ENVIRONMENTAL CONSULTING

Kaap Agri (Pty) Ltd

CONSTRUCTION & OPERATION PHASE ENVIRONMENTAL MANAGEMENT PROGRAMME

THE DEVELOPMENT AND OPERATION OF A DIESEL DEPOT, ERF 3827, ABATTOIR STREET, MOORREESBURG, WESTERN CAPE PROVINCE.

6th November 2018

SEC REFERENCE NUMBER: 018054

PO Box 30134, Tokai, 7966
Telephone: 021 712 5060, Fax: 021 712 5061
Email: info@environmentalconsultants.co.za

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List of Acronyms

AST	Aboveground Storage Tank
BA	Basic Assessment
BAR	Basic Assessment Report
CBA	Critical Biodiversity Area
CCT	City of Cape Town
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EO	Environmental Officer (Engineer's Representative)
ESO	Environmental Site Officer (Construction Contractor's Representative)
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
ESA	Ecological Support Area
DEA & DP	Department of Environmental Affairs & Development Planning
GN	Government Notice
MHI	Major Hazard Installation
NEMA	National Environmental Management Act, Act 107 of 1998, as amended
SABS	South African Bureau of Standards
SANS	South African National Standards
SEC	Sillito Environmental Consulting
WCBSP	Western Cape Biodiversity Spatial Plan

1. DETAIL AND EXPERIENCE OF THE EAP WHO PREPARED THE EMPR

Lauren has a Bachelor of Science Honours Degree in Environmental Management obtained from UNISA (cum laude) and a Bachelor of Science Degree (Environmental & Geographical Science, Atmospheric Science and Oceanography) obtained from UCT in 2005. She has more than 10 years of local and international practical experience in the environmental impact assessment, management consulting and climate science fields of expertise. Lauren has compiled numerous Environmental Impact Assessment Reports in the past 10 years and she has worked in the private environmental consulting field as well as in the public sector as an environmental case officer for DEA & DP in 2007. Lauren is a member of the South African Affiliate of the International Association for Impact Assessment (IAIAsa).

Adrian Sillito is a certified environmental assessment practitioner (CEAPSA), Professional Natural Scientist (Pr.Sci.Nat.) and a member of the International Association for Impact Assessment (IAIAsa).

SEC has extensive experience in Environmental Impact Assessment (EIA) procedures and has completed numerous such applications in most provinces of South Africa since 1998.

2. INTRODUCTION

Kaap Agri (Pty) Ltd, hereafter referred to as the client, proposes to expand its existing diesel depot Erf 3827, Abattoir Street, Moorreesburg, Western Cape Province. The development is to expand the existing fuel storage capacity by an additional five 80m^3 capacity tanks. It is therefore proposed to expand the current facility (409m^3) by an additional 400m^3, to have a total combined capacity of 809m^3 (809 000 litres of diesel fuel storage).

This Environmental Management Programme (EMP) has been compiled as part of an EIA application for the Environmental Authorisation for the proposed development, in terms of the requirements of the National Environmental Management Act, 1998 (Act 107 of 1998) and the Environmental Impact Assessment Regulations, 2014, as amended.

This EMPr is intended to ensure compliance with the principles of sound Environmental Management and the general "Duty of Care" specified in the National Environmental Management Act, so as to avoid or minimize potential negative impacts on the natural environment during the pre-construction, construction and operational phases of the proposed development.

This document provides measures that should be implemented to ensure that any environmental degradation that may be associated with the development is avoided, or where such impacts cannot be avoided entirely, are minimized and mitigated appropriately.

3. PROJECT LOCATION

The site is located on Erf 3827, Abattoir Street, Moorreesburg, Western Cape Province. Please refer to the Locality Map in figure 1 below.

Erf 3827 is located in the industrial area and is typically surrounded by industrial type activities, with farmland adjacent to its eastern boundary.

Figure 1: *Site Location*

4. PROJECT DESCRIPTION

In summary, the proposed expansion of the Kaap Agri Diesel Depot comprises the following to be constructed:

- 5 X 80m^3 diesel capacity tanks along the eastern boundary of the site;
- A retaining wall around the diesel tanks to temporarily contain unintended escape of material from the tanks;
- Loading points on either side (west and east) of the bunded area;
- Concrete roadway;
- Office block with ablution facilities; and
- Manholes and pipes leading to manholes.

The development footprint of the site is approximately 545m^2. Entrance to the site will be from the existing site entrance gate situated on Abattoir Street which runs along the western boundary of Erf 3827.

5. DESCRIPTION OF ENVIRONMENTAL SETTING AND SENSITIVITY

There are no environmentally sensitive areas that have been identified on site and recommended to be avoided by the proposed development. There are no constraints to development on this site. All areas outside of the proposed development footprint, as delineated in the Site Layout Plan in Appendix A, should be regarded as NO-GO zones.

6. ASPECTS COVERED BY THIS EMPR

The development proposal entails the upgrade of the existing Mineral processing facility, to increase its mineral processing capacity, as described above. The potentially significant impacts identified during the EIA process as being associated with the upgrade are as follows:

Construction phase:

- **Soil & Groundwater Contamination & Pollution:** Fuel, oil, lubricants and other pollutants may leak from vehicles/ machinery and contaminate the soil. Pollution and soil contamination could also occur from chemical toilets, cement mixing directly on the soil and stormwater runoff may flow over the site camp area and carry contaminants off-site.

- **Fire, Health & Safety Risk:** Exposure through breathing vapours, swallowing hazardous substances or skin contact may have possible health effects. There is a minor risk of a diesel pool fire and toxic combustion gases if an incident occurs at the existing facility while construction takes place for the upgrade.

- **Dust & Noise Impacts:** As a result of the construction phase of this development noise and dust impacts are expected to occur in the area due to an increase in construction vehicles and road tankers for the duration of the construction phase while materials are being transported to the site and excavations are being made.

- **Traffic, Safety and Access Impacts:** As a result of the construction phase of this development traffic impacts are expected to occur in the area due to an increase in construction vehicle and truck traffic in the area for the duration of the construction phase while materials are being transported to the site. Road safety impacts and road condition impacts could also occur.

- **Visual Impacts:** The construction phase is associated with temporary disturbance as a result of construction (trench excavations, vehicles, machinery, fencing & signage) that may have a negative visual impact on the public.

- **Socio-economic benefit – Creation of employment opportunities:** 20 temporary employment opportunities will be provided during the construction phase to those residing in the geographical area.

Operational phase:

- **Soil & Groundwater Contamination & Pollution:** During the operational phase of the proposed development soil and groundwater contamination could result due to fuel spills associated with re-filling of the above ground storage tanks. In addition, if stormwater is not managed correctly there is the potential for the unmanaged stormwater runoff to impact negatively on the environment, potentially causing pollution and contamination. The aboveground fuel storage tanks could leak and contaminate the soil and groundwater.

- **Traffic & Safety Impacts:** Traffic impacts are expected to occur for the duration of the operational phase of the activity as a result of the additional vehicles making use of the fuel depot. This could lead to safety impact or damage to road infrastructure.

- **Fire, Health & Safety Impact:** Exposure through breathing vapours, swallowing hazardous substances or skin contact may have possible health effects. The hazardous events identified by the MHI Risk Assessment that could occur at the facility could be an uncontrolled leak of diesel at the depot from a bulk storage tank or an uncontrolled leak of diesel from the delivery road tanker. As a result of the hazardous events, the identified potential major incidents could be a diesel pool fire at the storage tanks or the delivery road tanker and toxic effect of diesel combustion gases in case of a pool fire at the storage tanks. The most critical effect that a major incident at the facility could have is a pool fire inside the common bund of the storage tanks.

- **Air Quality Impact:** Fuel vapour emissions may cause an odour nuisance or health impacts to adjacent residents, staff on site or to users of the fuel depot.

- **Visual Impact:** The visibility of the fuel storage tanks from prominent viewpoints and receptors. The adjacent erf (east of the site) is currently vacant so the new tanks will be visible to those travelling on Swartland Street and the potential future uses of the adjacent site.

- **Socio Economic Benefit:** Creation of 4 new permanent job opportunities.

In order to minimise any negative impacts associated with the fuel depot it is imperative that the lifecycle of the development, as well as all aspects of the development (infrastructure and buildings) and operation are subject to the conditions set out in this EMP. The conditions directly address the identified potential impacts, in order to ensure that the health, safety and environmental risks associated with the fuel depot can be avoided or minimised.

7. LEGAL FRAMEWORK

This Environmental Management Programme (EMPr) has been compiled in fulfilment of the requirements of the National Environmental Management Act, Act No. 107 of 1998 (as amended) (NEMA).The contents of this EMPr comply with the requirements for EMP's as contained in Appendix 4 to the 2014 EIA Regulations.

