



GEOHYDROLOGY

GEOTECHNICAL

ENVIRONMENTAL

SOCIAL DEVELOPMENT

AMENDED EMPR

Ref:14/12/16/3/3/1/2031



AMENDED ENVIRONMENTAL MANAGEMENT PROGRAM FOR THE PROPOSED CONSTRUCTION OF FACILITIES TO HANDLE AND STORE DANGEROUS GOODS (LIQUID OXYGEN, NITROUS OXIDE, ENTONOX, LIQUID PETROLEUM GAS (LPG), AND ABOVE GROUND DIESEL TANKS) AT SILOAM HOSPITAL, MAKHADO LOCAL MUNICIPALITY, VHEMBE DISTRICT IN LIMPOPO.

January 2020

Prepared for: SAKHIWO Health Solutions
On behalf of Department of Health and Social Development
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Compiled by: HP Jannasch



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Table of contents

1	DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP) .	1
2	DESCRIPTION OF ASPECTS OF ACTIVITY COVERED BY THE EMPr	1
3	MAPS OF THE PROPOSED ACTIVITY	3
4	GENERAL INFORMATION	7
4.1	LEGAL REQUIREMENTS	7
4.2	PROJECT OBJECTIVE.....	8
4.3	ENVIRONMENTAL MANAGEMENT PROGRAMME OBJECTIVE	8
4.4	ENVIRONMENTAL IMPACTS.....	9
5	ENVIRONMENTAL MONITORING.....	9
6	ENVIRONMENTAL AWARENESS PLAN.....	10
6.1	Important aspects of an awareness plan.....	11
6.2	Contents of an awareness program	11
6.3	METHODS OF INFORMING PERSONNEL	12
7	EROSION MANAGEMENT	12
7.1	PROBLEMS CAUSED BY EROSION	13
7.2	ACTIONS TO STOP OR MINIMISE EROSION ON A SITE	13
7.3	STRUCTURAL MEASURES TO CONTROL EROSION	13
7.4	MONITORING OF EROSION ON SITE	13
8	DANGEROUS SUBSTANCES MANAGEMENT	14
8.1	POSSIBLE SOURCES OF DANGEROUS SUBSTANCES.....	14
8.2	MEASURES TO <i>STORE</i> and <i>monitor</i> DANGEROUS SUBSTANCES ON SITE.....	14
8.3	HANDLING OF SPILLS.....	15
8.4	Spillage contingency plan of Siloam hospital.....	16
8.5	DELIVERY OF DANGEROUS SUBSTANCES to the site.....	18
8.6	TRAINING OF STAFF.....	18
8.7	REPORTING AND RECORD KEEPING	18
9	EMERGENCY PLAN	18
10	MANAGING PROCESS FOR ENVIRONMENTAL DAMAGE/INCIDENTS	19
11	PHASES OF DEVELOPMENT	19
12	VALIDITY PERIOD OF CONSTRUCTION EMPr	19
13	COMPLIANCE MONITORING/AUDITING AND REPORTING	19
14	ROLES AND RESPONSIBILITIES FOR IMPLEMENTATION OF EMPr.....	20
15	NON-COMPLIANCES WITH THE EMPr	21
16	EMPr: IMPACTS AND MITIGATION MEASURES.....	22

LIST OF APPENDICES

APPENDIX 1 - EMERGENCY RESPONSE PLAN	48
APPENDIX 2 - COVER PAGE OF SANS CODE 10089-3: 2010.....	51
APPENDIX 3 - ABSTRACT FROM SANS 10089-3: 2010	52

1 DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

Name of EAP: AGES Limpopo (Pty) Ltd – Hein Jannasch

Contact details of EAP:

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Telephone number: 015 291 1577
Fax number: 015 291 1577

Expertise of EAP: The EAP has a Master's Degree in Environmental Management and 16 years of experience with management and conducting of EIA's. A condensed *Curriculum Vitae* of the EAP is included in Appendix A to this report.

2 DESCRIPTION OF ASPECTS OF ACTIVITY COVERED BY THE EMPR

The EMPR will cover the following aspects of the activity during different phases of the project:

- **Air emissions and noise**

Air emissions will mainly be the generation of dust from vehicles on site and exhaust emissions during the construction phase as well as exhaust emissions during the operational phase. During operation noise impacts will be from the movement of vehicles on site.

- **Biodiversity aspects**

There is limited natural vegetation or fauna left on the site. Mitigation and management measures are provided for the use of herbicides and pesticides on site which could negatively impact biodiversity in the larger area at and around the filling station.

- **Training and Awareness**

The training of workers and contractors in terms of environmental awareness and the mitigation of negative environmental impacts as a result of the construction and operation of the filling station will form part of the EMPr.

- **Storm water management**

The handling/management of storm water that could cause erosion at the filling station forms part of the EMPr.

- **Dangerous substances management**

The management of dangerous substances and the mitigation of negative impacts of for e.g. storage or spillage of these substances are detailed in the EMPr.

- **Socio-Economic benefits and safety on site.**

The socio-economic aspects, especially the enhancement of positive aspects of the creation of jobs in all the phases of the development are discussed in the EMPr. Safety and security measures for operation are covered. This relates to fire/explosion risks and safety of workers and the public.

