NKHOPHELE HOLDINGS

Core to earth's sustainable development

DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME FOR THE PROPOSED DEVELOPMENT OF A FILLING STATION WITH ASSOCIATED INFRASTRUCTURE ON ERF 2494 ERASMUS EXTENSION 20 IN BRONKHORSTSPRUIT WITHIN THE CITY OF TSHWANE METROPOLITAN MUNICIPALITY, GAUTENG PROVINCE.

APPLICANT: UMNOTHO WE AFRIKA GROUP (PTY) LTD.

DATE: FEBRUARY 2020

EXECUTIVE SUMMARY

Nkhophele Holdings as an independent environmental consultancy and has been appointed by Umnotho We Afrika to undertake the required Environmental Impact Assessment (EIA) process for the proposed development of a filling station with associated infrastructures, as required by the NEMA EIA Regulations, 2014 (amended on 7 April 2017).

The applicant has proposed to develop filling station with associated infrastructures on an area of approximately 0,55 hectares in total with a developmental footprint of approximately 0,6 hectares. The proposed project will provide approximately 15 jobs during the construction phase and approximately 12 jobs during the operational phase. This will contribute to the growth of the economy in the local area by ensuring employment.

The proposed project will trigger listed activities (detailed in the table below) in terms of the Environmental Impact Assessment (EIA) Regulations as promulgated under the National Environmental Management Act (No. 107 of 1998) (NEMA). Therefore, the proposed development requires Environmental Authorisation in terms of the EIA Regulations prior to commencement of construction and operation phases.

Table 1: Triggered listed activities

Government Notice and Activity No (s) (in terms of the relevant notice):	Describe each listed activity as per project description
National Environmental Management Act (Act 107 of 1998) - GN R326 - EIA Regulations, 2014 (amended 7 April 2017)	
GNR 327 Activity 14- Listing Notice 1	The development and related operation of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres

This Environmental Management Report to ensure that undue or reasonably avoidance of adverse impacts of the conduction, operation and decommissioning of the project are prevented and that positive benefits of the project are enhanced. In the opinion of the Environmental Assessment Practitioner (EAP), the project does not pose a detrimental impact on the receiving environment and its inhabitants. The impacts that have been identified and addressed through the impact assessment can be mitigated significantly with the use of this Environmental Management Programme (EMP). The applicant should be bound to stringent conditions to maintain compliance and responsible executions of the project.

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ACRONYMS

BAR	Basic Assessment Report
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme Report
HSE	Health and Safety officer
NEMA	National Environmental Management Act
OHSA	Occupational Health and Safety Act

1. SCOPE OF WORK

This EMPr prescribes and directs the management of all environmental aspects, physical, natural and social, associated with and the planning, construction, operations and decommissioning of the proposed filling station development. The EMPr has been developed as set of environmental specifications (i.e. principles of environmental management), which are appropriately contextualized to provide clear guidance in terms of the on-site implementation of mitigation measures.

Nkhophele Holdings has been appointed by Umnotho We Afrika to compile Environmental Management Programme for the proposed project in order to assist with the identification of possible impacts, assess impacts and provide possible mitigation measures to minimise the identified impacts. This is done to ensure that there are measures to manage the identified negative impacts that may result from the proposed project.

The proposed project is anticipated to operate within the correct standard and the proposed project site is not deemed environmentally sensitive. The process of construction is anticipated to be conducted by an experienced contractor and Umnotho We Afrika is anticipated to work closely with the appointed Environmental Control Officer (ECO). The project phases will include the following:

- Planning phase
- Construction phase
- Operational phase

2. PROJECT BACKGROUND

The South African Economy requires innovative people who can identify the challenges the country is facing in economic development and job creation. On a socio-economic forefront the proposed development will facilitate the decrease in unemployment and thus improving the community livelihoods. Development of a sustainable eco-tourism atmosphere is a priority, thus maintaining quality of both natural and cultural environments. Considering the increase of motor vehicles in the area, the development of a filling station will help provide convenience to motorist along the R25 and N4.

Nkhophele Holdings (Pty) Ltd, has compiled the Environmental Management Programme (EMPr) for the proposed development. This document considers the impacts that are likely to arise from the implementation of the project and the mechanisms that are recommended to minimise the severity of these impacts. The EMPr covers the principles, responsibilities and requirements applicable in order to implement effective environmental management, throughout the project.

2.1 Objectives and purpose of the EMPr

The main driving force behind the compilation of this EMPr is to outline measures that are to be implemented in order to minimise adverse environmental impacts that are either direct, indirect or cumulative impacts associated with the development of the proposed filling station. This is done by encouraging good management practices through planning and commitment of environmental issues and complying with all applicable laws, regulations, standards and guidelines for the protection of the environment. The EMPr serves as a guide for contractors and employees on their roles and responsibilities concerning environmental management on site. Furthermore, it provides a framework for environmental monitoring throughout the development life cycle.

This document provides appropriate mitigation measures designed to minimise or eliminate the significant adverse impacts that may be caused as a result of the proposed project and to also enhance positive impacts

2.2 The objectives of the EMPr

- Identify feasible and cost-effective mitigation measures to reduce significant negative environmental impacts of the proposed filling station and legal levels;
- Provide detailed specifications for the management and mitigation of activities that have the potential to impact negatively on the environment;

- Provide a standard for management of environmental issues pertaining to the execution of civil and other construction work with specific reference to issues raised through the Environmental Impact Assessment Studies undertaken for the proposed filling station.
- To prevent long-term or permanent environmental degradation; and reduce the environmental impact of civil and any other construction work through the proactive employment of sound and effective working practices.

2.3 The EMPr seeks to highlight the following

- Avoiding impacts by not performing certain actions.
- Minimizing impacts by limiting aspects of the action.
- Rectifying impacts through rehabilitation, restoration, etc. of the affected environment.
- Compensation for impacts by providing substitute resources or environments
- Minimizing impacts by optimizing processes, structural elements and other design features.
- Provide ongoing monitoring and management of environmental impacts of a development and documenting of any digressions/good performances.
- The EMP is a legally binding document that all parties involved in the project must be made of.

3. TRAINING AND AWARENESS

3.1 Training of construction workers

The construction workers must receive the basic training in environmental awareness, including the storage and handling of hazardous substances, management of waste, and prevention of water pollution. They must be informed of how to recognize historical/archaeological artefacts that may be uncovered during excavation. They must also be apprised of the EMPr's requirements.

3.2 Contractor Performance

The contractor must ensure that the conditions of the EMPr are adhered to. Should the contractor require clarity on any aspect of the EMPr, the contractor must contact the Environmental Control Officer for advice.

3.3 Structure of the EMPr

The EMPr is the over-arching administrative and institutional document from which other documents take their authority. It is intended to be an overview document that specifies the on-site environmental management philosophy of the entire site and the organisational structure necessary to achieve that

vision. In addition, it specifies common environmental management and monitoring principles that will be applied to all aspects of the project. The EMPr provides mitigation and management measures for the following phases of the project:

- Planning phase
- Construction phase
- Operational phase

4. PROJECT OVERVIEW

4.1 Project location

The proposed development will be undertaken on Erf 2494 Erasmus Extension 20 in Bronkhorstspruit in the City of Tshwane Metropolitan Municipality within the Gauteng Province. The central co-ordinates of the site are: 25°48'52.36" S, 28°44'51.94" E.