The following activities in Listing Notice 1 of the 2014 EIA Regulations, as amended, published under the NEMA are triggered by the proposed upgrade:

Listing Notice 1, Activity 51*: The expansion of facilities for the storage, or for the storage and handling, of a dangerous good, where the capacity of such storage facility will be expanded by more than 80 cubic meters.*

A Basic Assessment EIA Process is therefore required with the aim of receiving an Environmental Authorisation (Appendix B) to undertake the listed activities in the 2014 EIA Regulation published under NEMA.

This EMP has been compiled in fulfilment of the requirements of NEMA. The contents of this EMP comply with the requirements for EMP's as contained in Appendix 4 to the 2014 EIA Regulations.

The EMP should also adhere to the local authority by-law requirements as well as any other obligatory environmental and other legal requirements.

Changes to this EMP can only occur with the written approval of the DEA&DP and an updated version should also be forwarded to all parties once the amended EMP has been approved by the DEA&DP.

It is understood that Kaap Agri (Pty) Ltd or any future development entity (where transfer of ownership occurs) will be fully responsible for this EMPr and its requirements including any environmental rehabilitation that may be needed. This is required in terms of Section 28 (Duty of Care and Remediation of Damage) of the National Environmental Management Act, (Act No. 107 of 1998), as amended.

The applicant should adhere to all statutory requirements which may be relevant to the development, contained in, *inter alia*, the following legislation:

- The National Environmental Management Act, Act 107 of 1998, as amended (NEMA);
- Fire Brigade Services Act,99 of 1987;
- Swartland Municipality Fire Safety Bylaw;
- Disaster Management Act,57 of 2002;
- Occupational Health and Safety Act,85 of 1993;
- Major Hazardous Installations (MHI) Regulations issued in terms of the Occupational Health and Safety Act.
- National Water Act, Act 36 of 1998, as amended;
- National Environmental Management Waste Act, Act 59 of 2008;
- National Building Regulations and Building Standards Act, 1977 (Act no. 107 of 1977)
- Relevant SANS codes for the installation of above ground storage tanks;
- The Operational Health and Safety Act, Act 85 of 1993;
- The National Environmental Management Air Quality Act, Act No. 39 of 2004; and
- National Heritage Resources Act, 1999 (Act No. 25 of 1999).
- Any other relevant guidelines, permit requirements and/or legislation

8. ENVIRONMENTAL OBJECTIVES, OUTCOMES AND IMPACT MANAGEMENT ACTIONS

8.1. PLANNING & DESIGN PHASE

No direct environmental impacts are associated with the planning and design phase. However, poor planning or inappropriate design decisions in this phase may result in environmental impacts arising during subsequent phases of the project.

Planning and design activities must therefore take into account the environmental constraints and opportunities identified during the Environmental Impact Assessment process, in order to avoid or minimise the potential future impacts of the development.

The environmental management objectives (goals) listed below should take place during the detailed design phase, prior to the construction phase:

1. Appoint an Environmental Control Officer.
2. Undertake a Ground Probing Radar Survey.
3. Compile a Stormwater Management Plan.
4. Compile / Update the Spill Contingency Plan.
5. Compile a Fire Plan.
6. Update the Existing Emergency Response & Evacuation Plan.
7. Update Preventative Maintenance Plans.
8. Demarcation of Working Areas and No-Go Areas.
9. Establishment of Site Camp and Associated Site Facilities.
10. Pre-construction ECO visit.

These environmental management objectives, as well as the management actions (mitigation measure) that should be implemented in order to achieve the desired objective and to avoid/minimize potential impacts are discussed in more detail below.

8.1.1. Objective 1: Appoint an Environmental Control Officer (ECO)

Impact Management Outcome:	The requirements of the EMPr are implemented and monitored during all phases of the development, which will promote sound environmental management on site.	
IMPACT MANAGEMENT ACTIONS:		
Mitigation Measure	**Responsible**	**Time Period**
1. A suitably qualified and experienced Environmental Control Officer must be appointed before any activities commence on site. 2. The ECO should inspect the site **fortnightly for the duration of the construction phase.** 3. The appointed ECO must be advised on the construction start date, before any activities commence on site so that the ECO can perform a pre-commencement inspection and plan for environmental awareness training of construction workers.	Kaap Agri	During design Phase
Performance Indicator	A qualified ECO is appointed prior to the commencement of any construction activities taking place on site.	

8.1.2. Objective 2: Undertake a GPR Survey to Detect Existing Service Lines to be Avoided

Impact Management Outcome:	To avoid accidental damage of service lines and fuel lines which may cause impacts to the receiving environment. Damaged water pipes may cause erosion, soil compaction and flooding, and damaged sewage pipes may cause pollution and soil contamination. Damaged fuel lines could cause contamination.		
IMPACT MANAGEMENT ACTIONS:			
Mitigation Measure		**Responsible**	**Time Period**
1. If it is known that existing services and fuel lines are located on site, but unclear on the exact location, a suitably qualified and experienced professional should be appointed to undertake a Ground Probing Radar (GPR) survey of the site and to map the locations of the existing underground services so that the construction team can be sure to avoid existing services. If the exact location of the existing services is already known this however will not be required.		Kaap Agri	During design Phase
Performance Indicator	When construction takes place the existing service lines are avoided.		

8.1.3. Objective 3: Compile a Stormwater Management Plan

Impact Management Outcome:	To avoid contaminated stormwater from the fuel depot from flowing off site and / or polluting the soil and / or groundwater.		
IMPACT MANAGEMENT ACTIONS:			
Mitigation Measure		**Responsible**	**Time Period**
1. The detailed storm water management system must be designed by a suitably qualified engineer & must adhere to the principles of storm water management. 2. The bunded storage area must be sloped to a series of catch pits linked to the site separator system. 3. The facility must be designed in such a way as to ensure that no overland flow will be possible onto the fuel storage areas from adjacent property. 4. All dispenser pumps must be located on pump islands surrounded by hardened surfaces, which will prevent downward migration of any free product and promote horizontal flow into the catch pits linked to the separator system. 5. The surface around the tank filler points must be sloped towards a catch pit linked to the separator so that any runoff or spillage from this area is contained within the separator system.		Kaap Agri	During design Phase
Performance Indicator:	A storm water management plan has been designed by a suitably qualified engineer where contaminated stormwater from the fuel depot flows into a separator system.		

8.1.4. Objective 4: Compile a Spill Contingency Plan for the Fuel Depot

Impact Management Outcome:	In the event of a diesel spill (either a large scale or small scale spill) the procedure and response plan is clear and understood by all, which results in the

	incident having a low environmental, health and / or safety impact.

IMPACT MANAGEMENT ACTIONS:		
Mitigation Measure	**Responsible**	**Time Period**
1. A Spill Contingency Plan must be produced. This should be a stand-alone operational procedure). It should be compiled prior to the construction phase of the extension to the fuel depot and included as an Annexure to the EMP. 2. The Spill Contingency Plan should include the measures listed in the Emergency Plan as well as the relevant mitigation measures listed in Objective 1 under the Operational Phase in this EMP. 3. If an "incident[1]" takes place on site, the owner of the facility must within 14 days of the incident, report to the Director General, provincial head of department and municipality such information as is available to enable an initial evaluation of the incident, including (refer to footnote below for definition of "incident"): o the nature of the incident; o the substances involved and an estimation of the quantity released and their possible acute effect on persons and the environment and data needed to assess these effects; o initial measures taken to minimise impacts; o causes of the incident, whether direct or indirect , including equipment, technology, system or management failure; and o measures taken and to be taken to avoid a recurrence of such incident.	Kaap Agri	During design Phase
Performance Indicator:	A Spill Contingency Plan is submitted to the ECO for inspection prior to construction taking place.	

8.1.5. **Objective 5: Compile a Fire Plan for the Fuel Depot**

Impact Management Outcome:	In the event of a fire at the facility the procedure and response plan is clear and understood by all, which results in a low health and / or safety impact.

IMPACT MANAGEMENT ACTIONS:		
Mitigation Measure	**Responsible**	**Time Period**
1. A Fire Plan schematic (layout plan) and supporting narrative must be compiled that shows the location of the fire extinguishers, hydrants, ingress, exits, assembly points, bund walls etc. 2. The Fire Plan should include provision of water and safety of the emergency response agencies, the public and surrounding businesses. 3. The Fire Plan should be included as an Annexure to the EMP. 4. The Fire Plan should be approved by the Chief Fire Officer.	Kaap Agri	During design Phase
Performance Indicator:	A Fire Plan is submitted to the ECO for inspection prior to construction taking place.	

[1] In terms of section 30(1)(a) of NEMA, an "incident" means an unexpected, sudden and uncontrolled release of a hazardous substance (such a diesel/fuel), including from a major emission, fire or explosion, that causes, has caused or may cause significant harm to the environment, human life or property.