- **Water Use**

Water use is discussed in the EMPr.

- **Waste management**

The handling and disposal of waste, management and mitigation measures to manage and mitigate these aspects and impacts form part of the EMPr.

3 MAPS OF THE PROPOSED ACTIVITY

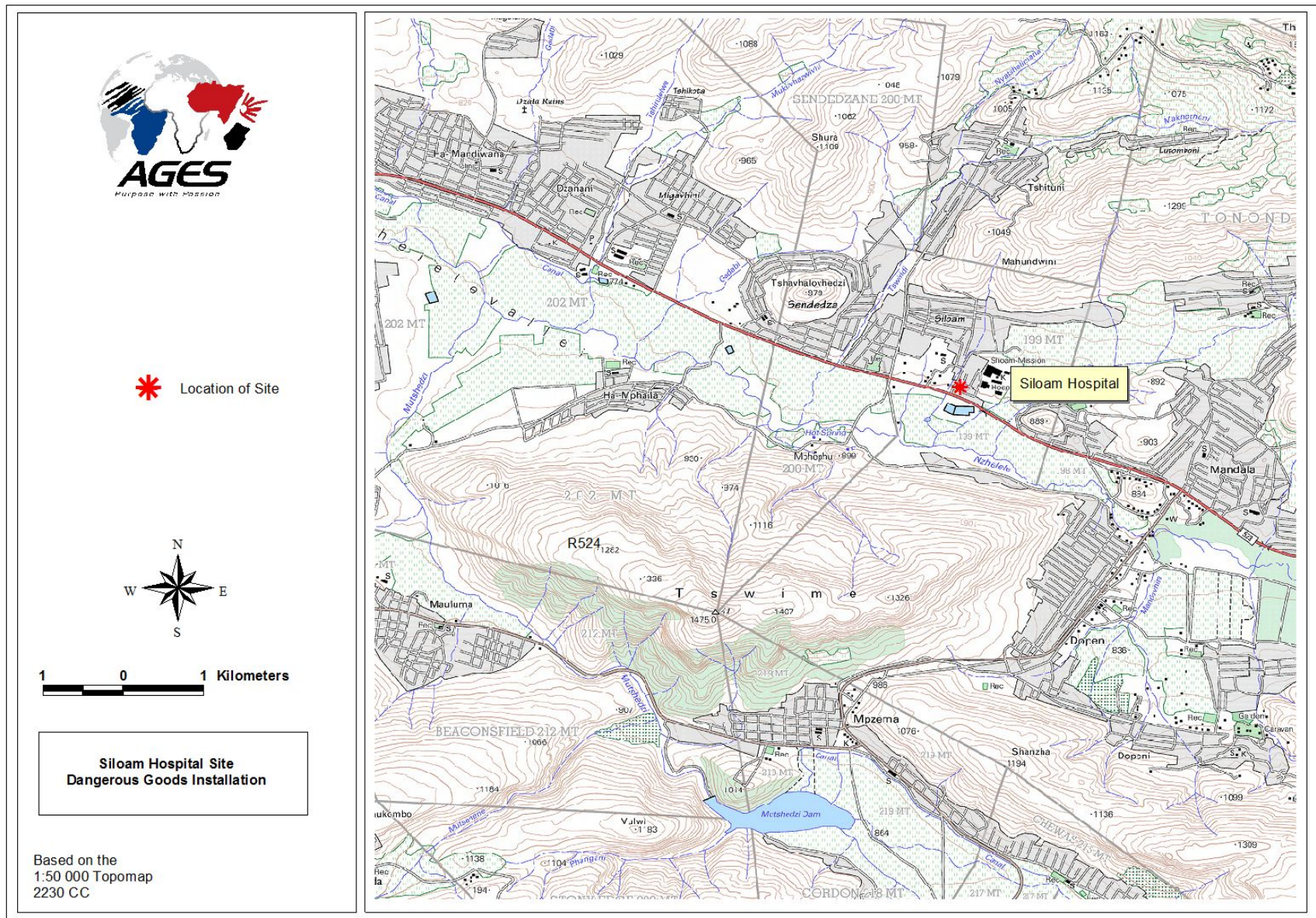


Figure 1. Location map of the activity



Figure 2. View of activity site of the dangerous goods storage facility at the Siloam Hospital extension