LOCALITY MAP OF THE PROPOSED DEVELOPMENT OF A FILLING STATION WITH ASSOCIATED INFRASTRUCTURE ON ERF 2494 ERASMUS EXTENSION 20 IN BRONKHORSTSPRUIT IN THE CITY OF TSHWANE METROPOLITAN MUNICIPALITY, GAUTENG PROVINCE.

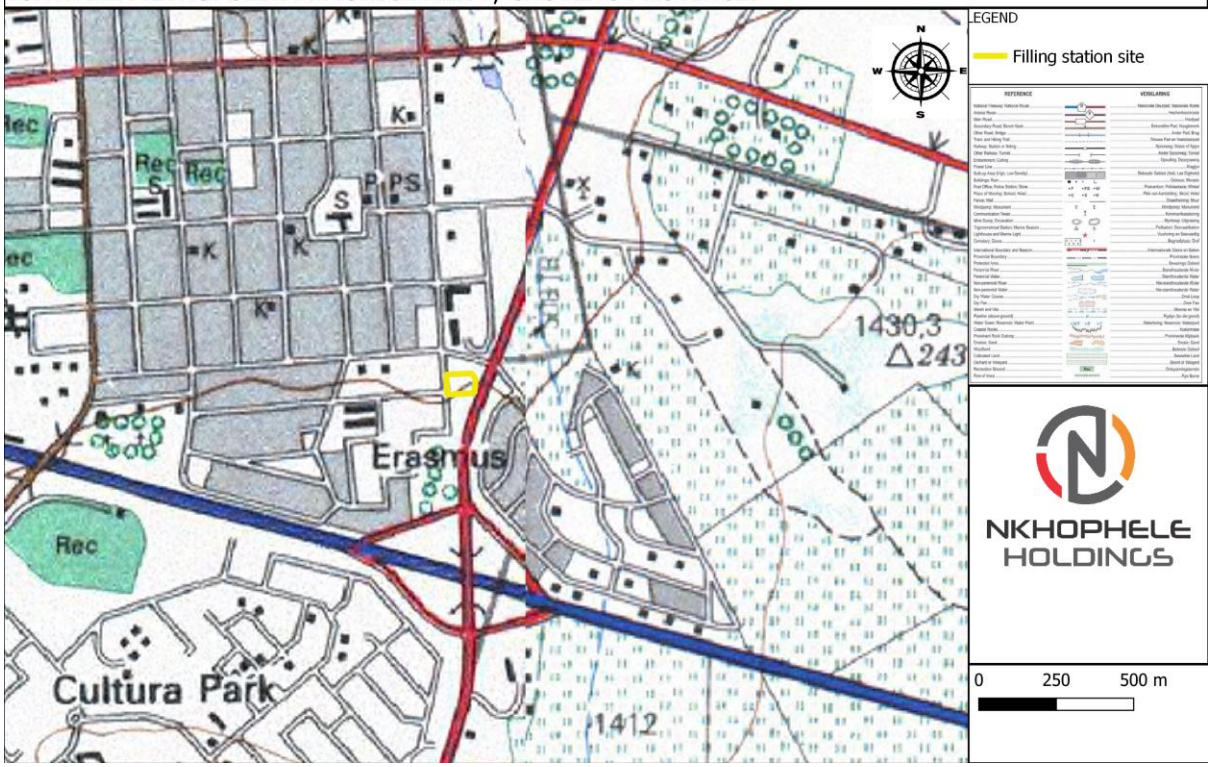

Figure 1: Locality map of the site

4.2 Project Description

The development entails the establishment of a filling Station that is to accommodate 499m^3 of fuel. The development is to include all required services thereto. The fuel tanks will be stored underground at the site. The tanks will be double jacketed tanks and the estimated tanks to be on site will be 12 with

a capacity of 40 000 litres. The applicant will investigate the recommendations provided in the feasibility study and might phase the development in relation to market growth. Fuel to be stored on site will be unleaded petrol (93 and 95) and diesel tanks. Tanks will be installed according to applicable South African National Standards. The convenience store will have variety of food items for motorists and other customers. There will also be a virtual office to accommodate for convenient meetings.

Access to the proposed site

Road access to the study area is via the R25 which is a provincial road linking Bronkhorstspruit in Gauteng Province to Groblersdal in Limpopo Province. The R25 within the vicinity of the site is in a good condition and well maintained. Access to the filling station will be via R25 and Lanham Street

Municipal infrastructure.

a. Water

City of Tshwane Metropolitan Municipality is the sole provider of potable water to the Bronkhorstspruit town. Water is sourced via dam extraction from the Bronkhorstspruit dam and treated at the Bronkhorstspruit water purification plant located near the dam. Potable water is then pumped from the water purification plant to the Zithobeni and Nooitgedacht reservoirs with a combined storage capacity of 14 655 kℓ from where it supplies the town and surrounding townships via a water reticulation network of varying pipe diameters.

Bulk water supply to infrastructure to the Erasmus Ex 20 is via a 160mm ø pipe extending from Erasmus Ex 17 to the west.

b. Stormwater Drainage

Bronkhorstspruit receives an average of ± 570 mm of rain annually with most of the rain falling during the first and last quarters of the year (i.e. mid spring to mid-summer months). The site has an average height of 1403 m above sea level and has a flat slope (1:60) a northerly direction. According to the 1:50 000 cadastral maps from the Surveyor General and physical site observations of the study area, there is a dug-out storm water channel traversing the site in a northernly direction and draining into the Bronkhorstspruit River located 1.5 km north west of the site.

c. Sewer & Solid waste

Sewerage disposal to Erasmus Ex 20 is provided by the municipality via an internal gravity reticulation system draining to the Bronkhorstspruit pump station from where the waste water is pumped to the Godrich Waste Water Treatment Plant (WWTP) which has a capacity of 5 mℓ /day.

5. APPLICABLE LEGISLATION

Table 2: Applicable legislations

Title of legislation, policy or guideline	Administering authority:	Promulgation Date:
National Legislations/ Policies/ Plans		
National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended).	National & Provincial	27 November 1998
The Constitution of the Republic of South Africa 1996, (Act No. 108 of 1996)	National & Provincial	1996
National Water act 1998 (Act No. 36 of 1998)	National & Provincial	1998
National Road Traffic Act, 1996 (Act No. 93 of 1996)	National & Provincial	1996
Hazardous Substances Act 1973 (Act No.15 of 1973)	National & Provincial	1973
National Environmental Management: Waste Act 2008, (Act No. 59 of 2008)	National & Provincial	01 July 2009
National Environmental Management: Air Quality Act 2004, (Act No. 39 of 2004)	National & Provincial	2004
South African Bureau of Standards, SABS 089-3-1999, Third Edition. Code of Practice-the petroleum industry Part 3.	National & Provincial	1999
National Environmental Management: Biodiversity Act (No 10 of 2004)	National & Provincial	2004

Occupational Health and Safety Act (No 85 of 1993)	National & Provincial	01 July 2009
Promotion of Access to Information Act, 2000 (Act No 2 of 2000):	National & Provincial	2000
National Heritage Resources Act (Act No. 25 of 1999)	National & Provincial	1999
Petroleum Products Act, 1977 (Act No. 120 of 1977)	National & Provincial	1977
National Veld and Forest Fire Act, 1998 (Act No. 101 of 1998)	National & Provincial	1998
Provincial Acts / Regulations / Policies/ Plans / Programmes / Norms and Standards		
Gauteng Provincial Environmental Management Framework	Provincial	May 2015
Gauteng Noise Control Regulations, 1999	Provincial	1999
City of Tshwane Metropolitan Municipality Waste Management By-Law Since there will be waste created during all the phases of the filling station, this by-law has to be adhered to.	Local	2016