8.1.6. **Objective 6: Update the Existing Emergency Response & Evacuation Plan**

Impact Management Outcome:	➢ To compile and Emergency Response & Evacuation Plan that takes into account the "on-site" and "off-site" aspects in response to a disaster event. ➢ Ensure co-ordinated organizational and institutional arrangements. This is to prevent or reduce any of the hazards from occurring and to prepare and respond if a hazard cannot be avoided. ➢ Guide the tactical and operational co-ordination mechanism between all the relevant stakeholders, both pro-actively and reactively. ➢ Provide for the safety and evacuation or sheltering of the workers as well as that of the public. ➢ The outcome of the plan should prompt emergency response and relief that will: a) Save lives, b) Reduce further risk exposure, c) A reduce suffering, d) Protect property, e) Protect the environment, f) Reduce economic and social losses, and g) Provide for the safety and health of all responders;

IMPACT MANAGEMENT ACTIONS:		
Mitigation Measure	**Responsible**	**Time Period**
1. The Emergency Response & Evacuation Plan must be considered a "work in progress" or "live document" which requires regular review and adjustment due to circumstances. 2. The Plan must include "On-Site" and "Off-Site" aspects. 3. The On-Site Emergency Plan should: o Anticipate the likely types of emergencies, both from within the organisation or adjacent sources, and their possible impact; o Identify the vulnerable areas and people; o Provide for appropriate prevention, risk reduction and mitigation strategies; o Identify and address weaknesses in capacity to deal with possible emergencies; and o Facilitate maximum emergency preparedness. o Provide for the allocation of responsibilities to the various stakeholders, and coordination in carrying out those responsibilities; o Provide for prompt emergency response and relief that will: ▪ Save lives, ▪ Reduce further risk exposure, ▪ A reduce suffering, ▪ Protect property, ▪ Protect the environment, ▪ Reduce economic and social losses, and ▪ Provide for the safety and health of all responders; o Provide for disaster recovery, business continuity and	Kaap Agri	During design Phase

rehabilitation, which are again focused on risk elimination and/or mitigation efforts; o Provide for the procurement of essential goods and services; o Provide for the establishment of strategic communication links; and the dissemination of information. 4. The Off-Site Emergency Plan should include: o The operational procedure for business and the community in their immediate surrounds in order to ensure business continuity, services, sheltering, etc. o Institutional arrangements with relevant authorities. 5. The Emergency Plan has to be compiled / updated with the input and cooperation of both the employer and the local government in response the risks identified in the MHI.		
Performance Indicator:	➢ The West Coast District Municipality approves the Emergency Plan. ➢ The Plan must provide for the safety and evacuation or sheltering of the workers as well as that of the public. ➢ Emergency drills should take place to test the performance of the Emergency Response & Evacuation Plan. ➢ The plans needs to be tested every year as a minimum. ➢ The Emergency Plan must be updated each year.	

8.1.7. **Objective 7: Update Preventative Maintenance Plans.**

Impact Management Outcome:	Prevent leaks, prevent health & safety risk and maintain good house-keeping	
IMPACT MANAGEMENT ACTIONS:		
Mitigation Measure	**Responsible**	**Time Period**
1. Update Operational Maintenance Procedures for vehicles, infrastructure and equipment to prevent leaks, prevent health & safety risk and maintain good house-keeping. 2. The Maintenance Plan must be updated for all the equipment used on the facility. The Plan must contain at least the following: o List of all equipment and facilities on the facility. o Maintenance frequency. o Particulars of maintenance activities that must be performed on the listed equipment. o Responsible person. 3. All hazardous equipment and facilities on the facility must be inspected on a weekly basis by means of an Inspection Register. The Register must contain at least the following: o List of all equipment and facilities on the facility. o Equipment items that must be inspected. o Facilities that must be inspected. o Areas that must be inspected. o Inspection findings. o Responsible person who carried out the inspection.	Kaap Agri	During Design Phase
Performance Indicator:	Preventative maintenance plans are kept on file and implemented to avoid health & safety impacts.	

8.1.8. **Objective 8: Demarcation of Working Areas & NO-GO Areas**

Impact Management Outcome:	Construction activities will be restricted to within the designated areas & NO-GO areas will be protected from disturbance.	
IMPACT MANAGEMENT ACTIONS:		
Mitigation Measure	**Responsible**	**Time Period**
1. The following areas should be clearly demarcated on site during the pre-construction or construction phases of the development, as appropriate. <u>Construction Working Area</u> ➢ Prior to the commencement of any land-clearing or construction activities, the outer boundary of the development area must be surveyed, pegged and fenced off. If deemed necessary by the ECO, the outer boundary of the working area can be enclosed with bonnox fencing, shade netting, droppers or wire, or similar – as feasible and practical. The fencing should be retained and maintained for the duration of the construction period, and must not be moved once approved during construction unless agreed otherwise with the ECO. ➢ This demarcation boundary is to ensure that land-clearing activities are restricted to only that area strictly required for the proposed development, and to prevent unnecessary disturbance of soil surfaces and vegetation outside of the development footprint. <u>Construction Site Camp & Associated Facilities</u> 2. The following site camp areas must be identified and demarcated during the pre-construction phase of the development: • Access Route. • Site camp and site office. • Laydown area. • Ablution area. • Eating area and rest area. • Vehicle & equipment maintenance yard. • Refuelling area. • Stockpile area (for stockpiling topsoil, cleared vegetation, spoil material etc.). • Waste storage area.	Construction Contractor in consultation with the ECO	Pre-construction phase (prior to arrival of construction equipment, machinery, or workers on site)
Performance Indicator:	No-go areas, working areas and areas for site camp facilities have been identified and appropriately demarcated to the satisfaction of the ECO, before construction activities commence on site.	

8.1.9. **Objective 9: Establishment of Site Camp and Associated Site Facilities**

Impact Management Outcome:	Before the start of the construction phase a site camp must be established with all the required ablutions, waste management infrastructure and firefighting equipment where the vehicles and equipment can be stored.

IMPACT MANAGEMENT ACTIONS:		
Mitigation Measure	**Responsible**	**Time Period**
1. The following general management measures pertaining to the set-up, operation and closure of a site camp should be applied where appropriate, reasonable and practicable: ✓ **Fencing & Security:** The site camp area should be secured to prevent unauthorised individuals from entering the site camp and possibly getting injured or posing a safety and/or security risk. Adequate signage must be in place, the site camp and associated areas should be fenced off along the demarcated boundaries of these areas, preferably with shade netting or Bonnox fencing or similar. ✓ **Fire Fighting Equipment:** No less than 2 fire extinguishers should be present in the site camp. The extinguishers should be in a working condition and recently serviced. A fire extinguisher should always be present wherever any "hot works" (e.g. welding, grinding etc.) are taking place. It is recommended that all construction workers receive basic training in fire prevention and basic fire-fighting techniques, and are informed of the emergency procedure to follow in the event of accidental fires. No open fires may be made on the construction site during any phase of the project. No smoking should be allowed on the construction site. In the case of accidental fires the contractor shall alert the Local Authority's Fire Department as soon as a fire starts and not wait until the fire can no longer be controlled. ✓ **Waste Storage Area:** Sufficient bins for the temporary storage of construction related waste should be provided inside the site camp and/or at the working area. ✓ **Hazardous Substances Storage Area:** Fuels, chemicals, lubricants and other hazardous substances must be covered and bunded with an approved impermeable liner or have some form of secondary containment. Signage should be posted outside the storage area and within the site camp. ✓ **Potable Water:** An adequate supply of potable water must be provided to construction workers at the site camp. ✓ **Ablution Facilities:** Chemical toilet facilities or other approved toilet facilities (at least 1 toilet for every 15 workers) must be provided and located on the site in such a way that the toilets will not cause any form of pollution of the site. Toilets should be placed within the site camp. Toilets should be placed well outside of any surface drainage/ storm-water canals. The toilets must be placed on a level surface and secured to prevent them from blowing over. The toilets must be serviced regularly and kept in an orderly state. The contractor must ensure that no spillage occurs when the toilets are cleaned, serviced or moved. Performing ablutions outside of the provided toilet facilities is strictly prohibited. The ECO would need to regularly inspect the state of the chemical toilets. ✓ **Eating Area & Rest Area:** A dedicated area within which construction workers can rest and eat during breaks must be	Construction Contractor in consultation with the ECO	Pre-construction phase

provided within the site camp. Seating and shade should be provided. ✓ **Vehicle & Equipment Maintenance Yard:** Where possible, construction vehicles and equipment that require repair should be removed from site and taken to a workshop for servicing. If emergency repairs and/or basic maintenance of construction vehicles or equipment are necessary on site, such repair work should be undertaken within the designated maintenance yard area. Repairs should be conducted on an impermeable surface, and/or a tarpaulin and/or drip trays must be laid down prior to emergency repairs taking place, to prevent any fuel/ oil/ lubricant spillages from contaminating the environment. ✓ **House-keeping:** the site camp and related site camp facilities must be kept neat and orderly at all times, to prevent potential safety risks and to reduce the visual impact of the site during construction.		
Performance Indicator:	The site camp and facilities are established to the satisfaction of the ECO, before construction activities commence on site.	