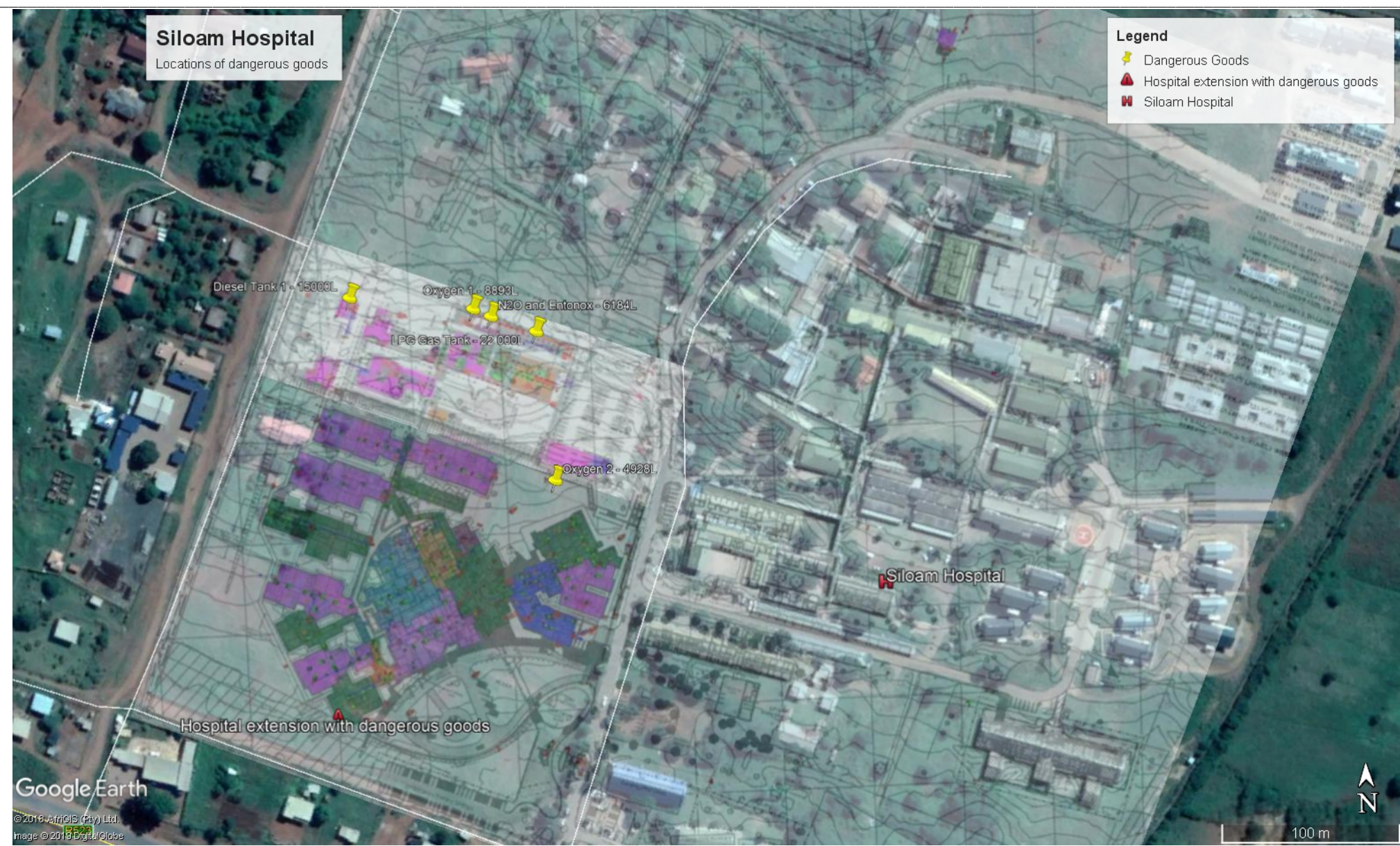


Figure 3. View of layout of the activity on the Siloam Hospital Extension site

AGES Limpopo (Pty) Ltd

4 GENERAL INFORMATION

AGES Limpopo (Pty) Ltd was appointed by SAKHIWO Health Solutions on behalf of Department of Health and Social Development to compile an Environmental Management Program (EMPr) for the proposed construction and operation of storage facilities for dangerous goods at the extension of the existing Siloam hospital in the Makhado Local municipality, Vhembe District in Limpopo.

The proposed installations will be located at the premises where the expansion and upgrading of the existing Siloam hospital is currently underway. There is no vegetation left on the construction site where the installations will be done. There will also be a place where small cylinders of Nitrous Oxide and Entonox will be kept

The facilities will be needed for the following dangerous goods:

Liquid Oxygen in two 4928 litre cylinders/bullets outside while there will also be 84 x7.2 litre cylinders inside the building.-**Total of 13 821 litres.**

Nitrous Oxide will be stored inside the building in 95x23.6 litre cylinders. **Total of 2242 litres.**

Entonox will be stored inside the building in 167 x 23.6 litres cylinders. **Total of 3942 litres.**

LPG will be stored outside in a 22000 litre cylinder/tank. **Total of 22 000 litres**

Diesel will be stored in 1 x 15000 litre tank. The tank will be stored aboveground. The 15 000 litre tank will be installed under roof in a bunded area with a sump pump. **Total of 15 000 litres.**

There are existing tanks at the old part of the hospital that does not form part of the application. The tanks will just be upgraded and refurbished.

All service infrastructure will be supplied as part of the hospital infrastructure.

The *Liquid Oxygen, Nitrous Oxide and Entonox* are all **medical supplies** used in the treatment of patients. The diesel will be used for use at three emergency generators at the Hospital extension while the LPG will be used in the kitchen and for the boiler.

Services are already available at the hospital site.

The diesel tank installations will at all times have to comply with the South African National Standard 10131-3:2004 –for aboveground tank installations and the LPG according to SANS 10087-3:2008: 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.

4.1 LEGAL REQUIREMENTS

The Basic Assessment Report was done with the objective to supply the Department of Environmental Affairs (DEA) with the necessary environmental information and to comply with the requirements of the environmental regulations, R982 and R983, promulgated on 4 December 2014 and as amended on 7 April 2017. These regulations are promulgated in terms of Section 24(5) of the National Environmental Management Act, Act 107 of 1998.

