP in Section 1 of NEMA is "*the individual responsible for the planning, management and coordination of environmental impact assessments, strategic environmental assessments, environmental management plans or any other appropriate environmental instruments introduced through regulations".*

Recommended formal environmental communication channels:

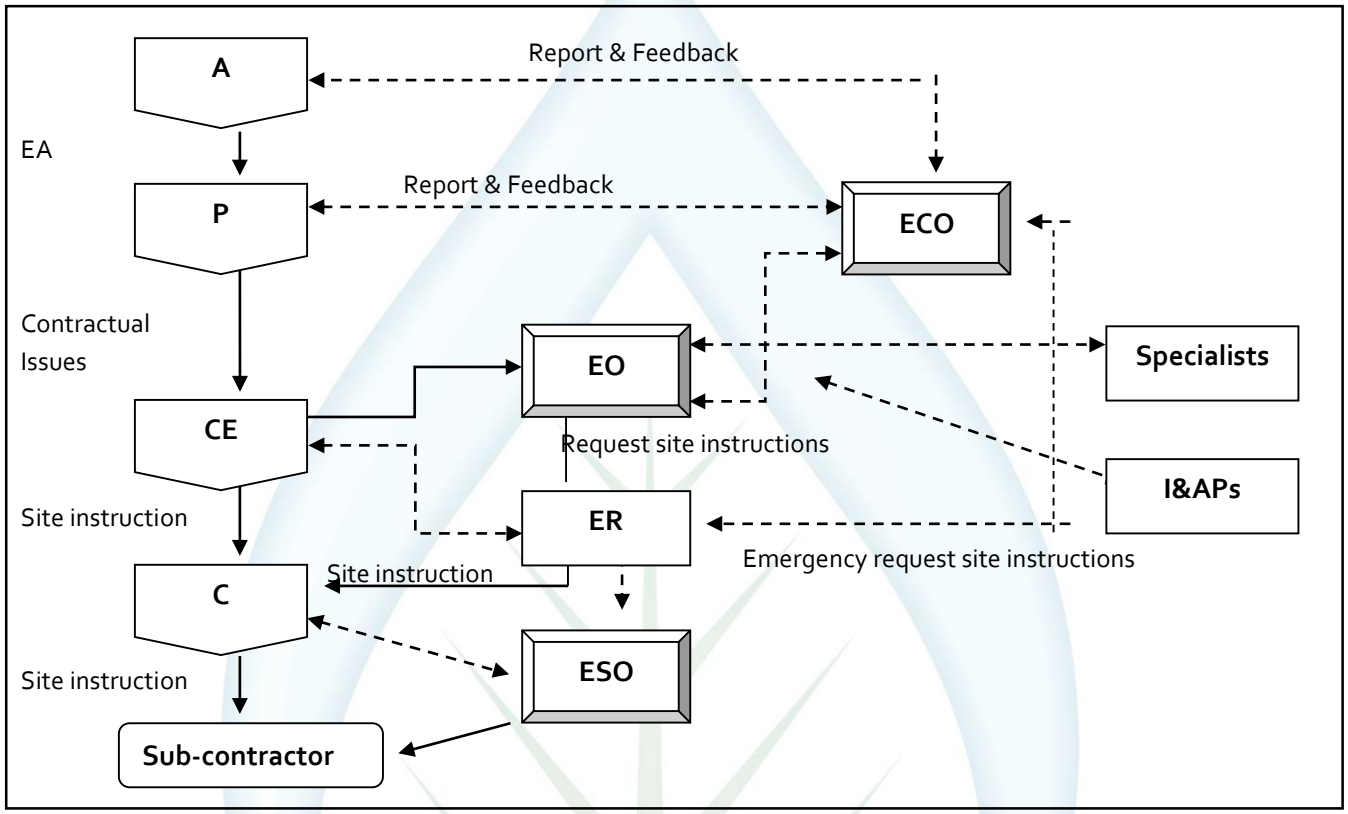

Figure 2: Proposed Organogram

4. Key objectives of the EMPr:

The specific objectives of this EMPr are to:

- To provide explicit operational guidelines and environmental monitoring requirements during the construction phases so that activities are done in environmentally responsible and sustainable manner.
- To benefit the host communities, minimise the impacts on the environment and to ensure the health and safety of the community by creating a development that eliminates unacceptable health hazards and ensures public and animal safety.
- To enable proponent and its contractors to use resources efficiently and effectively during the project lifecycle to reduce wastage and thereby reduce associated negative environmental impacts. In addition, the aim is also to handle waste streams responsibly and apply the 'reduce, re-use and recycle' principle, wherever possible
- To leave areas disturbed by construction in a rehabilitated, stable, non-polluting, and tidy condition.