8.1.10. Objective 10: Undertake Pre-Construction ECO Visit

Impact Management Outcome:	An ECO undertakes the first inspection prior to construction commencing to monitor the applicants compliance to the pre-construction mitigation measures listed above and the EA.	
IMPACT MANAGEMENT ACTIONS:		
Mitigation Measure	**Responsible**	**Time Period**
1. An ECO should be appointed to conduct a pre-construction ECO inspection. 2. The ECO should undertake Environmental Awareness Training with the contractors and subcontractors prior to land clearing.	Kaap Agri and the ECO	Before construction
Performance Indicator:	An ECO inspection and short report is undertaken before construction commences.	

8.2. CONSTRUCTION PHASE

During the construction phase of the proposed development dust, noise and traffic impacts are likely to occur. However, these impacts will transpire for the duration of the construction phase only. Other impacts related to the construction phase are visual impacts associated with the construction activity and contamination or pollution of the soil and groundwater as a result of leaking vehicles and /or construction machinery and/ or inappropriate waste management practises.

The environmental management objectives (goals) for this phase is to:

1. Avoid Contamination and Pollution of the Soil and Groundwater.
2. Limit Noise, and Dust Impacts.
3. Limit Traffic Impacts to Existing Road Users, Pedestrian Safety & Damages to Road Infrastructure
4. Reduce the Visual Impact of the Construction Phase Activities.
5. Avoid Fire, Health & Safety Risk
6. Enhance Business & Employment Opportunities.

8.2.1. **Objective 1: Avoid Contamination and Pollution of the Soil and Groundwater**

Construction activities will generate waste. In addition, fuel, oil, lubricants and other pollutants may leak from vehicles/ machinery and contaminate the soil. Pollution and soil contamination could also occur from chemical toilets, cement mixing directly on the soil and stormwater runoff may flow over the site camp area and carry contaminants off-site.

Impact Management Outcome:	To avoid the contamination of soil and groundwater by inappropriate waste management practises, fuel and oil spills, chemical toilet spills and inappropriate cement mixing.	
IMPACT MANAGEMENT ACTIONS:		
Mitigation Measure	**Responsible**	**Time Period**
1. A Spill Contingency Plan must be produced. This should be a stand-alone operational procedure). It should be compiled prior to the construction phase of the extension to the fuel depot and included as an Annexure to the EMP. 2. The detailed storm water management system must be designed by a suitably qualified engineer & must adhere to the principles of storm water management. 3. The appointed Environmental Control Officer (ECO) must undertake at least one site inspection fortnightly, for the duration of the construction phase, and to produce a short ECO report monitoring the compliance of the property developer with the conditions of the approved EMP. 4. During the construction phase of the common bund area for the fuel storage tanks and associated infrastructure, an experienced contractor will be appointed and it will be ensured that the correct protocols will be followed that relate to the handling of materials, thereby minimising the likelihood of such an incident occurring. 5. Adequate training of construction personnel will ensure that incidents resulting in product spills are minimised and that the correct actions are taken in the event of an incident. 6. In the event of such an emergency condition, a suitably trained clean-up contractor will be appointed to clean up the spill. Hazardous waste may be generated where absorbent materials are used to mop up a product spill. This will be suitably contained and handled by a specialist contractor using the correct personal protective equipment and hazardous waste temporary storage receptacles. 7. Disposal of such waste at a suitable hazardous landfill site with chain-of-custody documentation provided by the contractor as proof of end recipient. 8. The ECO will supervise any remediation procedures in order to ensure that the correct material is treated. 9. If the location of the existing fuel lines are not known, a Ground Probing Radar (GPR) survey is required to take place prior to construction to map out the existing fuel lines on site. The objective is to avoid accidental damage of service & fuel lines which may cause impacts to the receiving environment. 10. Excavation should not be conducted at depth below water table. In addition, the following general management measures will be	Kaap Agri & Construction Contractor	Construction Phase

implemented to avoid contamination of soil and groundwater: <u>Waste Management:</u> 1. Hazardous waste bins must be kept on an impermeable bunded surface capable of holding at least 110% of the volume of the bins. 2. Skips/ bins must be provided with secure lids or covering that will prevent scavenging and windblown waste or dust. 3. Waste bins/skips must be regularly emptied and must not be allowed to overflow. 4. Construction workers must be instructed not to litter and to place all waste in the appropriate waste bins provided on site. 5. All waste, hazardous as well as general, which result from the proposed activities must be disposed of appropriately at a licensed Waste Disposal Facility (WDF). <u>Pollution Management – hydrocarbons (oil, fuel etc.)</u> 1. Vehicles and machinery must be in good working order and must be regularly inspected for leaks. 2. If a vehicle or machinery is leaking pollutants it must, as soon as possible, be taken to an appropriate location for repair. 3. Repairs to vehicles/ machinery may take place on site, within a designated maintenance area at the site camp. Drip trays, tarpaulin or other impermeable layer must be laid down prior to undertaking repairs. 4. Refuelling of vehicles/ machinery may only take place at the site camp or vehicle maintenance yard. Where refuelling must occur, drip trays should be utilised to catch potential spills/ drips. 5. Drip trays must be utilised during decanting of hazardous substances and when refilling chemical/ fuel storage tanks. 6. Drip trays must be placed under generators (if used on site) water pumps and any other machinery on site that utilises fuel/ lubricant, or where there is risk of leakage/spillage. 7. Soil contaminated by hazardous substances must be excavated and disposed of as hazardous waste. <u>Pollution Management – Ablution facilities</u> 1. Chemical toilets should be kept at the site camp, on a level surface and secured from blowing over. 2. Toilets must be located well outside of any storm water drainage lines, and may not be linked to the storm water drainage system in any way. 3. Chemical toilets must be regularly emptied and the waste disposed of at an appropriate waste water disposal/ treatment site. Care must be taken to prevent spillages when moving or servicing chemical toilets. <u>Cement Batching:</u> 1. Cement batching must take place on an impermeable surface large enough to retain any slurry or cement water run-off. If necessary, plastic/ bidim lined detention ponds (or similar) should be constructed to catch the run-off from batching areas. Once the water content of the cement water/ slurry has evaporated the dried cement should be scraped out of the detention pond and disposed of at an appropriate disposal facility authorised to deal with such		

waste 2. Cement batching should take place on already transformed areas within the footprint of the facility. 3. Unused cement bags must be stored in such a way that they will be protected from rain. Empty cement bags must not be left lying on the ground and must be disposed of in the appropriate waste bin. 4. Washing of excess cement/concrete into the ground is not allowed. All excess concrete/ cement must be removed from site and disposed of at an appropriate location.		

Performance Indicator:	➢ The ECO will monitor the site to check that the measures have been implemented. ➢ The environment is not polluted or contaminated as a result of construction activities on site. ➢ Spillage incidents are effectively contained and do not lead to pollution of the soil or water resources. ➢ Waste is reduced, reused and recycled where possible.

8.2.2. **Objective 2: Limit Noise and Dust Impacts**

As a result of the construction phase of this development noise and dust impacts are expected to occur in the area due to an increase in construction vehicle and road tankers for the duration of the construction phase while materials are being transported to the site and excavations are being made.

Impact Management Outcome:	The surrounding environment, land users, residents and passers-by do not experience significant nuisance impacts related to dust, noise and vibration.	
IMPACT MANAGEMENT ACTIONS:		
Mitigation Measure	**Responsible**	**Time Period**
<u>Dust Mitigation:</u> 1. If dust issues occur, dust can be suppressed on access roads and the construction site during dry periods by the regular application of non-potable water or a biodegradable soil stabilisation agent. Under no circumstances should potable water be used for dust suppression. Potable water should not be used for anything besides drinking. 1. Dust suppression measures such as the wetting down of sand heaps as well as exposed areas around the site should be implemented especially on windy days. 2. The use of straw worked into the sandy areas may also help and the ECO must advise when this is necessary. 3. If dust appears to be a continuous problem the option of using shade cloth to cover open areas may be necessary or the erecting of shade netting above the fenced off are may need to be explored. 4. All vehicles transporting sand need to have tarpaulins covering their loads which will assist in any windblown sand occurring off the trucks. 5. Dust levels specified in the National Dust Control Regulations (GN 827 of November 2013) may not be exceeded. 6. A Complaints Register must be available at the site office for	Kaap Agri & Construction Contractor	Construction phase

inspection by the ECO of dust complaints that may have been received. 7. The appointed Environmental Control Officer (ECO) must undertake regular site inspections for the duration of the construction phase, and to produce regular ECO monitoring audit reports, auditing on the compliance of the CCT with the conditions of the Environmental Authorisation and the approved EMP. <u>Noise Mitigation:</u> 8. A noise complaints register will be opened. 9. Excavations and earth-moving activities should be restricted to normal construction working hours (7:30 – 17:30) as far as possible. 10. Vehicles and equipment should be kept in good working condition. If deemed necessary, machinery and equipment should be fitted with mufflers/ exhaust silencers. No unnecessary disturbances should be allowed to emanate from the construction site. 11. Noise levels must comply with the relevant health & safety regulations and SANS codes and should be monitored by the Health & Safety Officer as necessary and appropriate. 12. The appointed Environmental Control Officer (ECO) must undertake regular site inspections for the duration of the construction phase, and to produce regular ECO monitoring audit reports, auditing on the compliance of the property developer with the conditions of the Environmental Authorisation and the approved EMP.		
Performance Indicator:	➢ The appointed Environmental Control Officer (ECO) must undertake regular site inspections for the duration of the construction phase, and to produce regular ECO reports monitoring the compliance of the property developer with the conditions of the approved EMP. ➢ Excessive dust does not arise from the site. ➢ No dust or noise complaints are received from any member of the community.	