The following listed activities are triggered in terms of the National Environmental Management Act (Act 107 of 1998), Government Notice R983 & 985 of 4 December 2014 as amended on 7 April 2017:

Relevant notice	Description
GN R.985 Activity 10(e) (i) As amended	The development will have facilities for the storage of

<p>27 April 2017</p> <p><i>The development and related operation of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres in all areas in Limpopo"</i></p>	<p>dangerous goods of 57005 litres (see table of quantities below)</p>
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List of different storage containers and volumes at the Siloam Hospital Extension.

	Design capacity at Ambient Conditions	On-site storage in Bulk Container	On-site storage in G & J size cylinders	On-site storage in bulk containers and cylinders (Total litres)
Oxygen	8 064 000	2x4928L	84x47.2L	13 821
Nitrous Oxide	856 560		95x23.6L	2 242
Entonox	835 200		167x23.6L	3 942
LPG Gas	22 000	1x22000L		22 000
Diesel	15 000	1x15000L		15 000
Total				<u>57 005</u>

4.2 PROJECT OBJECTIVE

This EMPR was drafted to ensure that negative environmental impacts are properly addressed and mitigated during the construction and operation of the dangerous goods facilities on this property.

4.3 ENVIRONMENTAL MANAGEMENT PROGRAMME OBJECTIVE

The purpose of the Environmental Management Programme (EMPR) is to comply with the requirements of the Department of Environmental Affairs to ensure responsible environmental management. The objective of the EMPR is also to provide adequate measures and or recommendations to ensure that the identified environmental impacts are kept to a minimum and that the most appropriate rehabilitation measures are correctly implemented to ensure the overall integrity of the proposed site.

The mitigation measures stated in the Environmental Management Programme (EMPR) must be adhered to as indicated for the different phases. It must be insured that the responsible persons have access to the project monitoring program included in the EMPR and that all relevant parties are aware of the route that needs to be followed when appropriate action is required.

The Environmental Management Program must be incorporated into the planning and appointment documents for any contractors in future since this will ensure that:

- The contractor is aware of the EMPR upfront.
- The EMPR is presented in a form and language that is familiar to the contractor.

- The contractor is able to cost for compliance.
- The EMPR is binding within a well-defined legal framework.

4.4 ENVIRONMENTAL IMPACTS

Environmental impacts are associated with air quality, water quality, soil conditions and safety & security. The aspects that cause the environmental impacts, the specific impacts as well as a set of mitigation measures to apply during the construction phase and operational phase were identified and detailed in section 11 of the EMPR

5 ENVIRONMENTAL MONITORING

The roles and responsibilities of the developers of this development must include:

- Ensuring that the necessary environmental authorizations and permits have been obtained.
- Monitoring and verifying that the EMPR is adhered to at all times and taking action if the specifications are not followed.
- Monitoring and verifying that environmental impacts are kept to the minimum.
- Keeping record of all activities/incidences on site in the site diary concerning the environment.
- Inspecting the site and surrounding areas daily with regard to compliance with the EMPR.
- Keeping a register of complaints in the office and recording and dealing with any community complaints or issues.
- Ensuring that activities on site comply with other relevant environmental legislation.
- Issuing of warnings for contravention of the EMPR.
- Compile a monitoring checklist.
- Keep a photographic record of progress on site from an environmental perspective.
- Assisting the project manager in finding environmentally responsible solutions to problems.
- Keeping accurate and detailed records of these inspections.

Any appointed contractor shall have the following responsibilities:

- To implement all provisions of the construction EMPR. If the contractor encounters difficulties with specifications, he / she must discuss alternative approaches with the site manager prior to proceeding.
- To ensure that all staff and sub-contractors are familiar with the EMPR.
- To make personnel aware of environmental issues and to ensure they show adequate consideration of the environmental aspects of the project.
- To report any incidents of non-compliance with the EMPR to the site manager or site owner.

6 ENVIRONMENTAL AWARENESS PLAN

The goal of the awareness plan is to help employees make environmentally-conscious decisions in the workplace and in their private lives. The environmental awareness plan entails the management of staff, personnel and workers on site during the construction and the operational phase.

During the both phases there will be an appointed Environmental Control Officer as well as a person responsible for adherence to the Occupational Health and Safety Act (Act No. 85 of 1993) (OHSAC). Environmental Impacts on a site to be limited include:

- **Water pollution**

All personnel/workers on site must be instructed to avoid and limit any waste and/or spillages. Instructions on how to handle spillages on site must be displayed clearly in a step-by-step format, at the site office in terms of steps to follow. Training should be provided and spill kits must be available on site, all the time.

- **Water usage**

Water for human consumption must be available at all times but should be managed and all leakages and wastage should be reported to the site manager immediately. This issue must be included and reiterated in the scheduled environmental meetings.

- **Erosion and storm water management**

An erosion management plan is included in this EMPr in the next section and personnel should have access to this information (EMPr) and be given training accordingly.