The EMPr is partly prescriptive (identifying specific people or organizations to undertake specific tasks, in order to ensure that impacts on the environment are minimised), but it also an open-ended document in that information gained during activities and/or monitoring of procedures on site could lead changes in the EMPr

5. Activities covered by the EMPr:

5.1. Planning stage:

The implementation of the EMPr is not an additional or "add on" requirement. The EMPr is legally binding through NEMA. The project planning stage consists of layout design surveying and ensuring that all plans and required contracts, permits/ licenses and agreements are set in place.

5.2. Construction phase:

The construction phase will start after the relevant authorizations are granted by the higher authorities. The construction phase involves earthworks, structure development, service provision and finishing. This phase typically includes but is not limited to:

- Site preparation and establishment of construction camps and equipment yards;
- Transportation of construction materials and other resource inputs;
- Use of heavy construction equipment on site;
- Storage of input materials and disposal of waste generated;
- Laydown of roads;
- Structural construction
    - Erecting the main structure of the fuel station, which may include steel or reinforced concrete component and fuel tanks underground or above ground storage tanks for storing fuel.
- Fuel pump installation and canopy construction

- Installing fuel dispensers and pumps, ensuring proper functionality and compliance with safety

- Ongoing rehabilitation of the disturbed areas through:
  - Demolition/removal of any unwanted construction fences and infrastructure;
  - Landscaping the surrounding areas for aesthetic appeal and to meet local zoning requirements.
- Rehabilitation of the disturbed area.

Proper planning, coordination and attention to safety and environmental concerns are essential throughout the construction phase for the proposed development.

5.3 Operational phase

The operational phase is initiated following the completion of construction phase and the go-ahead of the proponent/developer. This phase typically involves a smaller, more direct workforce which maintains operational activities. During this phase, routine and corrective maintenance of infrastructure will be conducted. Maintenance activities will need to be carried out throughout the lifetime of the associated facility and the KFC outlet. Maintenance activities may include:

- Replacement of faulty equipment
- Safety checks and quality control
- Cleaning of underground fuel tanks
- Fuel inventory management and routine inspections
- Refurbishment of equipment/general maintenance

The proposed development requires rigorous attention to detail, customer focus, and adherence to safety and quality standards during the operational phase. Regular maintenance, efficient management, and excellent customer service are essential for the success of both (fuel station and KFC outlet) establishments.

6. Identification of environmental aspects and impacts:

The contractor shall identify likely aspects before commencing with any construction activity. Examples of environmental aspects include:

- Waste generation,
- Chemical use operations,
- Storm-water use operations
- Energy use operations,
- Water use operations,
- Use of natural resources
- Noise generation

Thereafter the contractor shall programme his work in such a way that each cause and effect of a construction activity is also identified, and the activity planned so as to prevent any impacts from happening. If prevention is not practicable, or in the event of mishap or misapplication, the contractor shall provide plans and measures for the engineer's approval, which will limit

and contain the magnitude, duration, and intensity of the impact. The contractor shall demonstrate that they are capable of carrying out any repair and reinstatement of the damaged environment. Listed below are some environmental impacts that could adversely alter an aspect of the environment through usual construction activities:

- Pollution of the atmosphere, soil, or water
- Destruction or removal of fauna and flora and its effect on biological diversity
- Deformation of the landscape
- Soil erosion
- Effect on the built environment.