8.2.3. **Objective 3: Limit Traffic Impacts to Existing Road Users, Pedestrians & Road Infrastructure**

As a result of the construction phase of this development traffic impacts are expected to occur in the area due to an increase in construction vehicle and truck traffic in the area for the duration of the construction phase while materials are being transported to the site. Road safety impacts and road condition impacts could also occur.

Impact Management Outcome:	During the construction phase of the development while materials are being delivered to the site, damages to road infrastructure does not occur and the safety to pedestrians is not at unacceptable risk.	
IMPACT MANAGEMENT ACTIONS:		
Mitigation Measure	**Responsible**	**Time Period**
1. The contractor must provide a traffic marshal for situations where heavy construction traffic may impede normal traffic flows on any roads adjacent to the site. 2. All drivers and machinery operators must exercise due caution when entering/ exiting the site.	Kaap Agri & Construction Contractor	Construction Phase

3. Construction vehicles must adhere to the load carrying capacity of road surfaces and adhere to all other prescriptive regulations regarding the use of public roads by construction vehicles. 4. The Contractor must ensure that any large or abnormal loads (including hazardous materials) that must be transported to/ from the site are routed appropriately, and that appropriate safety precautions are taken during transport to prevent road accidents. 5. All vehicles will be legally compliant. 6. All drivers will be competent and in possession of an appropriate valid driver's license. 7. All vehicles travelling on site will adhere to the specified speed limits. 8. The movement of all vehicles will be controlled such that they remain on designated routes. 9. No member of the workforce will be permitted to drive a vehicle under the influence of alcohol or narcotic substances. 10. Warning signage (i.e. "trucks turning") must be erected near the access point to the site. 11. A traffic marshal should be posted at the entrance to the site to assist with the safe and smooth flow of vehicles on the road whilst heavy construction traffic is entering and exiting the site. 12. No construction traffic may access the site after normal working hours as defined by the local authority.		
Performance Indicator:	The ECO will monitor these mitigation measures to ensure they are implemented. No safety incidents occur to pedestrians.	

8.2.4. **Objective 4: Reduce the Visual Impact of the Construction Phase Activities**

The construction phase is associated with temporary disturbance as a result of construction (trench excavations, vehicles, machinery, fencing & signage) that may have a negative visual impact on the public.

Impact Management Outcome:	Sensitive receptors are not significantly impacted upon by construction activities taking place.	
IMPACT MANAGEMENT ACTIONS:		
Mitigation Measure	**Responsible**	**Time Period**
1. Consult with the ECO when determining the appropriate site for the site camp. 2. The site camp must be kept neat and tidy and free of litter at all times. 3. Waste must be managed according to the EMPr. 4. Good housekeeping practices on site must be maintained to ensure the site is kept neat and tidy. 5. The site camp, storage facilities, stockpiles, waste bins, and any other temporary structures on site should be located in such a way that they will present as little visual impact to surrounding residents and road users as possible. 6. Work on site must be well-planned and well-managed so that work proceeds quickly and efficiently, thus minimizing the disturbance time. 7. The site camp will require visual screening via shade cloth or other	Kaap Agri & Construction Contractor	Construction Phase

suitable material. 8. Special attention should be given to the screening of highly reflective material. 9. Use of lighting (if required) should take into account surrounding land users and should present little or no nuisance. Downward facing, spill-off type lighting is recommended. 10. Construction vehicles must enter and exit during working hours. 11. The appointed Environmental Control Officer (ECO) must undertake at least one site inspection fortnightly for the duration of the construction phase, and to produce a short ECO report monitoring the compliance of the property developer with the conditions of the approved EMP.		
Performance Indicator:	The ECO will monitor the performance of the impact management actions. Good "housekeeping" is evident on site. The site does not pose a visual impact to the surrounding community.	

8.2.5. **Objective 5: Avoid Fire, Health & Safety Risk**

Exposure through breathing vapours, swallowing hazardous substances or skin contact may have possible health effects. There is a minor risk of fire and explosion associated with fuel delivery, storage and dispensing activities from the existing fuel tanks. Fuel vapour emissions from the existing fuel tank storage area and when filling up the new tanks may cause an odour nuisance or health impacts to the adjacent residents, users of the fuel depot and workers on site.

Impact Management Outcome:	Fuel delivery, storing and dispensing activities are undertaken responsibly and in in line with the National Standards so that risk of explosion or exposure to hazardous vapours and liquids is avoided.	
IMPACT MANAGEMENT ACTIONS:		
Mitigation Measure	**Responsible**	**Time Period**
1. The mitigation measures listed under the operational phase to avoid fire, health and safety risks are also applicable to be implemented during the construction phase seeming as there are existing tanks on the site. 2. A Fire Plan schematic (layout plan) and supporting narrative must be compiled that shows the location of the fire extinguishers, hydrants, ingress, exits, assembly points, bund walls etc. 3. The Emergency Plan has to be compiled / updated with the input and cooperation of both the employer and the local government in response the risks identified in the MHI. 4. The installation of Aboveground Storage Tanks and associated pipework must be implemented in accordance with the relevant South African National Standards (SANS), specifically (not exclusive to) the following standards: o ***SANS 10131(2004): Above-ground storage tanks for petroleum products.*** o ***SANS 10 400TT (Fire Protection) 53 Sections 1-6 (The application of the National Building Regulations- Installation of Liquid Fuel Dispensing Pumps and Tanks);*** o ***SANS 10087-3 (2008) (English): The handling, storage, distribution and maintenance of liquefied petroleum***	Construction Contractor, Resident Engineer and Applicant	Construction Phase

gas in domestic, commercial, and industrial installations Part 3: Liquefied petroleum gas installations involving storage vessels of individual water capacity exceeding 500 L 5. The installation of the Aboveground Storage Tanks and associated pipework must comply with the National Building Regulations and Standards Act No. 103 of 1977; 6. The installation must comply with local authority bylaws and all procedures and equipment used must be in accordance with the Occupational Health & Safety Act (No. 85 of 1993); 7. Upon completion of the UST installation, an engineer is to inspect and verify that the tanks and the associated infrastructure have been installed as per the design criteria described in the final BAR and to all required SABS / SANS standards and applicable legislation. 8. The installation must comply with local authority bylaws and all procedures and equipment used must be in accordance with the Occupational Health & Safety Act (No. 85 of 1993); 9. Upon completion of the AST installation, an engineer is to inspect and verify that the tanks and the associated infrastructure have been installed as per the design criteria described in the final BAR and to all required SABS / SANS standards and applicable legislation. 10. Adequate training in emergency response situations of the contractor and personnel undertaking the construction activities will be carried out. All workers on site will be informed of the emergency procedure to follow in the event of accidental fires. 11. No open fires will be allowed on the construction site during any phase of the project. No smoking will be allowed on the construction site. 12. Minimisation of hot work by using alternative methods and equipment such as air driven tools, cold cutting and pre-fabrication off site. 13. The use of appropriate shielding and screening such as blanketing with firefighting foam and water screens to minimise fire risk. 14. Minimisation through spark quenching by wetting down and/or using construction power tools such as jack hammers under sprayed water. 15. All people working on site are responsible for their own safety on site. Contractors and Principal Agent/s shall at all times comply with the relevant statutory requirements including the Occupational Health and Safety Act, Act 85 of 1993. 16. A comprehensive site specific first aid kit must be available on site at all times. 17. At least one person trained in safety and first aid and familiar with the first aid equipment on site must be present on the site at all times. 18. Emergency procedures will be established prior to the start of construction works on site. 19. Awareness training of personnel at the site and for road tanker drivers delivering fuel to site will be conducted.		
Performance Indicator:	No health incidents, or explosions or disasters take place on site.	

8.2.6. **Objective 6: Enhance Business & Employment Opportunities**

Skilled and unskilled employment opportunities are expected to be created during the construction phase.