- **Air quality (dust suppression and fuel vapours)**

As a result of vehicle movement on site during construction, there will be dust formation on the development area. Dust suppression with water tanks must be done if and when necessary. The site should also be paved to limit dust generation on site. Fuel vapour releases during the operational phase must be at a sufficient height to limit the impact on people at the site.

- **Noise levels**

Noise levels must be maintained at acceptable levels especially during the day, after hours and during weekends. This must be communicated to the truck drivers parking at the site.

- **Pollution as a result of waste generation on site (both household and dangerous waste)**

Existing and new personnel/workers arriving on site must be given a short training course in the principles of waste reduction, re-using and recycling. This must be a continuous process. The same applies in the case of potential water pollution in terms of household and/or dangerous waste. Training must include steps to be taken in case of spillage or wastage and the clean-up process is to be explained in order to be understood by all involved. Measures must be in place for the removal of waste, including the availability of a sufficient number of dust bins and containers, which must all be clearly marked and displayed.

- **Fire**

Practical training should be provided to all workers/staff by a qualified person in the use of fire extinguishers and all other firefighting equipment.

- **Potential import of alien vegetation**

Alien vegetation could be imported with material that is brought onto the site. The site must be monitored for any signs of alien vegetation.

- **Natural fauna (wildlife) of the area**

Small animals could be found here on site.

All personnel on-site must have access to the EIA Report and EMPr as well as course material on training and other short courses presented. The principles must be emphasised at regular meetings (monthly/weekly) and these reports and training materials must be made available to new personnel coming on-site. A refresher training course must be delivered annually to all staff. Records of all training courses should be kept on site.

6.1 IMPORTANT ASPECTS OF AN AWARENESS PLAN

- All staff must receive environmental awareness training prior to commencement of the construction.
- The contractor must allow for sufficient sessions to train all personnel with no more than 20 personnel attending each course.
- Refresher environmental awareness training must be available as and when required.
- All staff must be made aware of the conditions and controls linked to the EA and within the EMPr and their individual roles and responsibilities in achieving compliance with the EA and EMPr.
- A record of all environmental awareness training courses undertaken as part of the EMPr must be available.
- Workers must be educated on the dangers of open and/or unattended fires.
- A staff attendance register of all staff that have received environmental awareness training must be available.
- Course material must be available and presented in appropriate languages that all staff can understand.

6.2 CONTENTS OF AN AWARENESS PROGRAM

Environmental awareness training must as a minimum include the following:

- Description of significant environmental impacts, actual or potential, related to their work activities;
- Mitigation measures to be implemented when carrying out specific activities;
- Emergency preparedness and response procedures;
- Emergency procedures;
- Procedures to be followed when working near or within sensitive areas;

- Wastewater management procedures;
- Water usage;
- Solid waste management procedures;
- Sanitation procedures; and
- Fire prevention.

6.3 METHODS OF INFORMING PERSONNEL

The following methods can be utilised to inform personnel:

- Use translators where necessary.
- Use the site owner to explain more difficult/technical issues and to answer questions.
- The use of pictures and real life examples are encouraged as these tend to be more easily remembered.
- Make use of environmental awareness posters.
- Environmental induction for all contractors, sub-contractors and their staff should they be required to come on site.

7 EROSION MANAGEMENT

A major component usually during construction at development sites is the clearing and grading of land, which exposes, disturbs, and moves the soil. This inevitably increases an area's susceptibility to erosion. Because it is not feasible to eliminate all erosion risk factors, and thus all erosion, the goal of implementing erosion control measures is primarily to minimize erosion. This is also important in the operational period after construction is completed on site.

Erosion, by the action of water and wind, is a natural process in which soil and rock material is loosened and removed. There are two major classifications of erosion:

- **Geological erosion**, which includes soil-forming as well as soil-removing, has contributed to the formation of soils and their distribution on the surface of the earth.
- **Man-made erosion**, which can greatly accelerate the natural erosion process, includes the breakdown of soil aggregates and the increased removal of organic and mineral particles; it is caused by clearing, grading, or otherwise altering the land. Erosion of soils that occur at construction sites is classified as **man-made erosion**.

Human activities can cause compaction of the soil or disturbance of the soil. This hardening of the soil prevents water from effectively infiltrating the soil. This then results in larger volumes of water which moves quickly across a site carrying sediment to streams and rivers away from the site.

The main factor causing or helping erosion on is erosion by water. This is the loosening and removal of soil and rock particles from a piece of land by running water, mostly caused by rain

storms. There are a number of factors influencing or affecting erosion namely soil characteristics, climate, rainfall intensity and duration, vegetation or other surface cover and topography.

7.1 PROBLEMS CAUSED BY EROSION

The most important effect of erosion is the permanent loss of valuable topsoil at a site. If it is not controlled from the onset of a project and through the duration of the project, it will cause a loss of topsoil and can degrade the area permanently. The sediment that is transported by rainwater may end up in surface streams and drainage lines or other water bodies.

7.2 ACTIONS TO STOP OR MINIMISE EROSION ON A SITE

The affected area must be stabilised as soon as possible during or after construction on the area. Paving of the area on an industrial site as soon as possible after construction is usually the most effective way of controlling erosion.

Paving cover acts in the following ways to reduce potential erosion:

- Shielding the soil against the direct impact of rain drops falling on the ground.
- Ensure that no storm water flows directly over the soil.