7. Legal requirements:

7.1. General:

Construction activities will be according to the best industry practices, as identified in the project documents. This EMPr, which forms an integral part of the contract documents, informs the contractor of his duties in fulfilling the projects key objectives, with reference to the prevention and mitigation of environmental impacts caused by construction activities associated with the proposed project. The contractor should note that obligations imposed by the EMPr are legally binding in terms of statutory environmental legislation and the additional conditions to the general conditions of the contract that pertain to this project. If any rights and obligations in this document contradict those specified in the standard or project specifications, then the latter shall prevail.

7.2. Statutory and other applicable legislation:

The contractor is deemed to have made himself conversant with all legislation pertaining to the environment, including provincial and local government ordinances, which may be applicable to the contract.

7.3. Administration of Environmental Obligations

7.3.1. Appointment of an environmental Site Officer (ESO)

For the purposes of implementing the conditions contained herein, the contractor shall submit to the engineer for approval the appointment of a nominated representative of the contractor as the ESO for the contract. The request shall be given, in writing, at least fourteen days before the start of any work clearly setting out reasons for the nomination, and with sufficient detail to enable the engineer to make a decision. The engineer will, within seven days of receiving the request, approve, reject or call for more information on the nomination. Once a nominated representative of the contractor has been approved, he/she shall be the ESO and shall be the responsible person for ensuring that the provisions of the EMP are complied with during the life of the contract. The engineer will be responsible for issuing instructions to the contractor where environmental considerations call for action to be taken. The ESO shall submit regular written reports to the engineer, but not less frequently than once a month.
The engineer shall have the authority to instruct the contractor to replace the ESO if, in the engineer's opinion, the appointed officer is not fulfilling his/her duties in terms of the

requirements of the EMP or this specification. Such instruction will be in writing and shall clearly set out the reasons why a replacement is required.

7.3.2. ESO Administration\

Before the contractor begins each construction activity, the ESO shall give to the engineer a written statement setting out the following:

- The type of construction activity.
- Locality where the activity will take place.
- Identification of the environmental aspects and impacts that might result from the activity.
- Methodology for impact prevention for each activity or aspect.
- Methodology for impact containment for each activity or aspect.
- Emergency/disaster incident and reaction procedures.
- Treatment and continued maintenance of impacted environment.

The contractor may provide such information in advance of any or all construction activities provided that new submissions shall be given to the engineer whenever there is a change or variation to the original.

The engineer may provide comment on the methodology and procedures proposed by the ESO, but he shall not be responsible for the contractor's chosen measures of impact mitigation and emergency/disaster management systems. However, the contractor shall demonstrate at inception and at least once during the contract that the approved measures and procedures function properly.

7.4. Communication Procedures on site

Each of the books described below must be available in duplicate, with copies for the Engineers Representative (ER), Environmental Site Officer (ESO) and Environmental Controlling Officer (ECO) or alternatively an agreement could be reached to use a single system. These books should be available to the authorities for inspection or on request. Contractor's meeting minutes must reflect environmental queries, agreed actions and dates of eventual compliance. These minutes' form part of the official environmental record.

7.4.1. Site instruction entries

The Site Instruction Book entries will be used for the recording of general site instructions as they relate to the works on site. It will also be used for the issuing of stop work orders for the purposes of immediately halting any particular activities of the contractor in lieu of the environmental risk that they may pose.

7.4.2. ESA diary entries

The purpose of these entries will be to record the comments of the ESA as they relate to activities on the site.

7.4.3. Training

The designated environmental site officer (ESO) must be conversant with all legislation pertaining to the environment applicable to this contract and must be appropriately trained in environmental management and must possess the skills necessary to impart environmental management skills to all personnel involved in the contract.

The contractor shall ensure that adequate environmental training takes place. All employees shall have been given an induction presentation on environmental awareness. Where possible, the presentation needs to be conducted in the language of the employees. The environmental training should, as a minimum, include the following:

- The importance of conformance with all environmental policies;
- The environmental impacts, actual or potential, of their work activities;
- The environmental benefits of improved personal performance;
- Their roles and responsibilities in achieving conformance with the environmental policy and procedures and with the requirement of the Agency's environmental management systems, including emergency preparedness and response requirements;
- The potential consequences of departure from specified operating procedures;
- The mitigation measures required to be implemented when carrying out their work activities.

In the case of permanent staff, the contractor shall provide evidence that such induction courses have been presented. In the case of new staff (including contract labour) the contractor shall inform the engineer when and how he intends concluding his environmental training obligations.