Description of compliance with the relevant legislation, policy or guideline:

Legislation, policy of guideline	Description of compliance
National Legislations/ Policies/ Plans	

National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended).	The proposed development will not temper with the rights of humans to a clean and safe environment. The communities' well-being and safety shall be put into consideration and impacts on the receiving environment will be mitigated to ensure sustainability for the future generations.
The Constitution of the Republic of South Africa 1996, (Act No. 108 of 1996)	The National Environmental Management Act (Act No. 107 of 1998) (NEMA) is the principal framework for environmental legislation as well as the Regulations for Environmental Impact Assessment. It sets out the principles that assist as a general framework for environmental planning, as guidelines by reference to which organs of state must exercise their functions and guide other laws concerned with the protection or management of the environment. The application takes into account the environmental and socioeconomic conditions in compliance with the NEMA principles
National Water act 1998 (Act No. 36 of 1998)	The general use of water in the construction and operational phase and possible drilling of water from an aquifer (borehole).
National Road Traffic Act, 1996 (Act No. 93 of 1996)	Road safety as the development of the project may lead to traffic jam as vehicles move in and out of the facility
Hazardous Substances Act 1973 (Act No.15 of 1973)	Hazardous Substances Act No. 15 of 1973 gives provision for the control of substances which may cause injury or ill-health to or death of human beings by reason of their toxicity, strong sensitizing or flammable nature and the generation of pressure thereby in certain circumstances. It further provides for the division of such substances or products into groups in relation to the degree of danger; to provide for the prohibition and control of the importation sale, use, operation, application, modification, disposal or dumping of such substances and products; and to provide for matters connected therewith.

National Environmental Management: Waste Act 2008, (Act No. 59 of 2008)	Only a partial amount of solid construction waste will be stored and handled on the site, before being hauled away and dumped at the nearest registered landfill site. During operational phase, waste will be collected and disposed at the nearest registered landfill.
National Environmental Management: Air Quality Act 2004, (Act No. 39 of 2004)	The NEMA: AQA provides the framework for addressing air quality issues. The Act sets norms and standards for air quality management. During the construction phase, dust and the generation of noise can become a substantial factor, especially to the surrounding communities. Nevertheless, the mitigating measures for these potential impacts can be successfully implemented the proposed development's contribution to air pollution and the generation of air and noise pollution can become less substantial.
South African Bureau of Standards, SABS 089-3-1999, Third Edition. Code of Practice-the petroleum industry Part 3.	The installation of underground tanks for fuel, pumps/ dispensers and pipework at service station and consumer installations.
National Environmental Management: Biodiversity Act (No 10 of 2004)	The objectives of the National Environmental Management: Biodiversity Act (NEM: BA) inter alia include management and conservation of biological diversity, use of biological resources in a sustainable manner etc. The site has been heavily modified by human activities and there will not be any harm made biological resources.
Occupational Health and Safety Act (No 85 of 1993)	The Act provides for the health and safety of persons at work and for the health and safety of persons in connection with the use of machinery; the protection of persons other than persons at work, against hazards to health and safety arising out of or in connection with the activities of persons at work. The EMPr provides for measures to ensure that objectives of the Act are met on this site

Promotion of Access to Information Act, 2000 (Act No 2 of 2000):	The act gives effect to constitutional right to access of information held by the state and any information that is held by another person and that is required for the exercise or protection of any rights; and to provide for matters connected therewith. Legislation that allows the public access to information about activities that influence their well-being and to make contributions to decision making. And will apply during public participation process of the project.
National Heritage Resources Act (Act No. 25 of 1999)	Section 38 states that Heritage Impact Assessments (HIAs) are required for certain kinds of development. There are no heritage features found on site and if by any chance these features are discovered during construction, the activities will temporarily cease and SAHRA will be notified.
Petroleum Products Act, 1977 (Act No. 120 of 1977)	This act is applicable as it provides measures for the saving of petroleum products and an economy in the cost of the distribution thereof, and for the maintenance and control of a price therefore; for control of the furnishing of certain information regarding petroleum products; and for the rendering of services of a particular kind, or services of a particular standard, in connection with motor vehicles; and to provide for matters incidental thereto.
National Veld and Forest Fire Act, 1998 (Act No. 101 of 1998)	This act aims to prevent and combat veld, forest and mountain fires throughout the Republic and provides for a variety of institutions, methods and practices for achieving the purpose. As fuel is flammable, it is important that this Act is adhered to

Provincial Acts / Regulations / Policies/ Plans / Programmes / Norms and Standards	
Gauteng Provincial Environmental Management Framework	The purpose of the Framework is to assist environmental impact management including EIA processes, spatial planning and sustainable development. Its objectives includee efficiency in urban development, optimal use of land, to protect Critical Biodiversity Areas (CBAs as defined in C-Plan 3.3) within urban and rural environments and to use ESAs as defined in municipal bioregional plans in spatial planning of urban open space corridors and links within urban areas. The development site is located within special zone and does not have any environmental sensitivities.
Gauteng Noise Control Regulations, 1999	Construction and operational activities may result in noise pollution. Noise will be controlled according to these regulations. Mitigation measures have been included in the EMPr
City of Tshwane Metropolitan Municipality Waste Management By-Law	Since there will be waste created during all the phases of the filling station, this by-law has to be adhered to.

6. MANAGEMENT STRUCTURE

Table 3: Management Structure

Role	Responsibilities
Authority	The authority has a duty to visit the facility at any given time to audit compliance to the Environmental Management Plan and provide any feedback and comments for the purpose of continuous environmental management.
Developer	• The developer of the facility has the duty to ensure that all resources are provided to ensure Environmental Management Plan is always complied with. • Shall ensure that anyone who does business with the company or entering the company premises is aware of any environmental requirements within the site to ensure that there is always compliance. The developer will ensure there is continuous monitoring of compliance in the form of both first- and second-party audits. • May appoint Environmental personnel who can be responsible for overseeing this policy, • Report to the environmental committee and keep them appraised on all matters pertaining to this policy • Formalise communications to reflect current operational activities and actions and ensure that this policy is implemented and managed accordingly. • Ensure that this policy' procedures, instructions and guidance are regularly reviewed and amended as necessary • Actively promote a positive environmental culture throughout all areas of responsibility
Contractor	Implement, manage and maintain the construction elements of the EMPr for the duration of his/her contract; • Provide appropriate resources – budgets, equipment, personnel and training – for the effective control and

	management of the environmental risks associated with the construction of the project; • Ensure that all sub-contractors and other workers appointed by the contractor are aware of their environmental responsibilities while on site or during the provision of their services off site; • Ensure that all sub-contractors and other workers appointed by the contractor are complying with, and implementing the construction EMPr during the duration of their specific contracts and assign appropriate authority, accountability and responsibility for these personnel to carry out their duties.
The project Manager	• Be familiar with the contents of the EMPr, the recommendations and mitigation measures of this EMPr, and implement these measures; • Monitor the contractor's compliance with the environmental specifications daily, through the site diary, and enforce compliance; • Communicate to the contractor in writing to inform the contractor regarding the contents of the report; • Review and approve design sketches produced by the contractor in connection with, for example, the construction site layout, access / haul roads and so forth; • Designate and manage the working areas as per the approved construction site layout, including sensitive environments and "no-go" areas; • Advise on materials that may be used to designate working areas and materials to be used for the works as and when necessary; • Undertake damage assessments where incidents, accidents and serious infringements have occurred on or a relevant distance off site; • Review and approve all areas that have been rehabilitated by the contractor;