Areas which cannot be paved must be shaped or changed to effectively reduce water velocity over the area or by preventing the water from flowing over such areas by diverting it away from the site. These areas can be sown with grass seeds. Mechanical ways may also be used to minimise or control erosion on a site.

7.3 STRUCTURAL MEASURES TO CONTROL EROSION

7.3.1 Berms

Berms can be constructed around a site on especially the upstream side to keep extra water out. This will minimise the volume of water flowing over a site which limits the erosion on the site.

Berms can also be constructed on road surfaces with a gradient to slow down the velocity of the water and to divert the water off the road into storm water drains on the site.

7.4 MONITORING OF EROSION ON SITE

During the planning stage of the construction period, the site manager must appoint a person who will be on site for the duration of the construction period. This person will have the responsibility to monitoring the risk of erosion and actual erosion arising from activities on site. His responsibilities must include:

- Ensure that gravel roads are kept moist during dry times to prevent wind from blowing dust away and thus causing wind erosion in this manner.
- Regular (after rainstorms) monitoring for erosion to ensure that no erosion problems are

occurring at the site as a result of the roads and other infrastructure. All erosion problems observed must be rectified after the rain event and before the following rain event.

- Monitor any erosion damage after rain events so that repairs to damaged areas can be done before the next rain event.

8 DANGEROUS SUBSTANCES MANAGEMENT

Construction at development sites will inevitably use equipment and vehicles that contain dangerous substances or which has the potential to spill dangerous substances on the site. There will also be chemicals and other dangerous substances which are used on site, which needs to be stored on site. This creates the potential for possible spillages and the potential that these substances can pollute soil and water systems on site. It needs to be handled with care and strict control needs to be exercised over the handling and use of such substances.

8.1 POSSIBLE SOURCES OF DANGEROUS SUBSTANCES

The following substances are potentially stored or used on site especially during the construction period.

- Diesel stored either in stationary tanks or in mobile fuel trailers or bowzers on site. Diesel will be stored on the site in tanks in bunding.
- Oils needed for lubrication of the equipment and vehicles.
- Paints used on site.
- Other chemicals and detergents used on site.

During the **operational period**, diesel will be stored on site in aboveground tanks. Liquid Oxygen, LPG, N2O and Entonox will be stored on the hospital site in aboveground tanks and smaller cylinders.

8.2 MEASURES TO *STORE AND MONITOR* DANGEROUS SUBSTANCES ON SITE

All dangerous substances stored on site must be handled in the following ways:

- All access to any of these substances must be controlled and substances must be locked away.
- All containers or store rooms where these substances are kept must have an **impermeable floor** and be able to contain the substances in the room/store where it may be cleaned up. This will prevent substances from entering the soil or the storm water systems.
- Where the floor is not impermeable, the substances will be stored in a drip tray capable of containing any spills from these containers. These drip trays will be monitored visually on a **daily** basis to detect leakages.
- Material Safety Data Sheets (MSDS) for the specific substances must be available in a central file and at the place where the substance is stored.
- All substances must only be issued against a signature - records must be kept.
- Fuel trailers, **if used at this development**, must be parked either with sufficient drip trays underneath or it must be parked in a bunded area where any leakages or spillages are **visible** and can be **contained**. Any water flowing out of these bunded areas must be channelled through an oil/water separator to remove the hydrocarbons from the water so that soil and storm water

systems will not be polluted. If soil became polluted with hydrocarbons, it has to be removed from time to time to a dangerous waste disposal site. All aboveground Diesel tanks will be located in a bunded area, also connected to an oil/water separator to protect the soil or storm water systems against possible pollution.

- All **gas storage areas** must be equipped with **gas detectors** to give a warning in the case of gas leakages from the storage areas. These detectors must be serviced and checked according to industry standards to ensure it always is in good working condition.

8.3 HANDLING OF SPILLS


8.3.1 Small spills on the ground

- Excavate contaminated soil to a depth where it is clean from the substance and store it in a closed container from which it cannot leak and is protected from rain.
- Have this soils removed by a registered contractor and keep records of volumes and details of each removal.

8.3.2 Large spills on the ground


- Keep spill kits available on site.
- Contain the spill by either using a spill absorbent sock from the spill kit or by making a soil berm around the spill.
- Scoop or pump out as much as possible of the pollutant into a closed container.
- Excavate the polluted soil to a depth below the pollutant and place on a plastic cover to prevent any leaching of the pollutant to the soil and groundwater.
- Lift the sides of the cover to prevent the ingress of storm water.
- Have the soil removed from site by a company registered to do so to a permitted waste site or let the company treat the soil on site until the pollutants levels are low enough to dispose of the soil on site again.
- If there is any possibility that there is pollution of groundwater or surface water, samples must be taken for analysis, to ensure that pollution can be treated if necessary.