8. Environmental legal compliance and monitoring

8.1. General

The contractor shall establish an internal review procedure to monitor the progress and implementation of the Construction EMP. Where necessary, and upon the recommendation of the ECO, procedures that require modification shall be changed to improve the efficiency of the Construction EMP. Any slight changes or adjustments to the Construction EMP shall be discussed with the ECO and documented. Significant modifications to the Construction EMP shall however need to be approved by Department of Environmental Affairs or relevant provincial authorities before the changes or adjustments to the EMP are implemented.

The ECO shall visit the site to ensure that correct operational procedures are being implemented and that the Contractor is complying with the environmental specifications in the Construction EMP. Additional site inspections by the ECO may be needed during the initial and final stages of the project. The ECO shall address any queries to the contractor and Chargo Fuels (Pty) Ltd. If the queries cannot be resolved at this level, if necessary, the Department of Environmental Affairs shall be involved.

At the conclusion of the project, an environmental performance report shall be compiled and submitted to Department of Environmental Affairs. This report shall be compiled by the ECO,

in collaboration with the Contractor, and Chargo Fuels (Pty) Ltd. It shall, as a minimum, outline the implementation of the Construction EMP, and highlight any problems and issues that arose during the construction period to report, on a formal basis, the lessons learned from the project.

8.2. Record keeping

All records related to implementing this management plan (e.g., site instruction book and method statements) must be kept together in an office that is safe and can be retrieved easily. These records should be kept for a minimum of two years and should be available for scrutiny by any relevant authorities at any time.

It is recommended that photographs are taken of the site **prior to, during, and immediately after construction** as a visual reference. These photographs should be stored with other records related to this EMPr.

8.3. Environmental file

An environmental file should always be kept on site. This file should be made available on request by any of the relevant parties. The environmental file should contain the following information:

- All environmental induction/ awareness training documents.
- Environmental complaints register/ I&AP register.
- Environmental emergency procedures.
- Records of all environmental incidents.
- Fire prevention and management plan.
- A formal agreement with a toilet service provider.
- Waste management plan and disposal register.
- The environmental management plan (EMP).
- Records of rehabilitation, preferably with photographs and dates.
- Any other relevant authorisations.

8.4. Compliance and penalties:

The contractor shall act immediately when a notice of non-compliance is received, correct whatever is the cause for issuing the notice. Complaints received regarding activities on the construction site pertaining to the environment shall be recorded in a dedicated register, and the response noted with the date and action taken. This record shall be submitted with the monthly reports and an oral report given at the monthly site meetings.

Any non-compliance with the agreed procedures of the EMPr is a transgression of the various statutes and laws that define the manner by which the environment is managed; therefore, any avoidable non-compliance, dependant on severity, shall be considered sufficient grounds for contact to be made with relevant provincial or national authorities.

The engineer's decision with regard to what is considered a violation, its seriousness and the action to be taken against the contractor shall be final. Failure to redress the cause shall be reported to the relevant authority. The responsible provincial or national authorities shall

ensure compliance and impose penalties relevant to the transgression as allowed for within its statutory powers.

8.5. Report availability:

Copies of this EMPr shall be kept at the construction site office and will be accessible to all senior contract personnel. All senior personnel working on the project shall be required to familiarise themselves with the contents of this document.

9. Environmental mitigation specifications for impacts:

9.1. Social and environmental issues:

It is crucial to minimize any negative perception by taking proactive measures to prevent any social conflicts or social gaps and to develop a positive attitude within the community in which the project is located. The following management strategies are to be implemented:

- Transparent, fair recruitment and procurement practices. The contractor chosen should maximize the involvement of local communities in construction and support activities, to the extent possible, based on available skill levels. Ensure that all labour practices conform to the rules and regulations of the Occupational Health and Safety Act, 85 of 1993.
- Training programmes that will benefit both construction stage skills requirements and long-term employment demand should be developed whenever possible.
- The recruitment selection process should seek to promote gender equality and women's employment wherever possible.
- Priority should be given to the local suppliers of goods and services which meet project procurement requirements as far as possible. To optimize the opportunities for local businesses to supply goods and services to the project, the contractor will survey the capabilities of the goods and services that are locally available that are of an acceptable standard and quality and a survey of the capabilities of local construction companies and identify opportunities for local suppliers.
- A public complaint register and system to ensure that community complaints are clearly investigated, and adequate remedial action should be instituted.
- Adequate notification should be given to people close to where construction activities are taking place, especially if they are to be affected. In addition, there should be a system of compensation for any damages to infrastructure that may occur.
- Each worker should abide by a Code of Conduct, limiting disagreeable activities in local towns and communities and restricting specific work sites and accommodation behaviours.
- Solid waste storage and disposal. All solid waste generated during all project phases will only be stored on-site temporarily and disposed of at a suitably licensed site per the stipulations of the National Environmental Act, 1998 (Act No. 107 of 1998, as amended).
- Documenting of all social issues and means of preventing such issues from becoming environmental concerns.

- Clear and open communication channels should be provided to report and compensate for any damages that may occur to private property.
- All vehicles and access to the site should remain within the demarcated and restricted access routes, which includes the working areas on site.

9.2. Fencing:

- Fencing of the campsite and construction area (if applicable) shall be suitably secured to prohibit any casual access to the construction site.
- No unauthorized pedestrian or vehicular access shall be allowed into fenced, off-limits areas.
- Fencing shall always be kept neat. The contractor shall be responsible for the maintenance of all fences.
- If temporary fencing is removed temporarily for the execution of work, the contractor shall reinstate it as soon as practicable.
- Breaches in the fencing must be repaired immediately.
- The purpose of the fenced areas is to control construction and personnel activity within the designated areas, limit unauthorized access and limit construction workers access to private property/adjacent community
- No fences or gates that provide access to the site/construction campsite may be cut, lowered, removed, or damaged in any way.
- Leave private gates as they are found (open or closed). Gates to adjacent properties or onto public roads must always be closed.
- Open gates must be guarded to prevent animals from straying onto adjacent camps, roads, or properties.

9.3. Clearing and grubbing:

- Contractor shall always carefully consider what machinery is appropriate to the task while minimising the extent of environmental damage and consequence.
- Methods of material transportation should be provided by the contractor and the alternative transportation measures should be included as well.
- List of equipment, machinery and vehicles used on site should be available at the site office at all times.
- Development should strictly be confined to the authorised area.
- Topsoil shall be cleared of vegetation and specifically alien invasive vegetation before ripping and removing.
- The topsoil is regarded as the top 300mm of the soil profile irrespective of the fertility appearance.
- The topsoil, including the existing grass cover is to be shallowly ripped (only the depth of the topsoil) before removal. This is to ensure that organic plant material, and the natural seed base is included in the stripping process.
- Soil stockpiles shall not be higher than 2.5 m or stored for a period longer than one year. The slopes of soil stockpiles shall not be steeper than 1 m vertical to 2.5 m horizontal.
- Stockpile areas should be clearly demarcated and fenced off.

- No vehicles shall be allowed access onto the stockpiles after they have been placed.
- Stockpiles shall not be allowed to become contaminated with oil, diesel, petrol, garbage or any other material, which may inhibit the later growth of vegetation.
- The contractor shall apply soil conservation measures to the stockpiles to prevent erosion. These measures can include the use of erosion control fabric or grass seeding.
- The necessary erosion prevention mechanism shall be employed to ensure the sustainability of all structures and features on site.
- Burning of any material is not permitted under any circumstances.
- No excess rock spoils will be allowed to remain on site. Ensure that contractors are aware of this prerequisite.
- All construction rubble is disposed of in a safe and environmentally acceptable manner.