	• Review complaints received and issue instructions as necessary; • Implement temporary work stoppages where serious environmental infringements and non-compliances have occurred; • Maintain a record of complaints from the public and communicate these to the contractor; and • Facilitate proactive communication between all role-players in the interests of effective environmental management
The Engineer	• Be familiar with the contents of the EMPr; • Monitor the contractors' compliance with the environmental specifications daily, through the site diary, and enforce compliance; • Communicate to the contractor, verbally and in writing, the advice of the ECO and the contents of the ECO reports; • Request for, review and approve any method statements prepared by the contractor in consultation with the ECO • Advise designate and manage the working areas as per the approved construction site layout, including sensitive environments and „no-go" areas; • Communicate to the ECO, verbally and in writing, at least 10 working days in advance regarding any proposed actions which may have negative impacts on the environment, with specific reference to blasting • Facilitate proactive communication between all stakeholders in the interests of effective environmental management; • Maintain a record of complaints from the public and communicate these to the contractor and the ECO; and • Accompany the ECO during site inspections and/or inform the ECO in writing, of any infringements of the

	EMPr and to issue instructions to the Contractor on the advice of the ECO.
Station manager.	• Be acquainted with the Environmental Management Programme Assessment; • Be conversant with all relevant environmental legislation and environmental policies and procedures and ensure compliance with these; • Liaise with the project manager or his delegate, the ECO and relevant discipline engineers on matters concerning the environment; • Prevent actions that will harm or may cause harm to the environment, and take steps to prevent pollution on site; • Ensure that all employees are aware of the contents of the EMPr during operational phase. • Enforce the measures outlined in this EMPR during the operational phase.
The Environmental Control Officer (ECO)	The ECO is responsible for the implementation of the EMPr during the construction phase and liaison between the developer, contractor and the landowners. The following tasks will fall within his/her responsibilities: • Be conversant with the Environmental Impact Assessment; • Be conversant with the conditions of the Environmental Authorisation; • Be conversant with the Environmental Management Plan; • Be conversant with relevant environmental registration and policies and regulation; • Convey the contents of this document to the contractor site staff and discuss the contents in detail with the project manager and contractor; • Undertake regular and comprehensive inspection of the site and surrounding areas in order to monitor compliance with the EMPr;

	• Take appropriate action if the specifications contained in the EMPr are not followed; • Monitor and verify that environmental impacts are kept to a minimum, as far as possible; • non-compliance or remedial measures that need to be applied.
Health and Safety Officer (HSE)	• Provide support to the ECO in monitoring the execution of the operation EMPr by maintaining a permanent presence on the site. • Undertake routine site inspections and provide information to the ECO as required. • Maintain an incident register and report regularly. Reviewing and approving the site Health and Safety Plan (HASP); Ensuring that the contractor complies with the requirements of the Occupational Health and Safety Act during construction; and Ensuring that the contractor complies with the requirements of the Engine
All Employees	All employees are required to: • Interact and show commitment to communicational activities undertaken by the business and support, educate and manage where possible. • Co-operate with the Company in complying with duties and requirements imposed by relevant statutory provisions and Company Procedures as indicated in this policy. • Understand the company's Environmental Policy. • Not interfere with, or misuse anything provided in the interests of environmental protection. • Report all environmental incidents to a Manager

7 GENERAL ENVIRONMENTAL MANAGEMENT

7.1 TRAINING AND ENVIRONMENTAL AWARENESS

It is important to ensure that an appropriate level of environmental awareness is effectively communicated with all personnel involved with the project to ensure continued environmental due diligence and on-going minimization of environmental harm. Training needs should be identified based on the available and existing capacity of site personnel to undertake the required EMPr management actions and monitoring activities. It is vital that all personnel are adequately trained to perform their designated tasks to an acceptable standard.

The environmental training is aimed at: promoting environmental awareness; informing the project participants of all environmental procedures, policies and programmes applicable; providing generic training on the implementation of environmental management specifications; and providing job-specific environmental training in order to understand the key environmental features of the site and the surrounding environment.

Training will be done in a verbal format. The training will be a once-off event. In addition to training, general environmental awareness must be fostered among the project's workforce to encourage the implementation of environmentally sound practices throughout its duration. This ensures that environmental accidents are minimised and environmental compliance maximized.

7.2 ENVIRONMENTAL MONITORING

A monitoring programme will be implemented for the duration of the development of the proposed project. This programme will include:

- Establishing a baseline through the taking of photographs of identified environmental aspects and potential impact on site prior to establishment.
- Monthly monitoring and audits will be conducted by the ECO for the remainder of the establishment phase to ensure compliance to the EMPr conditions, and where necessary make recommendations for corrective action. These audits can be conducted randomly and do not require prior arrangement with the Project Manager.
- Compilation of an audit report with a rating of compliance with the EMPr, the ECO shall keep a photographic record of any damage to areas outside the demarcated site. The date, time of damage, type of damage and reason for the damage shall be recorded in full to ensure the responsible party is held liable. All claims for compensation emanating from damage should be

directed to the ECO for appraisal. The Contractors shall be held liable for all unnecessary damage to the environment. A register shall be kept of all complaints from the Landowner or community. All complaints/claims shall be handled immediately to ensure timeous rectification / payment by the responsible party.

7.3 MONITORING AND RECORD KEEPING

The performance of laborers should be monitored by the ECO to ensure that the points relayed during their introduction have been properly understood and are being followed. If necessary, the ECO and / or a translator should be called to the site to further explain aspects of environmental or social behaviour that are unclear. Toolbox talks are recommended. The ECO must compile a status quo of the site prior the development and be used as a frame of reference when monitoring the impacts. The following documents will be used to monitor the impacts of the development through comparison with the predevelopment status quo.

- Incidents report – all the incidents and accidents that occurs at the site must be recorded in this document.

- Waste Generation and Management Checklist – the checklist will monitor the effectiveness of the waste management strategies implemented.

All the incidents and accidents at the site should be recorded accordingly. Photographic records must be kept for all site incidents and accidents.

7.4 COMPLIANCE WITH THE EMPR

A copy of the EMPr must always be kept on site during the construction and operational phase of the project. The EMPr will be binding on all personnel operating on the site and must be included within the Contractual Clauses. It should be noted that in terms of the National Environmental Management Act No 107 of 1998 (Section 28), those responsible for environmental damage must pay the repair costs both to the environment and human health and the preventative measures to reduce or prevent further pollution and/or environmental damage (The ‘polluter pays’ principle).

7.5 NON-COMPLIANCE

During the proposed project, regular monitoring will take place and audit reports should be presented to the Client, Contractor and Competent Authority (if required) on a regular basis. The outcomes of these reports should be discussed in order to identify solutions to any identified issues.

Any non-compliance with the EMPr will be treated as serious offence. The liability for non-compliance with the EMPr rests with the Contractor.