Impact Management Outcome:	The development provides a benefit to the local community in terms of job provision.		
IMPACT MANAGEMENT ACTIONS:			
Mitigation Measure		**Responsible**	**Time Period**
➢ Preference should be given to historically disadvantaged individuals from the local, surrounding community, when appointing employees for construction work.		Developer / Applicant	Construction Phase
Performance Indicator:	Employment opportunities are created of which preference is given to the local community.		

8.3. POST CONSTRUCTION REHABILITATION PHASE

After all construction activities have ceased, the site must be cleared of all construction related equipment, materials, facilities and waste. In addition all disturbed surfaces – including disturbed areas around the new facilities and all areas utilised for site facilities – must be stabilized and rehabilitated.

The environmental management objective (goal) for this phase is to:

1. Rehabilitate & ensure environmentally sensitive closure of the construction site.

8.3.1. Objective 1: Rehabilitate disturbed areas & ensure environmentally sensitive site closure

Impact Management Outcomes:	➢ The site is neat and tidy and all exposed surfaces are suitably covered/ stabilized. ➢ There is no construction-related waste or pollution remaining on site.		
IMPACT MANAGEMENT ACTIONS:			
Enhancement Measure		**Responsible**	**Time Period**
1. On completion of the construction operations, the site camp area must be cleared of all site camp facilities, ablution facilities, fencing, signage, waste and surplus material. 2. Surfaces are to be checked for waste products from activities such as concreting or asphalting and cleared in a manner approved in writing by the ECO. 3. Any contaminated soil must be collected and disposed of as hazardous waste. 4. All construction waste, litter and rubble are to be removed from the site and re-used elsewhere, or recycled/disposed of at an appropriate facility. Burying or burning of waste or rubble on site is prohibited. 5. Any topsoil, subsoil or other excavated material that cannot be utilized during site rehabilitation should be removed from the site and reused elsewhere in the Municipality or disposed of at an appropriate disposal site. 6. Final landscaping and rehabilitation of the site must be done to the satisfaction of the ECO and signed off by the ECO.		Kaap Agri & Construction Contractor	Post-Construction rehabilitation *(some rehabilitation measures can be applied during the construction phase, as construction activities are completed in each area)*
Performance Indicator:	➢ All construction-related materials, equipment, facilities and waste have been removed from the site. ➢ All residual construction-related waste, pollution and contaminated soils have been removed from site.		

8.4. OPERATIONAL PHASE

The operation phase of a fuel depot can have impacts to surrounding residents if not managed appropriately. With a large amount of fuel being stored on site there is the potential for health & safety impacts, air quality impacts due to fuel vapours and soil and groundwater contamination if environmental management measures are not implemented. In addition, traffic & safety impacts are associated with a fuel depot due to the truck trips in and out.

The environmental management objectives (goal) for this phase is to:

1. Avoid Soil & Groundwater Contamination and Indirect Human Health Impacts
2. Avoid Air Quality Impacts
3. Avoid Health & Safety Impacts
4. Limit Traffic & Safety Impacts from Occurring.
5. Reduce Visual Impact.
6. Enhance Socio Economic Benefit.

8.4.1. Objective 1: Avoid Soil & Groundwater Contamination

During the operational phase of the proposed development soil and groundwater contamination could result due to fuel spills associated with re-filling of storage tanks. Minor spillage may also occur with the refuelling of road tankers, though this is less common. In addition, if stormwater is not managed correctly there is the potential for the unmanaged stormwater runoff to impact negatively on the environment, potentially causing pollution and contamination.

Impact Management Outcome:	No soil or groundwater contamination occurs.	
IMPACT MANAGEMENT ACTIONS:		
Mitigation Measure	**Responsible**	**Time Period**
The following precautionary measures will be followed on site: 2. Fuel storage records must be kept on site (incoming & outgoing fuel) as to account for fuel leaks and spills. 3. Drip trays will be available for any vehicles that may be potentially leaking. 4. Emergency spill kits will be kept on site. 5. The storage tanks will be regularly inspected for any leaks. 6. The installation of Aboveground Storage Tanks and associated pipework must be implemented in accordance with the relevant South African National Standards (SANS), specifically (not exclusive to) the following standards: o ***SANS 10131(2004): Above-ground storage tanks for petroleum products.*** o ***SANS 10 400TT (Fire Protection) 53 Sections 1-6 (The application of the National Building Regulations- Installation of Liquid Fuel Dispensing Pumps and Tanks);*** o ***SANS 10087-3 (2008) (English): The handling, storage, distribution and maintenance of liquefied petroleum gas in domestic, commercial, and industrial installations Part 3: Liquefied petroleum gas installations involving storage vessels of individual water capacity exceeding 500 L*** 7. The installation of the Aboveground Storage Tanks and associated	Kaap Agri and Operational Manager of Depot	Operational Phase

pipework must comply with the National Building Regulations and Standards Act No. 103 of 1977. 8. The installation must comply with local authority bylaws and all procedures and equipment used must be in accordance with the Occupational Health & Safety Act (No. 85 of 1993); 9. Upon completion of the UST installation, an engineer is to inspect and verify that the tanks and the associated infrastructure have been installed as per the design criteria described in the final BAR and to all required SABS / SANS standards and applicable legislation. 10. An Emergency Response Plan & Spill Contingency Plan must be produced (or any existing plans updated) prior to the operation of the upgrade and included as an Annexure to the EMP. 11. If an "incident[2]" takes place on site, the owner of the facility must within 14 days of the incident, report to the Director General, provincial head of department and municipality such information as is available to enable an initial evaluation of the incident, including (refer to footnote below for definition of "incident"): a) the nature of the incident; b) the substances involved and an estimation of the quantity released and their possible acute effect on persons and the environment and data needed to assess these effects; c) initial measures taken to minimise impacts; d) causes of the incident, whether direct or indirect , including equipment, technology, system or management failure; and e) measures taken and to be taken to avoid a recurrence of such incident.		
Performance Indicator:	The groundwater is not polluted with hydrocarbons.	

8.4.2. **Objective 2: Avoid Air Quality Impact**

Fuel vapour emissions may cause an odour nuisance or health impacts to adjacent residents, staff on site or to users of the fuel depot.

Impact Management Outcome:	Fuel vapour emissions do not cause an odour nuisance or health impacts to adjacent properties or to users of the fuel depot.	
IMPACT MANAGEMENT ACTIONS:		
Mitigation Measure	**Responsible**	**Time Period**
1. Awareness training of personnel at the site and for road tanker drivers delivering fuel to site will be conducted. 2. Contractors and Principal Agent/s shall at all times comply with the relevant statutory requirements including the Occupational Health and Safety Act, Act 85 of 1993. 3. The development of site specific protocols with regard to delivery and use of products and use of the relevant SANS procedures. 4. The careful location and elevation of the vent pipes to allow for the maximum dispersion of vapour.	Kaap Agri and Operational Manager of Depot	Ongoing during Operational Phase

[2] In terms of section 30(1)(a) of NEMA, an "incident" means an unexpected, sudden and uncontrolled release of a hazardous substance (such a diesel/fuel), including from a major emission, fire or explosion, that causes, has caused or may cause significant harm to the environment, human life or property.

Performance Indicator:	No incidents occur. No air quality or odour complaints are received.

8.4.3. Objective 3: Avoid Health & Safety Impacts

Health impacts could result during the operational phase with could lead to death, illness or injury as a result of fire and / or explosion risk at the fuel depot.

Impact Management Outcome:	The fuel depot is operated in a safe and responsible manner in line with the legislative requirements for the operation of a fuel depot.	
IMPACT MANAGEMENT ACTIONS:		
Mitigation Measure	**Responsible**	**Time Period**
1. A 2m high wall should be constructed along the eastern boundary of the site; 2. Two mobile foam pourers of 100 kg should each be placed on the northern and southern sides of the diesel depot; and 3. No flammable materials, such as wooden pallets, must be stored near the bulk diesel tanks or near the area where the road tanker parks for diesel deliveries. 4. The emergency management plan must be updated at least once per year. 5. Operating procedures must be updated for the facility, to include preventative measures against the following potential major incidents: a. Diesel leaks. 6. All possible ignition sources near areas where diesel is stored and handled at the facility must be eliminated. Guidelines for the control of ignition sources are as follows: a. Use only electrical equipment that is certified to be flameproof and spark proof. b. Control static electricity. c. Ensure that vulnerable equipment is properly bonded to ground. d. Prohibit smoking, open flames and sparks. e. Prevent mechanical sparks and friction. f. Use separator devices to remove foreign materials capable of igniting from process materials. g. Separate heated surfaces from dust. h. Separate heating systems from dust. i. Select and use industrial trucks properly. j. Use cartridge activated tools properly. k. Implement an equipment preventative maintenance programme. 7. The outcome of the risk assessment must be brought to the attention of all the employees at the facility. 8. The diesel storage tanks and all pipelines and fittings must be protected against corrosion, to prevent diesel leaks. 9. The Maintenance Plan must be updated for all the equipment used on the facility. The Plan must contain at least the following: a. List of all equipment and facilities on the facility. b. Maintenance frequency. c. Particulars of maintenance activities that must be	Kaap Agri and Operational Manager of Depot	Operational Phase