9.4. Establishing office / camp sites and site preparation:

- Clearing the site and preparing the ground for construction, including excavation, grading and levelling as needed.
- Installing temporary facilities like construction offices, and storage areas to support the construction process.
- Fires will only be allowed in facilities or equipment specially constructed for this purpose. If applicable legislation requires, a firebreak shall be cleared around the perimeter of the camp and office sites.
- Lighting and noise disturbance or any other form of disturbance that may affect the landowner/tenant/persons lawfully living in the vicinity shall be kept to a minimum.
- High intensity spotlights must be minimised as far as possible.
- Chemical toilet facilities or other approved toilet facilities must be situated in such a way that they do not cause water or other pollution.
- In cases where facilities are linked to existing sewerage structures, all necessary regulatory requirements concerning construction and maintenance must be adhered to. The facilities must comply with water act requirements.
- Adequate signage must be provided, and the area must be appropriately secured.
- Adequate parking and security must be provided at the campsites
- All formal documentation must be kept at the site office and be made available during monthly audits.

9.5. Air quality:

The main sources of impact on air quality are mobilization of equipment and earthworks. To ensure air quality characteristics of the project area are maintained near the baseline conditions, the following measures shall be done:

- Regular inspection and scheduled maintenance of all equipment to ensure that construction vehicles are in good condition, are utilising fuel efficiently, and do not smoke.
- Periodically watering the bare surfaces and excavations during construction to keep the dust level down.

- Plant greenery and create a buffer zone to help absorb pollutants and improve local air quality.
- Use low-emission equipment and energy-efficient appliances to minimize outdoor air pollution
- Slowing down the vehicles carrying the construction materials to reduce dust generation. Speed limit signs should be erected for this purpose.
- Properly wrapping the material truck containers with cover to avoid dust spreads on windy days and prohibiting transport of over loaded trucks.
- Providing and using the safety equipment such as dust mask, noise cover for employees who work near the dusty location such as the heavy equipment operators.
- Optimization of working schedule and work to help to minimize several material vehicle mobilization trips.

9.6. Noise and vibrations:

The primary noise sources will be vehicles and equipment utilized during the construction stage including graders, bulldozers, general purpose vehicles, etc. To manage the impact, the following activities will be done:

- Working schedule for the activities with high noise level will be arranged between 08:00 AM to 17:00 PM.
- Only well-maintained vehicles and equipment must be operated on-site, and all machinery must be serviced regularly during construction.
- Avoiding unnecessary simultaneous noisy activities.
- No amplified music shall be allowed at the site.
- Selecting 'quiet' construction equipment and working method and avoiding unnecessary revving and hooting.
- Providing ear protection for activities that are likely to create noise to protect worker's health and safety.

9.7. Erosion control:

Construction activities will require the removal of vegetation cover, potentially resulting in soil erosion and subsequent impacts on surface water quality due to uncontrolled rainwater run-off or mechanical/wind action. The following measures are necessary to minimise impacts:

- Clearance of vegetation must be restricted to the absolute minimum required to facilitate construction activities to proceed. Disturbance of topsoil and vegetation rootstock must be minimized as far as possible.
- Areas not planned to be constructed within two (2) months must not be cleared or disturbed to reduce risk of erosion.
- Construction activities shall take place only within the approved demarcated area.
- Erosion control measures that can be implemented in areas that are susceptible to erosion include:
    - Use of silt fences and sandbags.
    - Brush packing with cleared vegetation
    - Mulch, stone chip packing

- Planting of vegetation
- Hydro-seeding / hand sowing

- The topsoil layer will be kept in a demarcated area for rehabilitation and adequately stored to protect it from erosion.
- Areas where construction has been finished must immediately be rehabilitated up to industry relevant standards.

9.8. Contamination of land:

Land contamination may occur because of fuel and oil leaks or spills and/or poor fuel, chemical and waste storage. The following measures are necessary to mitigate/ avoid the adverse effects of land contamination:

- The storage areas shall be securely fenced and appropriately marked to indicate the goods in the storage. Material Safety Data Sheets should be kept for all pollution generating materials on site.
- All hazardous substances and stocks such as diesel, oils, detergents, etc., shall be stored in areas with impervious flooring such as concrete and properly bunded.
- Drip pans, other impervious surface, shall be installed in such storage areas to prevent soil and water pollution.
- Dedicated impervious areas must be designated for concrete mixing and the spillage from concrete mixed must be cleaned immediately.
- The waste management strategy on the construction site must be hinged on the waste hierarchy model of '*reduce, reuse and recycle'* waste to reduce the ultimate impact on the environment.
- No littering or on-site burying or dumping of any waste materials, vegetation, litter or refuse may occur.
- All used oils, grease or hydraulic fluids shall be placed in appropriate impervious containers. These receptacles will be removed from the site regularly for disposal at a licensed disposal facility or sent for recycling/reuse with a registered facility.
- An effective monitoring system to detect any leakage or spillage of all hazardous substances during their transportation, handling, use and storage must be implemented.
- Residues from machinery maintenance and other sources contaminated with hazardous waste must be stored in proper containers to avoid the potential of unnecessary seepage and contamination/pollution of the surrounding soil.
- Spills must be cleaned immediately by removing and disposing of the spillage with the affected soil (polluted) at a recognized facility.
- Adequate waste receptacles shall be made available, and all waste shall be adequately stored so that it does not pose a pollution risk.
- General waste is to be disposed of through the municipal service. Any other waste will be disposed of through only licensed waste disposal facilities.
- Volatile waste items such as plastic bags, cement bags, etc., should be temporarily stored suitably to prevent it from being dispersed via wind.

9.9. Surface and ground water quality:

Poor chemical storage and poor waste management practices may lead to the contamination of water sources, such as ground water. Sewage and sanitary effluent have the potential to adversely affect the quality of receiving water bodies unless properly managed. To eliminate the risk of contamination, the following measures must be instituted:

- Refuelling, fuel loading/unloading, oil change-outs, waste storage and disposal activities must be carefully managed to prevent spillages.
- No part of the filling station area (filling pumps, convenient store and fuel tanks) may occur on barren surfaces and require concrete
- Proper storm water management infrastructure must be implemented (capture drains) to prevent contaminated water from leaving the site. Together with the storm water management proper recycling (separation tanks) and disposal of contaminated water needs to occur.
- Suitable covered receptacles for waste shall always be available and conveniently placed for waste disposal.
- Regularly inspect fuel storage tanks, lines, and dispensers to identify leaks or potential issues.
- All conditions as stated in the EMPr as well as site specific conditions as stated by the various Departments must be conducted and auditable
- Spills or overflows from chemical or other toilets used by construction staff must be dealt with by a sanitation expert immediately.
- Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and treated prior to discharge or removed from the site for appropriate disposal at a recognised facility.

- Monitoring of the potential ground water pollution should occur using the following methodology:
    - Prior to the instalment of fuel tanks, the baseline water quality should be determined with a focus on the existing levels of soil hydrocarbons.
    - One (1) upstream monitoring borehole must be selected and monitored on a bi-annual (6 month) interval
        - Hydro-Carbons
        - Minor and Major Elements
    - One (1) downstream monitoring borehole must be selected and monitored on a bi-annual (6 month) interval
        - Hydro-Carbons
        - Minor and Major Elements

- At least four (4) shallow boreholes must be drilled around the underground tanks and monitored on a 3 monthly interval for hydrocarbons:
- GRO C_{6-10}
- TPH C_{10-28}
- TPH C_{28-40}

9.10. Water usage:

9.11. Fauna and flora:

Fauna and flora are negatively impacted by the clearance of vegetation, noise from construction activities (disturbance), and workers' gathering/ hunting of flora and fauna. The following measures are necessary to mitigate impacts:

- Clearance of vegetation must be restricted to the absolute minimum required to facilitate access and undertake construction activities.
- The Contractor shall be responsible for the removal of alien vegetation within areas affected by the construction activities including cleared ground and topsoil stockpiles.
- Equipment used should be regularly washed down to avoid transporting seeds (invasive species) or plant diseases.
- All removed plant material must be disposed of appropriately, or if applicable, the local vegetation will be stored and used again during rehabilitation.
- No trees or shrubs will be felled or damaged to obtain firewood.
- The rehabilitation activities require re-planting vegetation in any areas cleared for the construction activities. This will promote soil stability, and improve the visual environment.
- Hunting/gathering/trapping of wild fauna by construction workers is not permitted.