Application of a penalty clause will apply for incidents of non-compliance. The contractor will be allowed one offense and a written warning will be issued by the ECO. Failure to rectify the offense within one (1) working week of the issue of the warning or a repeat offence will result in a fine. This fine will be issued by the ECO. The penalty imposed will be per incident. Unless stated otherwise in the project specification, the penalties imposed per incident or violation will be:

Offence	Amount
Failure to demarcate working areas.	R 2 000
Working outside of the demarcated areas.	R 5 000
Hazardous chemical/oil spill and/or dumping in non-approved sites.	R10 000
Groundwater contamination from leakage of tanks	R10 000
Failure to stockpile topsoil correctly.	R 10 000
Failure to stockpile materials in designated areas.	R 5 000
Failure to take measures to control dust dispersion on site.	R 5 000
Contamination or pollution of water bodies and/or groundwater.	R 10 000
Failure to erect temporary fences around trenches.	R 2 000
Failure to provide adequate waste disposal facilities and services.	R 2 000
Cutting down of a tree.	R 10 000
Uncontrolled exposer of soil leading to soil erosion.	R 5 000
Any other contravention of the project specific specification.	R 10 000

Such fines will be paid by the Contractor / Engineer to the Project Manager and will be used in rehabilitation and/ or landscaping.

7.6 EMERGENCY PREPAREDNESS

The Contractor shall compile and maintain environmental emergency procedures to ensure that there will be an appropriate response to unexpected or accidental actions or incidents that will

cause environmental impacts, throughout the establishment period. Such activities may include, inter alia:

- Accidental discharges to water and land.
- Accidental exposure of employees to hazardous substances.
- Accidental fires.
- Accidental spillage of hazardous substances.
- Accidental toxic emissions into the air.
- Specific environmental and ecosystem effects from accidental releases or incidents.

These plans shall include:

- Emergency organisation (manpower) and responsibilities, accountability and liability.
- A list of key personnel and contact details.
- Details of emergency services available (e.g. the fire department, spill clean-up services, etc.).
- Internal and external communication plans, including prescribed reporting procedures where required by legislation.
- Actions to be taken in the event of different types of emergencies.
- Incident recording, progress reporting and remediation measures required to be implemented.
- Information on hazardous materials, including the potential impact associated with each, and measures to be taken in the event of accidental release.
- Training plans, testing exercises and schedules for effectiveness.

The site personnel shall comply with the emergency preparedness and incident and accident-reporting requirements, as required by the Occupational Health and Safety Act, 1993 (Act No 85 of 1993), the NEMA, 1998 (Act No 107 of 1998), the National Water Act, 1998 (Act No 36 of 1998) and the National Veld and Forest Fire Act, 1998 (Act No 101 of 1998) as amended and/or any other relevant legislation.

7.7 Incident Reporting and Remedy

If a leakage or spillage of hazardous substances occurs on site, the area must be contained immediately. The source of the leak must be identified as soon is the leakage is noticed. The contaminated soil must be removed and be remediated. All the chemicals and equipment must be contained within the development footprint and access by animal to contaminated areas should be fully restricted. Where the spills or leakages effect would expand beyond the site footprint local

emergency services must be immediately notified of the incident. The following information must be provided:

- The location;
- The nature of the load;
- The extent of the impact; and
- The status at the site of the accident itself (i.e. whether further leakage is still taking place, whether the vehicle or the load is on fire).

Written records must be kept on the corrective and remedial measures decided upon and the progress achieved therewith over time. Such progress reporting is important for monitoring and auditing purposes. The written reports may be used for training purposes in an effort to prevent similar future occurrences.

7.8 Penalties

Where environmental damage is caused or a pollution incident, and/or failure to comply with any of the environmental specifications contained in the EMPr, the project manager and/ or contractor shall be liable.

The following violations, and any others determined during the course of work, should be penalised:

- Hazardous chemical/oil spill and/or dumping in non-approved sites.
- Unauthorised removal/damage to indigenous trees and other vegetation, particularly in identified sensitive areas.
- Uncontrolled/unmanaged erosion.
- Pollution of water.

8. ENVIRONMENTAL MANAGEMENT MEASURES

The potential environmental impacts associated with the project will be evaluated according to its nature, extent, duration, intensity, probability and significance of the impacts, whereby:

- Nature: A brief written statement of the environmental aspect being impacted upon by a particular action or activity.
- Extent: The area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment phase of a project in terms of

further defining the determined significance or intensity of an impact. For example, high at a local scale, but low at a regional scale;

- Duration: Indicates what the lifetime of the impact will be;
- Intensity: Describes whether an impact is destructive or benign;
- Probability: Describes the likelihood of an impact actually occurring; and
- Cumulative: In relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

Table 4: Impact Assessment Methodology

Criteria	Description			
Extent	**National (4)** The whole of South Africa.	**Regional (3)** Provincial and parts of neighbouring provinces.	**Local (2)** Within a radius of 2 km of the construction site.	**Site (1)** Within the construction Site.
Duration	**Permanent (4)** Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient.	**Long-term (3)** The impact will continue or last for the entire operational life of the development but will be mitigated by direct human action or by natural processes thereafter. The only class of impact which will be non-transitory.	**Medium-term (2)** The impact will last for the period of the construction phase, where after it will be entirely negated.	**Short-term (1)** The impact will either disappear with mitigation or will be mitigated through natural process in a span shorter than the construction phase.
Intensity	**Very High (4)**	**High (3)**	**Moderate (2)**	**Low (1)**

	Natural, cultural and social functions and processes are altered to extent that they permanently cease.	Natural, cultural and social functions and processes are altered to extent that they temporarily cease.	Affected environment is altered, but natural, cultural and social functions and processes continue albeit in a modified way.	Impact affects the environment in such a way that natural, cultural and social functions and processes are not Affected.
Probability of Occurrence	**Definite (4)** Impact will certainly occur.	**Highly Probable (3)** Most likely that the impact will occur.	**Possible (2)** The impact may occur.	**Improbable (1)** Likelihood of the impact materializing is very low.
Impact Reversal	**Highly Impossible (4)** Impact reversal will certainly be Impossible.	**Moderate (3)** Impact can be reversed to some extent with loss of natural resources.	**Possible (2)** High possibility of impact reversal.	**Definite (1)** Impact can be totally reversed.
Loss of irreplaceable resources	**Definite (4)** Resources will definitely be lost.	**Highly Probable (3)** Most likely that resources will be lost.	**Possible (2)** Resources may be lost.	**Improbable (1)** Loss of resources is highly unlikely.

Significance is determined through a synthesis of impact characteristics. Significance is also an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The total number of points scored for each impact indicates the level of significance of the impact.

The formula for calculating the Significance of the Impacts is as follows:

Significance = Extent + Duration + Intensity x Probability

Table 5: Significance rating

Low impact/ Minor (3 -10 points)	A low impact has no permanent impact of significance. Mitigation measures are feasible and are readily instituted as part of a standing design, construction or operating procedure.
Medium impact/ Moderate (11 -20 points	Mitigation is possible with additional design and construction inputs.
High impact (21 -30 points)	The design of the site may be affected. Mitigation and possible remediation are needed during the construction and/or operational phases. The effects of the impact may affect the broader environment.
Very high impact/ Major (31 - 48 points)	Permanent and important impacts. The design of the site may be affected. Intensive remediation is needed during construction and/or operational phases. Any activity which results in a "very high impact" is likely to be a fatal flaw.
Status	Denotes the perceived effect of the impact on the affected area.
Positive (+)	Beneficial impact.
Negative (-)	Deleterious or adverse impact.
Neutral (/)	Impact is neither beneficial nor adverse.
It is important to note that the status of an impact is assigned based on the status quo – i.e. should the project not proceed.	

Table 6: Planning phase environmental specifications.