performed on the listed equipment. d. Responsible person. 10. All hazardous equipment and facilities on the facility must be inspected on a weekly basis by means of an Inspection Register. The Register must contain at least the following: a. List of all equipment and facilities on the facility. b. Equipment items that must be inspected. c. Facilities that must be inspected. d. Areas that must be inspected. e. Inspection findings. f. Responsible person who carried out the inspection. 11. Detailed operating procedures must be updated at least annually for all sections of the depot, in collaboration with the equipment suppliers. All authorised operators must be trained in the application of the procedure. Special attention must be given to the offloading of diesel via road tankers on the premises. 12. Material safety data sheets (MSDS) for the following hazardous materials must be available on site at all times: a. Diesel. 13. All operating personnel at the facility must be made aware and kept aware of the dangers involving diesel. 14. Access to the facility must be controlled 24 hours per day. The safety guard on duty must comply with the following requirements: a. The guard must be trained in the potential major incidents that could occur at the site as well as the emergency procedure that must be followed. b. The guard must be linked via safety management system or cellular phone with a responsible standby person of the operating company. c. The guard must be able to contact the local Fire Department immediately. 15. The Emergency Evacuation Procedure aimed at workers must be updated at least once per year in collaboration with the emergency services of Moorreesburg. 16. The Emergency Response Plan and Emergency Evacuation Procedure must be tested at least once every 12 months by means of mock emergencies. The Fire Department of Moorreesburg must preferably participate in such tests. 17. Customer parking bays must be located in an area where public vehicles will not cause obstruction of emergency vehicles. 18. Adequate space must be provided for the road tankers to enter, exit and park safely for delivery of diesel to the bulk storage tanks. 19. The bulk storage tanks must be adequately earthed against lightning. 20. All workers and tank drivers will be informed of the emergency procedure to follow in the event of accidental fires. 21. Effective measures must be implemented to prevent overfilling of the storage tanks and the resultant spillage of diesel. 22. In order to minimise the risk of diesel spillages, the delivery road tanker may not reverse or maneuver on site. 23. No open fires will be allowed on the site. 24. A dedicated smoking area will be designated; no smoking is to take place outside of the dedicated smoking area. 25. Firefighting facilities will be to Oil Industry standards, which will		

include hand-held fire extinguishers and a hose reel. These facilities must be approved by the local fire department. 26. All people working on site are responsible for their own safety on site. Contractors and Principal Agent/s shall at all times comply with the relevant statutory requirements including the Occupational Health and Safety Act, Act 85 of 1993. 27. A comprehensive site specific first aid kit must be available on site at all times. 28. At least one person trained in safety and first aid and familiar with the first aid equipment on site must be present on the site at all times.		
Performance Indicator:	The Emergency Evacuation Procedure is updated annually. The Emergency Response Plan and Emergency Evacuation Procedure must be tested at least once every 12 months by means of mock emergencies. The Fire Department of Moorreesburg must preferably participate in such tests. Health & safety impacts to humans are avoided. Incidents are avoided on site.	

8.4.4. **Objective 4: Limit Traffic & Safety Impacts from Occurring**

Traffic impacts are expected to occur for the duration of the operational phase of the activity as a result of the additional vehicles making use of the fuel depot. This could lead to safety impact or damage to road infrastructure.

Impact Management Outcome:	To ensure that any damages to the road network are maintained. To avoid traffic accidents or delays as a result of heavy traffic.	
IMPACT MANAGEMENT ACTIONS:		
Mitigation Measure	**Responsible**	**Time Period**
1. Damages to the road network should be monitored and repaired as they occur. 2. All vehicles will be legally compliant. 3. All drivers will be competent and in possession of an appropriate valid driver's license. 4. All vehicles travelling on site will adhere to the specified speed limits. 5. The movement of all vehicles will be controlled such that they remain on designated routes. 6. No member of the workforce will be permitted to drive a vehicle under the influence of alcohol or narcotic substances. 7. Warning signage (i.e. "trucks turning") must be erected near the access point to the site.	Kaap Agri and Operational Manager of Depot	Construction Phase & Ongoing during Operational Phase
Performance Indicator:	An increase in traffic as a result of the fuel depot does not cause damage to road infrastructure or traffic nuisances and significant delays in traffic.	

8.4.5. Objective 5: Reduce the Visual Impact of the Above Ground Tanks

The fuel storage tanks will be visible from the adjacent erf (east of the site) which is currently vacant.

Impact Management Outcome:	Sensitive receptors are not significantly impacted upon once the upgrade has been built.		
IMPACT MANAGEMENT ACTIONS:			
Mitigation Measure		**Responsible**	**Time Period**
1. A 2m high wall should be constructed along the eastern boundary of the site. 2. Preventative Maintenance Plans for the facility should be implemented to ensure good housekeeping of the infrastructure.		Kaap Agri	Operational
Performance Indicator:	The ECO will monitor the performance of the impact management actions. Good "housekeeping" is evident on site. The site does not pose a visual impact to the surrounding community.		

8.4.6. Objective 6: Enhance Business & Employment Opportunities

Four new permanent employment opportunities are proposed to be created.

Impact Management Outcome:	The development provides a benefit to the local community in terms of job provision.		
IMPACT MANAGEMENT ACTIONS:			
Mitigation Measure		**Responsible**	**Time Period**
➢ Preference should be given to historically disadvantaged individuals from the local, surrounding community, when appointing permanent employees for the operational phase.		Kaap Agri	Operational Phase
Performance Indicator:	Four new employment opportunities are provided of which preference is given to the local community.		

9. IMPLEMENTATION OF THE EMPR

9.1. Roles and Responsibilities, including Monitoring and Auditing

Environmental Control Officer ("ECO")

(a) The ECO must be appointed prior to commencement of any construction activities.

(b) The responsibilities of the ECO and the contractor will include monitoring of compliance with the EMPr and the EA by the applicant and any sub-contractors during the construction phase. The frequency of the site inspections will be **fortnightly** until the completion of the construction phase. Pictorial reports will be submitted fortnightly and a full audit report will be submitted when the construction phase has been completed.

(c) The ECO has the authority to recommend the cessation of works on any portion of construction related activity to the applicant. This will be triggered if in his/her opinion the activity has caused or will imminently

cause significant damage and/or harm to the environment or is in contravention of the relevant environmental legislation/permits/authorisations applicable to the site and/or activity/ies.

(d) If the applicant fails to show adequate consideration to the EA & EMPr or the recommendations of the ECO, then the ECO may recommend to the authorities that the aspect of operations to which non-compliance relates, ceases until the non-compliance is adequately rectified.

During the operational phase, it is not foreseen that any ECO Audit Reports are required.

Duties of the ECO

1. Ensuring that the EMPr conditions are adhered to at all times and taking action where the specifications are not being followed.
2. Ensuring that environmental impacts are kept to a minimum.
3. Reviewing and approving method statements in consultation with the Principal Agent.
4. Advising the contractor on environmental issues and assisting in developing environmentally responsible solutions to problems.
5. Reporting to the applicant on a regular basis and advising of any environmental impacts.
6. Attending site meetings (when necessary) and giving a report back on the environmental issues at these meetings and other meetings that may be called regarding environmental matters.
7. Inspecting and auditing the site and surrounding areas regularly.
8. Establishing and monitoring an on-going environmental awareness program in conjunction with the contractor.
9. Requesting the removal of person(s) and/or equipment not complying with the specifications.
10. Keeping both a written and photographic record of progress on site from an environmental perspective, and an ad hoc record of all incidents or events on site with environmental ramifications. These records should be dated and accurately catalogued in the onsite logbook, and separate audit reports.

The Client- Kaap Agri (Pty) Ltd

This EMPr, once approved by the authority should be seen as binding to the Applicant, and any person acting on the Applicant's behalf, including but not limited to agents, employees, associates, contractors and service providers.

The Applicant and all other persons who may utilize, maintain or service the facilities are also bound by their general Duty of Care, as stated in Section 28 of the National Environmental Management Act, 1998:

> ***Duty of Care:***
> *"Every person who causes, has caused, or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm cannot reasonably be avoided or stopped, to minimize and rectify such pollution or degradation of the environment"*

The Client – the client is responsible for employing the ECO, Contractor and any Sub-contractors for the lifecycle of the facility. It is the client responsibility to ensure that all appointed parties fulfil their obligations in terms of this EMPr, i.e. the implementation of this EMPr is the Client's responsibility, and the Client must ensure that all activities taking place on the site are conducted in an environmentally responsible manner and in accordance with the requirements of this EMPr.