9.12. Safety:

- The Contractor shall be responsible for protecting the public and public property from any dangers associated with the construction and operation of the road activities.
- All work must be handled by the Occupational Health and Safety Act (OHS) 85 of 1993, adequate safety precautions must be taken, and suitable topsoil facilities must be provided in line with the act's requirements. The contractor must ensure that all protective measures against accidents are taken.
- Trenches and excavations should be clearly demarcated and fenced-off.
- Ensure that all contractors know the consequences of non-compliance to the relevant legislation regarding the OHS Act and the environment (acts, regulations, and particular guidelines).
- Any works/activities which may pose a hazard to humans and domestic animals are to be protected or cordoned off and, if appropriate, warning signage erected.
- Appropriate security is to be provided at the site to protect equipment and provide a safe construction site and work areas.
- Any damage caused due to the construction activities shall be repaired to the satisfaction of the project manager and property owner.

9.13. Historical, archaeological, and heritage impacts:

- SAHRA and a qualified archaeologist must be consulted immediately in the event of accidental archaeological exposure.
- If archaeological artefacts are unearthed or identified at any stage of the clearing operations, the relevant organisations are to be contacted immediately to conduct a thorough scientific investigation of the finds.
- In unlikely cases of accidental archaeological exposure, all excavations must stop immediately.
- No loose chance finds, such as stone age artefacts (arrowheads, stone flake blades, etc.), may be collected.
- The on-site environmental representative must consult the appointed ECO regarding such discoveries.
- No site of archaeological or historical significance maybe moved without a permit from the SAHRA. Any permitted removal of any archaeological or historical matter must be done under the strict supervision of a qualified registered archaeologist.
- In terms of palaeontology it is recommended that development can proceed, provided that construction-related excavations which may expose or remove intact sedimentary rock, should preferably be monitored by a professional palaeontologist on a regular basis when such excavations are open.

9.14. Rehabilitation:

- On completion of operations, all buildings, structures, or objects on the camp/office site shall be demolished and removed.
- Where office/camp sites have been rendered devoid of vegetation/grass or soils compacted owing to traffic, the surface shall be scarified or ripped to aerate and promote water infiltration. Scarification will also aid in regenerating the soil, its biota, and its seed bank.
- On completion of operations, the areas shall be cleared of any contaminated soil, which must be disposed of as per the waste management plan.
- All infrastructure, equipment, plant, temporary housing, roads, and other items used during construction will be removed from the site and rehabilitated if necessary.
- Waste material of any description, including receptacles, scrap, rubble, and tyres, will be removed entirely from the area and disposed of at a registered waste disposal facility. It will not be permitted to be buried or burned on site.
- Disturbed areas should be left safely and stably. Preventative measures may be necessary to construct adequate drainage structures, including ditches and other structures, to facilitate surface water movement.
- Suitable rehabilitation should be implemented for excavations, trenches and vegetation clearance.
- Photographs of the camp and office sites, before and during the construction and after rehabilitation, shall be taken at selected fixed points and kept on record.
- Alien and invasive species must be continually removed to prevent their proliferation.
- No concrete, gravel, or other rubbish will be allowed to remain on site after the construction phase.

9.15. Handling of emergencies:

- The Contractor should identify all situations that can lead to emergencies and provide response strategies. The situations should include fire and significant chemical spills.
- Contact details of all departments/service providers to be contacted in an emergency shall be made available to employees.
- Equipment for dealing with emergencies, such as spill kits, firefighting equipment, first aid boxes, etc., shall be made available, and personnel adequately trained in its use.
- All staff on site should be trained to handle emergencies, and emergency drills/ rehearsals must be conducted periodically to ensure staff is prepared.
- All emergencies/ incidents should be reported and distributed to the relevant parties.

10. Method statements:

The contractor shall submit written Method Statements for all environmentally sensitive aspects of the work. It should be noted that Method Statements must contain sufficient information and detail to mitigate the potential impacts of the works on the environment. The contractor must also understand what is required to undertake the job thoroughly. Work shall not commence until Method Statements have been put in place.

The method statement must cover the relevant information concerning:

- Location & development of concrete batching plant facilities
- Location and timing of activities
- How to store material
- How to get equipment to and from site
- Procedures for the construction
- Compliance/ non-compliance with the Specifications, and
- Any other information which the applicant and ECO find appropriate

The contractor must comply with these approved method statements and any operation covered by a method statement must not begin until the applicant and the ECO have approved this method statement