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring & auditing	Frequency of monitoring
Compliance	Policy and legal impacts.	Project manager must ensure that all relevant permits, consent obtained from all necessary regulatory bodies and also ensure that all subsequent permits and written authorisations have been issued early in the planning phase. The project should conduct in accordance with the natural environmental management act and associated applicable legislation. No unauthorised access to the site. The project manager/contractor shall obtain on all relevant information and	ECO	Project manager	Throughout project life cycle.

		documentation before commencing with the proposed activity.			
Planning.	Policy and legal impacts.	The construction must conform to both the permit conditions and the Minimum Requirements associated with the site classification. It is the duty of the responsible person to ensure that the Minimum Requirements for the operation of the filling station are applied to the degree equal with its class.	Contractor	Developer	Continuous throughout project life cycle
		There must be sufficient facilities and resources to ensure that the filling station operation can conform to both the permit conditions and relevant Minimum Requirements. For example, there should be sufficient trained staff	Developer	ECO	Continuous throughout project life cycle

		to monitor, control and record incoming waste where required.			
Method Statements		The Contractor shall submit written Method Statements for the activities identified by the ECO. Activities that will require method statements include: • Emergency procedures • Materials, equipment and staffing requirements • Transporting the materials and/or equipment to, from and within the site • The storage provisions for the materials and/or equipment • The proposed construction procedure designed to	Contractor, ECO	HSE and/or ECO	As necessary

		implement the relevant Environmental Specifications • Other information deemed necessary by the ECO. Method Statements shall be submitted prior to the proposed commencement of work on an activity to allow the ECO time to study and approve the method statement.			
Environmental Incidents.	Environmental degradation caused construction.	The contractor must take corrective action to mitigate an incident appropriate to the nature and scale of the incident and must also rehabilitate any residual environmental damage caused by the incident or by the mitigation measures themselves.	ECO, Contractor	ECO	Continuous throughout the project life circle.

Table 7: Construction phase environmental specifications

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring and auditing	Frequency of monitoring
Recruitment of Labour	Employment for local community.	The contractor must make use of local labour where possible in order to stimulate the local economy.	Contractor	Developer	Once off
Site establishment	Demarcation of unnecessarily large site.	The contractor must establish a construction camp at a specific area as agreed with the ECO if required. The area must be properly demarcated prior to establishment to prevent the construction camp from being unnecessarily large. The camp must be properly fenced. The ECO must liaise with surrounding parties to ensure that the construction camp is not located in an area where it will cause a nuisance.	Contractor and ECO.	ECO/ Project manager	Once off

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring and auditing	Frequency of monitoring
Clearing vegetation	Dust generation that may cause nuisance and respiratory problems.	Avoid site clearing during dry and windy periods Wetting down the sit to suppress dust where there has been clearance of plants. Erection of shade netting to prevent off site dust migration. Dust control and management should be undertaken in terms of National Dust Control regulations promulgated on 1 November 2013. Site clearing should be limited at the actual footprint where the construction activities will take place. Regular manual sweeping of the surrounding roads and sidewalks.	Contractor.	ECO/ Project manager	Throughout project life cycle.

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring and auditing	Frequency of monitoring
Constructio / n activities- Earthworks excavation	Soil disturbances and loss of top soils	Excavated soil material must be correctly located and preferably covered to prevent erosion of the soil The trench routes and associated working areas must be clearly demarcated before excavation takes place. Trench lengths shall be kept as short as practically possible before backfilling and compacting. Trenches should be re-filled to the same level as, or slightly higher (to allow for settlement) than the surrounding surface to minimise erosion. After trenches are refilled, the trenches and associated working areas must be planted with suitable indigenous vegetation and regularly watered and monitored.	Contractor	ECO/ Project manager	Throughout project life cycle.

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring and auditing	Frequency of monitoring
Concrete mixing	Soil pollution	Dedicated concrete mixing area. Limit concrete mixing activities when wind speed is high.	Contractor	ECO	Throughout project life cycle.
Imported material for construction	Soil erosion and nuisance.	All stockpiles must be restricted to designated areas and are not to exceed a height of 2 metres. Stockpiles created during the construction phase are not to remain during the operational phase. The contractor must be limited to clearly defined access routes to ensure that sensitive and undisturbed areas are not disturbed.	Contractor	ECO	Throughout project life cycle.
General Waste	Littering	Litter generated by the construction crew must be collected in rubbish bins and disposed of weekly at registered waste disposal sites.	Contractor	ECO	Weekly.

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring and auditing	Frequency of monitoring
		All building rubble, solid and liquid waste etc. must be disposed of as necessary at an appropriately licensed refuse facility.	ECO, Contractor	ECO	Once off, as necessary
		Ensure that no refuse wastes are burnt on the premises or on surrounding premises. No fires will be allowed on site, unless in designated areas approved by the ECO	Contractor	ECO	Daily
		Ensure that no refuse wastes are burnt on the premises or on surrounding premises. No fires will be allowed on site, unless in designated areas approved by the ECO The construction site must always be kept in a clean and orderly state.	Contractor, Construction crew	ECO	Daily

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring and auditing	Frequency of monitoring
		Ensure that no litter, refuse, wastes, rubbish, rubble, debris and builders wastes generated on the premises be placed, dumped or deposited on adjacent/surrounding properties during or after the construction period of the project are disposed of at dumping site as approved by the Council.			
Fire prevention and control	Loose fires that can affect neighbours.	The Contractor shall take all reasonable and precautionary steps to ensure that uncontrolled fires are not started because of his activities on site.	Contractor	ECO/Project manager	Daily
		The Contractor shall ensure that there is basic fire-fighting equipment available on site as per requirement of the local Emergency Services. Use the prescribed fire safety precautions in terms of the Occupational Health and Safety Act	Contractor	ECO	Continuous

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring and auditing	Frequency of monitoring
		The underground storage tanks' and dispensing pumps should be monitored regularly for leaks. Tanker delivery driver must be present during delivery of fuel with the emergency cut off switch and fire extinguishers.			
		The Contractor shall submit Method Statements covering the procedures and response plan for the main activities, which could generate emergency situations through accidents or neglect of responsibilities.	Contractor	ECO	As necessary

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring and auditing	Frequency of monitoring
		The following signs must be installed close to the forecourts. - "No Smoking" - "No Naked or Open Flame" - "No Cellphone".	Contractor	HSE and/or ECO	Once-off .
		The Contractor shall ensure that all site personnel are aware of the fire risks and how to deal with any fires that occur. This shall include, but not be limited to: • Regular fire prevention talks. • Posting of regular reminders to staff.	Contractor	ECO	Throughout the lifecycle of the project
Fauna	Possible harm to fauna found on site.	The stream area should be fenced off during the construction phase to prevent any human activity from encroaching onto these areas. The strands of	Developer and/ or Contractor	HSE and/ or ECO	Once-off

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring and auditing	Frequency of monitoring
		the fence should be smooth and allow movement of wildlife. Ensure that all new structures are marked with bird flips along the entire site to avoid bird mortalities. Fencing around the property should allow movement of herpetofauna at certain points.			
Fauna	Possible harm to fauna found on site.	Ensure that all new structures are marked with bird flips along the entire site to avoid bird mortalities. Fencing around the property should allow movement of herpetofauna at certain points.	Developer, Contractor and/ or Engineer.	HSE and/ or ECO	Once-off

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring and auditing	Frequency of monitoring
		No animal may be hunted, trapped, snared or captured for any purpose whatsoever. Speed of vehicles should be limited to allow for sufficient safety margins. Monitoring of the fences is of importance to ensure no animals are trapped. Proper toilet facilities must be located outside the sensitive areas; the impact of human waste on the system is immense. Chemical toilets must be provided which should always be well serviced and spaced as per occupational health and safety laws, construction regulations and placed outside the buffer.	Developer, Contractor and/ or Engineer.	HSE and/ or ECO	Once-off