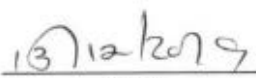
8.4 SPILLAGE CONTINGENCY PLAN OF SILOAM HOSPITAL

 <div style="display: inline-block; text-align: center;"><small>Confidential</small> LIMPOPO <small>PROVINCIAL GOVERNMENT REPUBLIC OF SOUTH AFRICA</small></div>	
DEPARTMENT OF HEALTH SILOAM HOSPITAL	
<p>Enq : Office of the CEO Date : 13 December 2019</p> <p>To : Hein Jaunasch</p> <p><u>RE: SPILLAGE CONTINGENCY PLAN:</u></p> <p>Dangerous goods at Siloam Hospital:</p> <ul style="list-style-type: none">• Diesel – Fluid – Aboveground storage.• Oxygen Gas- Aboveground storage.• N20 and Entonox Gas- Aboveground storage.• LPG Gas- Aboveground storage. <p>Contingency Plan with diesel:</p> <ul style="list-style-type: none">• Shut off valves.• Containment plans and clean-up procedures.• Spill kits availability and training of personnel.• Reporting procedures. <p>Contingency plan with gasses:</p> <ul style="list-style-type: none">• Leak detection system.• Plans for safety of people and buildings.• Reporting procedures. <p>Monitoring:</p> <ul style="list-style-type: none">• Visual checking procedure of pipes, tanks and valves for leaks and spillages during handling, use and storage. Transaction to the hospital is the responsibility of the different suppliers of the hazardous substances to the hospital.• Pressure testing of all Tanks according to Prescribed SANS codes.	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"><div style="text-align: center;"><small>DEPARTMENT OF HEALTH SILOAM HOSPITAL</small></div><div style="font-size: 1.2em; font-weight: bold; margin: 5px 0;">13 DEC 2019</div><div style="text-align: center;"><small>REGISTERED Private Bag X2432 Louis Trichardt 0920</small></div></div>

Precautionary Measures:

- Diesel and oil stored in bunding under cover from elements.
- Product spilled in bunding to be removed and disposed of at recyclers.
- ANY storm water from bunding to move through an oil / water separator before release into the environment.
- Product recovered from oil / water separator to be removed and sent to oil recyclers.
- All records of disposal of spillages to be kept.


Chief Executive Officer


Date

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8.5 DELIVERY OF DANGEROUS SUBSTANCES TO THE SITE

- It is the responsibility of the transportation company to train their drivers and crews to handle the transportation of dangerous substances (diesel) safely and environmentally responsibly.
- All vehicles transporting dangerous substances to the development site must carry spill response kits as a first line of treatment of spillages of dangerous substances from their freight.
- Material Safety Data Sheets (MSDS) for the specific substances transported must be available in the vehicle used for the delivery of the substances.

8.6 TRAINING OF STAFF

- All staff working on site and responsible for a specific area must be trained in the detection of spill incidents, and the reporting thereof.
- All staff on site must be trained in the use of spill response kits.
- All staff must be trained in the use of MSDS's and first aid kits should it be necessary during any spill incident.
- Staff must undergo an environmental awareness course.

8.7 REPORTING AND RECORD KEEPING

- All spill incidents must be reported to the environmental control officer who must then report it to the authorities as required by law.
- Each pollution incident must be entered into a register on site. All details about the spill, the emergency measures taken and the clean-up done must also be part of the entry in the register.
- Preventative measures must be drawn up to prevent recurrence of spill incidents. The incident register must be available for scrutiny by IAP's should it be requested.

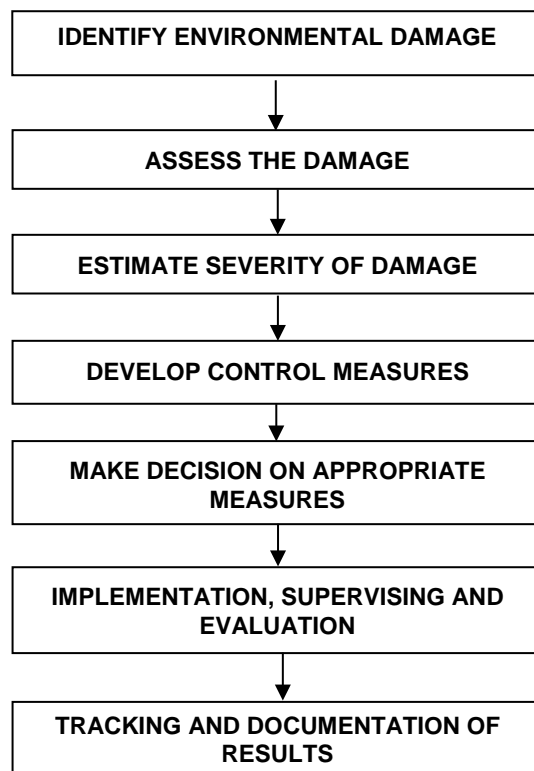
9 EMERGENCY PLAN

It is very important that an emergency plan at the Siloam Hospital Expansion site is put in place and that the personnel at the site are familiar with the actions and details of the plan. Typical emergencies for which an emergency plan would be required are:

- fire
- physical injury (gunshot wounds, broken limbs, lacerations, burns, electric shocks, etc.)
- medical emergencies (heart attacks, loss of consciousness, insect bites, etc.)
- riots or demonstrations
- fuel/dangerous goods spillage or leaks
- robbery
- bomb threats

The actions and procedures to handle these emergencies are detailed in the emergency response plan in **Appendix 1** attached to this report.