The Engineer

The engineer representing the developer on site is responsible for the technical and contractual implementation of the works to be undertaken. The engineer would will oversee site work and liaise with both the contractor and the ECO.

The Contractor

The contractor is responsible for implementation and compliance with the requirements of the EMPr, conditions of the contract and relevant environmental legislation. The Contractor must ensure that all sub-contractors have a copy of and are fully aware of the content and requirements of this EMPr. The contractor is required, where specified, to provide Method Statements setting out in detail how the management actions contained in the EMPr will be implemented.

Environmental Site Officer

The ESO is employed by the Contractor as his/her environmental representative to monitor, review and verify compliance with the EMPr by the contractor. This is not an independent appointment; rather the ESO must be a respected member of the contractor's management team.

9.2. Documentation and Record Keeping

(a) List of onsite documentation

An environmental register must be kept at the site, which must include the following:

- An accident and incident register;
- Complaints register;
- Site evacuation plan/maps; and
- Method statements
- Signed Environmental Training register
- Waste Disposal Certificates

In addition, this EMPr must be kept at the site. The right of the public to information shall be respected in accordance with relevant legislation.

(b) Environmental Register

The environmental register should be used to record any relevant daily information related to the operations and current status of the site, including the following information:

- Details of audits and inspections carried out by the ECO and/or as detailed in this EMPr and follow-ups
- Instances of non-conformances found in terms of the EMPr, the date of their occurrence, date of corrective action, and date of completion of preventive action
- Details of chain of custody documentation
- Any other relevant/pertinent daily events
- The environmental register should also contain the accident and incident register and/or the complaints register.

(c) Accident and Incident Register

An accident and incident register must be kept and should include the following information:

- Time, date and place of the accident and/or incident
- Who and what was involved
- A detailed description of the accident or incident.

(d) Complaints register

A complaints register must be kept for the recording of all complaints lodged regarding the Fuel depot. It is important that the complainant feels that their concerns have been listened to and that appropriate action (within reason) has been taken to address these.

The complaints register must include:

- Detail of the complaint in clear, well-structured language
- Time and date of complaint and details of complainant for follow-up purposes.
- Name of the person who received the complaint.
- Description of action that was taken to address the complaint, including date and time of action.

(e) Method statements

Method Statements (a template for these purposes is appended to this EMPr) will be required for activities that may result in significant impacts according to the ECO.

These must address the following aspects:

- What – a brief description of the work to be undertaken
- How – a detailed description of the process of work, methods and materials
- Where – a description of the location of the work (if applicable)
- When – the sequencing of actions with commencement and completion date estimates

All Method Statements (MS) must be in place at least **5 working days prior to the relevant construction activities** taking place and must be approved by the ECO prior to being implemented.

9.3. Environmental Awareness and Training

The Contractor should make allowance for all construction site staff, including all subcontractors that will be working at the site, to attend environmental awareness training sessions (undertaken by the ECO) before commencing any work on site. During this training, the ECO will explain the EMPr and the conditions contained therein. Attention will be given to the construction process and how the EMPr fits into this process. Other items relating to sound environmental management which should be discussed and explained during the environmental awareness training sessions include:

- The demarcated “No-Go” areas;
- General do’s and don’ts of the site;
- Making of fires;
- Waste management, use of waste receptacles and littering;
- Use of the toilets provided;
- Use and control of building materials and equipment etc.;
- Control, maintenance and refuelling of vehicles;
- Methods for cleaning up any spillage;
- Access and road safety;
- Emergency procedures (e.g. in case of fire, spillage etc.)
- General “best practice” principles, as regards the protection of environmental resources.

Environmental awareness training and education should be ongoing throughout the construction phase, and should be undertaken regularly if deemed necessary (especially if it becomes apparent that there are repeat contraventions of the conditions of the EMPr), or as new workers come to site. Translators should be utilized where needed.

9.4. Matters Pertaining to Non-Conformance onsite

“Non-conformances” would occur when there are deviations from any of the requirements of this EMPr and / or the EA. This may also include non-compliance with the relevant environmental regulations.

Non-conformances and corrective action must be included in the audit reports compiled by the ECO.

The Client may introduce some form of penalty system for contractor’s onsite if compliance with the EMPr proves problematic. All staff working on-site must be made aware of the consequences of non-conformance.

LAUREN ELSTON
SILLITO ENVIRONMENTAL CONSULTING (SEC)

ANNEXURE A
SITE LAYOUT PLAN

ANNEXURE B
ENVIRONMENTAL AUTHORISATION

ANNEXURE C
EMERGENCY RESPONSE PLAN & EVACUATION PLAN

ANNEXURE D
SPILL CONTINGENCY PLAN

ANNEXURE E
FIRE PLAN

ANNEXURE F
POSSIBLE METHOD STATEMENT TEMPLATE FOR CONSTRUCTION PHASE

METHOD STATEMENT FOR THE:

……..

This method statement is to be completed by the Contractor (in consultation with the ECO) at least 5 working days prior to the proposed commencement date of the said work and represents a binding agreement to the Method Statement by all site Contractors and Subcontractors involved in the work for which the Method Statement is submitted.

DATE OF SUBMISSION:…….

CONTRACTOR:…….

SUBCONTRACTORS (IF RELEVANT):……

A) Describe in detail ***what*** work is to be undertaken?

B) Describe in detail ***where*** on the site the works are to be undertaken and the ***extent***? Provide sketch plan and grid block reference.

C) ***When*** will the works start and what is the anticipated finishing date of these works?

D) ***How*** are the works to be undertaken?

1) Lead supervisor/ foreman name and contact details:

2) Number of personnel:

3) Construction activities:

4) Plant and machinery to be used:

5) Materials to be stored (specify hazardous materials):

6) Other:

E) What ***environmental impacts are anticipated and what precautions*** are proposed to prevent these impacts? (refer to the relevant sections of the EMPr for guidance and provide a general camp layout)

Camp site demarcation:
Toilet facilities:
Litter:
Security:
Plant/machinery (operation, servicing, management, storage, refuelling etc.):
Emergencies and fire:
Hazardous materials (handling, management, storage etc.):
Have all personnel involved been through an environmental induction course?
Hazardous substances spill remediation and containment measures:
Other:

DECLARATIONS BY PARTIES

1) CONTRACTOR

I UNDERSTAND THE CONTENTS OF THE METHOD STATEMENT AND THE SCOPE OF THE WORKS REQUIRED OF ME. I FURTHER UNDERSTAND THAT THE METHOD STATEMENT MAY BE AMENDED ON APPLICATION TO THE ABOVE SIGNATORIES, AND THAT THE ENVIRONMENTAL CONTROL OFFICER WILL AUDIT MY COMPLIANCE WITH THE CONTENTS OF THIS METHOD STATEMENT.

_____ (PRINT NAME)

_____ (SIGNED) DATED: _____

2) ENVIRONMENTAL CONTROL OFFICER (ECO)

THE WORK DESCRIBED IN THIS METHOD STATEMENT, IF CARRIED OUT ACCORDING TO THE METHODOLOGY DESCRIBED, IS SATISFACTORILY MITIGATED TO PREVENT AVOIDABLE ENVIRONMENTAL HARM.

_____ (PRINT NAME)

_____ (SIGNED) DATED: _____

3) PRINCIPAL AGENT

THE WORK DESCRIBED IN THIS METHOD STATEMENT, IF CARRIED OUT ACCORDING TO THE METHODOLOGY DESCRIBED, IS SATISFACTORILY MITIGATED TO PREVENT AVOIDABLE ENVIRONMENTAL HARM.

_____ (PRINT NAME)

_____ (SIGNED) DATED: _____

ANNEXURE G
INCIDENT REGISTER AND BASIC ACCIDENT REGISTER TEMPLATES

INCIDENT REGISTER (EXAMPLE)

"*Incident*" means - an unexpected sudden occurrence, including a major emission, fire or explosion leading to serious danger to the public or potentially serious pollution of or detriment to the environment, whether immediate or delayed					
Date (yyyy/mm/dd)	**Incident**	**Comments** *(Include any possible explanations for current condition and possible responsible parties. Include photographs, records etc. if available)*	**Corrective Action Taken** (*Give details and attach documentation as far as possible)*	**Reference no. for On-Site Logbook** (e.g. Rv 6/12 Inc 1)	**Signature**

BASIC ACCIDENT REGISTER (EXAMPLE)

Date (yyyy/mm/dd)	**Accident**	**Names of Persons Involved**	**Comments, Including Injuries Sustained** *(Include any possible explanations for current accident. Include photographs, records etc. if available)*	**Corrective Action Taken** (*Give details and attach documentation as far as possible)*	**Reference no. for OHS Documentation and Attachments** *(e.g. Rv 6/12 Acc 1)*	**Signature**