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring and auditing	Frequency of monitoring
Heritage resources	Construction activities could result in irreversible damage to heritage resources and depletion of the archaeological record of the area.	Known sites should be clearly marked in order that they can be avoided during construction activities. The contractors and workers should be notified that archaeological sites might be exposed during the construction activities. Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or paleontological artefacts, as set out in the National Heritage Resources Act (Act No. 25 of 1999).	Project manager, contractor and/ or engineer.	ECO	Once-off
Emergency Procedures.	Soil contamination.	Accidental Leakages and Spillages The Contractor shall ensure that his employees are aware of the procedure for dealing with spills and leaks.	Contractor	Project manager	Continuous

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring and auditing	Frequency of monitoring
		• The Contractor shall also ensure that the necessary materials and equipment for dealing with the spills and leaks is always available on site.			
		Hydrocarbon spills • The source of the spill shall be isolated, and the spillage contained using sand berms, sandbags, sawdust, absorbent material and/or other materials • The area shall be cordoned off and secured. • The Contractor shall ensure that there is always a supply of absorbent material readily available to absorb/breakdown the spill.	Contractor	HSE and/or ECO	As necessary

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring and auditing	Frequency of monitoring
		The Contractor shall notify the relevant authorities of any spills that occurs.			
Hazardous Substances	Potential contamination of water, soil and fire outbreaks.	The Contractor shall assemble and clearly list the relevant emergency telephone contact numbers for staff and brief staff on the required procedures.	Contractor	HSE and/or ECO	Weekly
		Substances/materials to be used together with the procedures for the storage, handling and disposal of the materials in a manner which will reduce the risk of pollution that may occur from day to day storage, handling, use and/or from accidental release of any hazardous substances used.	Contractor	HSE and/or ECO	Daily- Weekly

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring and auditing	Frequency of monitoring
		The relevant Material Safety Data Sheets (MSDS) shall be available on Site. Procedures detailed in the MSDS shall be followed in the event of an emergency situation.	Contractor	HSE and/or ECO	Daily/-Weekly
		The Contractor must ensure that all hazardous chemical substances are labelled, packed, transported and stored in order to avoid the spread of contamination.	Contractor	HSE and/or ECO	Daily
		All hazardous chemical substance waste must be disposed of in accordance with the Hazardous Chemical Substances Regulations, 1995 (Regulation 15)	Contractor	HSE and/or ECO	Daily-Weekly

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring and auditing	Frequency of monitoring
Health and Safety.	Injuries and Health risks.	The Contractor shall comply with all standard and legally required health and safety regulations as promulgated under the Occupational Health and Safety Act and associated regulations.	Contractor	HSE and/or ECO	Daily-Weekly
		The Developer must provide and maintain personal protective equipment and facilities to employees working with hazardous chemical substances.	Developer	Contractor	Daily
		Official training in the correct fit, use, care, storage and limitations of all Personal Protective Clothing, Respiratory and Hearing Equipment must be given to the employees.	Contractor	HSE	Daily
		The Contractor shall provide a standard first aid kit at the site office of each camp and/or at additional identified locations where needed.	Contractor	HSE	Daily

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring and auditing	Frequency of monitoring
Air Pollution	Dust Emissions and	Un-surfaced roads and temporary roads must be regularly graded and watered to control dust.	Contractor	HSE and/or ECO	As and when necessary
		Active earth work areas, stockpiles and loads of soil being transported must be watered to reduce dust.	Contractor	ECO	Daily
		Work must be stopped if excessive fugitive dust is observed, or phase down while the source is being actively investigated and suppression measures are implemented. All areas disturbed during construction that are not required for a specific activity must be re-vegetated. Disturbed soils, slopes and areas of open excavation must be minimised to avoid wind erosion. Diesel exhaust emissions from heavy machinery on site (excavators, front end loaders and hauling trucks) must be controlled and minimised.	Contractor	ECO	As and when necessary

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring and auditing	Frequency of monitoring
Surface (storm water) and ground water.	Contamination of ground water.	Should surface water in the surrounding area be polluted, and indigenous flora show signs of deterioration or death, specialist hydrological or ecological advice must be sought for the appropriate treatment and remedial procedures to be followed. The requirements for such input shall be agreed with the engineer. If liability is found to rest with the contractor, the costs of containment and rehabilitation shall be on the contractor's account, including the costs of specialist input.	Contractor /Engineer	ECO	Throughout Project Life Cycle
		To prevent erosion of material that is stockpiled for long periods, the material must be retained in a bunded area.	Contractor	ECO	Throughout Project life cycle

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring and auditing	Frequency of monitoring
		Construction vehicles and equipment must be serviced regularly to avoid the spills of oil, fuel or grease.	Contractor	ECO	Throughout Project life cycle
Noise generation.	Transportation of materials and through noisy machinery during construction activities.	All construction activities should be undertaken during daylight working hours between the hours of 07:00 – 17:00. No construction activities may be undertaken on Sundays. Provide all equipment with standard silencers. Maintain silencer units in vehicles and equipment in good working order. All earth moving vehicles and equipment must be regularly maintained to ensure their integrity and reliability.	Contractor	HSE	Throughout Project life cycle

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring and auditing	Frequency of monitoring
		Construction staff working in the area where the 8-hour ambient noise levels exceed 60 dBA must have the appropriate Personal Protective Equipment (PPE). All operations should meet the noise standard requirements of the Occupational Health and Safety Act (Act No. 85 of 1993).			
General; Noisy Activities		Institute noise control measures throughout the construction phase for all applicable activities, including the construction times.	Contractor	ECO	Once off as necessary
		Inform residents of nearby residential areas of planned noisy activities outside the timeframes stated above.	Contractor	ECO	Once off

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring and auditing	Frequency of monitoring
		Ensure that the construction vehicles are under the control of competent personnel and are in proper working order.	Contractor	ECO	Before construction commences & continual
safety and security	Loss of material and site equipment.	Ensure that only suitably qualified personnel use construction vehicles.	Contractor	HSE	Before construction commences & continual.
		Ensure that the contact details of the police or security company and ambulance services are available on site.			Once off
		Limit access to the construction crew camp to construction workers through access control.			Daily

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring and auditing	Frequency of monitoring
Traffic congestion	Increase in construction and material delivery vehicles moving to and from the site resulting in an increase of traffic on nearby roads especially the R25.	The contractor must provide a Traffic Marshal for situations where construction traffic may impede normal traffic flows on R25 adjacent to the site. Construction vehicles and material delivery vehicles must avoid moving in and out of the site during traffic peak hours. Construction vehicles are not to be parked on the roads thereby blocking the way. Clear signs should be displayed at entrance to the site indicating a construction site and turning construction vehicles.	Contractor	ECO	Daily
Energy use	Reckless use of energy can contribute to increased greenhouse emission	Install high-efficiency equipment that provide energy and operational savings.	Developer	Project manager	weekly

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring and auditing	Frequency of monitoring
	through the use of coal electricity.	Check the efficiency of electrical equipment and machinery regularly. Regularly check compressed air system for leaks. Switch off lights and equipment when they are not required. Install energy-efficient lighting, fridges and other equipment. If possible, use other energy alternatives such as solar power.			

Table 8: Operational phase environmental specification.

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring & auditing	Frequency of monitoring
General.	Maintenance plan for the operations of the filling station.	A maintenance plan for the station manager must be developed to ensuring that good working order is achieved.	Developer	ECO	Once off
Vehicle entrainment from unpaved roads.	Potential for accidents.	Wet suppression or chemical stabilisation of unpaved roads.	Developer	Station manager	As necessary
		Employ extensive windbreaks around filling station area reduce the particle pollution in the surrounding areas of the facility.	Contractor	Developer	As necessary
Health and Safety	Potential injuries.	Use an emergency plan (including fire management) that the relevant authority has approved this. Ensure that all fire extinguishers are replaced on or before their expiry dates.	Developer	station manager	Continuous

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring & auditing	Frequency of monitoring
		Site Safety checks should be carried out in accordance with the pertinent Occupational Health and Safety requirements prior to site closure.	Developer	Station manager	Continuous
Air Pollution	Dust Nuisance.	All forms of dust/air pollution must be managed to ensure there are no excess emissions. This includes the control of noxious and offensive gases, smoke, dust and vehicular emissions.	Developer	Station manager	Continuous
Light and Visual Pollution	Visual intrusion.	Security lights are to be angled downwards to avoid disturbance to adjoining landowners. Illumination of the buildings must take into account the possible distraction glare. Avoid stark white fluorescent lighting. Avoid high wattage flood lights	Developer	Station manager	Continuous

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring & auditing	Frequency of monitoring
		Night time light sources must be directed away from, conservation areas, naturally vegetated areas, as this may be the cause of ecological disturbance	Developer	Station manager	Continuous
Storm water Management.	Potential water logging.	Storm water, wherever possible, must be allowed to soak into the land in the area on which the water has been discharged.	Developer	Station manager	Continuous
		The storm water system, especially the discharge points, must be inspected and damaged areas must be repaired if required.			

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring & auditing	Frequency of monitoring
		Excessive quantities of silt laden runoff water must not be allowed to access the storm water system. In the event that silt runoff occurs off the development site, the cause of this must be investigated and suitable mitigation measures employed. This may include the vegetation of bare areas, installing flow diversion channels in consultation with an engineer, installing velocity reducing structures. Discharge points must be inspected for blockages of any kind; these must be removed timeously to ensure the efficient operation of the storm water management system.	Developer	Station manager	Continuous.
Fire Prevention and control	Reduction of fire breakouts	The project manager shall take all reasonable and precautionary steps to ensure that uncontrolled fires are not started as a consequence of his activities on site.	Developer	Station manager	Daily

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring & auditing	Frequency of monitoring
		The project manager shall ensure that there is basic fire-fighting equipment available on site as per requirement of the local emergency services.	Developer	Station manager	Continuous
		The project manager shall ensure that all site personnel are aware of the fire risks and how to deal with any fires that occur. This shall include, but not be limited to: • Regular fire prevention talks. • Posting of regular reminders to staff.	Station manager	Project manager	Continuous

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring & auditing	Frequency of monitoring
Emergency Procedures	Potential spillages and fire outbreak.	The project manager shall submit Method Statements covering the procedures and response plan for the main activities, which could generate emergency situations through accidents or neglect of responsibilities. These situations include, but are not limited to: • Accidental fires. • Accidental leaks and spillages. • Vehicle and plant accidents.	Developer	Station manager	As necessary
		Hydrocarbon spills • The source of the spill shall be isolated, and the spillage contained using sand berms, sandbags, sawdust, absorbent material and/or other materials. The area shall be cordoned off and secured. • The Filling station operator shall ensure that there is always a supply	Developer	Station manager	As necessary

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring & auditing	Frequency of monitoring
		of absorbent material readily available to absorb/breakdown the spill. The Filling station operator shall notify the relevant authorities of any spills that occur. The project manager shall assemble and clearly list the relevant emergency telephone contact numbers for staff and brief staff on the required procedures.			
Hazardous substances	Exposure of chemicals to an open environment.	Hazardous chemical substances used shall be stored in secondary containers.	Developer	Station manager	Daily- Weekly
		The project manager must ensure that all hazardous chemical substances are labelled, packed, transported and stored in order to avoid the spread of contamination.	Developer	Station manager	Daily- Weekly

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring & auditing	Frequency of monitoring
		All hazardous chemical substance waste must be disposed of in accordance with regulations	Developer	Station manager	Daily- Weekly
Traffic control	Possible accidents and traffic jams.	Relevant traffic signage must be erected on and off the site to control traffic speeds and movements (as required) All vehicles travelling on site will adhere to the specified speed limits. The movement of all vehicles will be controlled such that they remain on designated routes. Should there be any abnormal traffic loads as a consequence of the operation phase activities, the local municipality and relevant traffic authorities should be notified .	Developer	Station manager	Once-off

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring & auditing	Frequency of monitoring
		The detail design of the proposed filling station should adhere to the prescribed specifications (and subsequent approval) of the applicable road authorities. Care should be taken pertaining to the placing of signage in the proximity of access points to the proposed filling station. Issues pertaining to damages and poor condition of the roads in close proximity of the site should be reported to the applicable authority and custodian of the respective roads. Appropriate signage and traffic measures should be implemented at the site to ensure safe and convenient access for passing traffic volumes.			

Activity	Impacts	Proposed Mitigation Measures	Responsibility	Supervision monitoring & auditing	Frequency of monitoring
Energy usage	Reckless use of energy can contribute increased greenhouse effects through from using coal electricity.	Check the efficiency of electrical equipment and machinery regularly. Regularly check compressed air system for leaks. If possible, use other energy alternatives such as solar power as an alternative power supply.	Developer	Station manager	Weekly or as necessary
		Switch off lights and equipment when they are not required Install energy-efficient lighting, fridges and other equipment.			

Table 9: Decommissioning plan

No decommissioning is envisaged but if it takes place these measures, will be taken into consideration if it happens by chance.

Impacts	Objective	Mitigation Measures	Responsibility	Phase
Removal of tanks	Sewerage and another wastewater.	Ensure that there is no any spillage of fuel during the removal of the underground storage tanks that comes into contact with soil.	Station Manager	Decommissioning
Waste Management.	Waste collection, transportation and disposal.	All solid waste generated from the removal of the tanks must be handled according to the precautionary principle. This implies that waste (including soils, metals and other material) should be treated as hazardous unless proven otherwise.	Station Manager	Decommissioning

Site Clean up.	Cleaning of contaminated soils and debris.	Clean-up or remediation of any contamination must be done in consultation with authority.	Station manager	Decommissioning

9. CONCLUSION

It is of importance to note that issues discussed in this EMPr establish a basis for the Environmental Management and Monitoring of the residential complex development project. In order to achieve sustainable developments, mitigation measures must be discussed during the planning stage of the project and thus implemented throughout to the decommissioning stage of the project (if any). However, there may be instances where some elements of the plan may need to be excluded and some to be added in line with the National Environmental Management (Act 107 of 1998) of April 2017. The issues covered in this EMPr suffice to result in an environmentally sustainable development. Furthermore, the EMPr has provided a platform on which the planning, construction and the operational phases of the project can be founded by identifying the impacts, mitigation measures, performance indicators, responsibilities, available resources, potential schedule and verification responsibility.

Parties responsible for transgression of this EMPr should be held responsible for any rehabilitation that may need to be undertaken. Parties responsible for environmental degradation through irresponsible behaviour/negligence should receive penalties.