10 MANAGING PROCESS FOR ENVIRONMENTAL DAMAGE/INCIDENTS



11 PHASES OF DEVELOPMENT

Planning and design Phase.	
Construction Phase.	
Operational Phase.	
Closure Phase.	

12 VALIDITY PERIOD OF CONSTRUCTION EMPR

The period for which the *Construction EMPr* for the dangerous goods storage facilities must remain valid is for 10 Years from date of Environmental Authorisation. The *Construction EMPr* must become null and void on the day that construction of the dangerous goods facilities is finished and the site becomes operational.

13 COMPLIANCE MONITORING/AUDITING AND REPORTING

Compliance with the conditions of the environmental authorisation and the **Construction EMPr** must be audited on a monthly basis during the **construction phase** and reported to the competent authority.

Compliance with the conditions of the environmental authorisation and the **Operational EMPr** must be audited every five years during the **Operational phase** and reported to the competent authority.

14 ROLES AND RESPONSIBILITIES FOR IMPLEMENTATION OF EMPr

Any appointed contractor shall have the following responsibilities:

- To implement all provisions of the construction EMPR. If the contractor encounters difficulties with specifications, he / she must discuss alternative approaches with the site manager prior to proceeding.
- To ensure that all staff and sub-contractors are familiar with the EMPR.
- To make personnel aware of environmental issues and to ensure they show adequate consideration of the environmental aspects of the project.
- To report any incidents of non-compliance with the EMPR to the site manager or site owner.

Any appointed ECO shall have the following responsibilities

- *The ECO must be appointed before commencement of any authorised activities*
- To ensure that the mitigation/rehabilitation measures and recommendations referred in the environmental authorisation are implemented and to ensure compliance with the provisions of the approved EMPr.
- To keep records of all activities on site, problems identified, transgressions noted and a schedule of tasks undertaken by the ECO
- The ECO must be employed until all rehabilitation measures as required for implementation due to construction damages are completed and the site is ready for operation.

Any appointed Independent auditor shall have the following responsibilities

- To audit the level of performance against and compliance of an organisation or project with the provisions of the requisite environmental authorisation and EMPr and where applicable the closure plan
- To audit the ability of the measures contained in the EMPr and where applicable the closure plan to sufficiently provide for the avoidance, management and mitigation of environmental impacts with the undertaking of the activity.

The Hospital CEO shall have the following responsibilities

- To appoint suitable trained personnel responsible for
 - **Monitoring** of the activities at the dangerous good facilities to ensure that it complies with the provisions of the requisite environmental authorisation or EMPr and where applicable the closure plan
 - **Auditing** of the facilities against and compliance of an organisation or project with the provisions of the requisite environmental authorisation and EMPr and where applicable the closure plan

15 NON-COMPLIANCES WITH THE EMPr

Section 48 of R326 of 7 April 2017 of NEMA states that a person is guilty of an offence if that person fails to comply with a number of regulation of which regulation 34 mentioned in regulation 48(1)(c).

Regulation 34 (1) of R326 requires that “The holder of an environmental authorisation must for the period during which the environmental authorisation and EMPr and where applicable the closure plan remains valid-, ensure that

- (a) The compliance with the conditions of the environmental authorisation and the EMPr and the closure plan where applicable is audited; and must
- (b) Submit an environmental audit report to the relevant competent authority.

Regulation 34 (2-7) describes the contents, timeframes and requirements for such audit reports.

NEMA Section 49A (1) (c) states that “A person is guilty of an offence if that person—fails to comply with or contravenes a condition of an environmental authorisation granted for a listed activity or specified activity or an approved environmental management programme;”

The penalties for the offence mentioned is detailed in Section 49B (1) of NEMA and reads as follows: “A person convicted of an offence in terms of section 49A(1)(a), (b), (c), (d), (e), (f) or (g) is liable to a fine not exceeding R10 million or to imprisonment for a period not exceeding 10 years, or to both such fine or such imprisonment.”

16 EMPR: IMPACTS AND MITIGATION MEASURES

PLANNING & DESIGN PHASE						
Impact Management Outcome: Minimise impact to the environment by adhering to planning and design principles and relevant legislation						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Planning and design phase.						
An incident/non-compliance register must be drawn up and kept up to date. These documents must be available to DEA on request.	Developer	Draw up register	Before commencement of construction.	Developer	Once off Updated when applicable	Records
The layout and design of the proposed dangerous goods installation must adhere to all requirements of the Makhado Local Municipality.	Developer	Application at municipality	Before commencement of construction.	Developer	Once off	Records of approval
An Environmental Control Officer (ECO) must be appointed for the construction phase.	Developer	Appointment	Before commencement of construction.	Developer	Once off	Appointment letter
All the aspects pertained within the EMPR must be explained to the contractor.	Developer	Training of contractor prior to construction	Before commencement of construction.	ECO	Once off Weekly talks	Records
Environmental training for all staff and contractors must be implemented.	Developer	Training of contractor/ staff prior to construction	Before commencement of construction.	ECO	When new contractor or staff is appointed Weekly training/ talks.	Records
All authorizations required for the development of the site must be obtained prior to the project commencing.	Developer	Applications at different authorities	Before commencement of construction.	Developer	Once off	Records

AMENDED EMPR: Siloam Hospital dangerous goods storage

AIR QUALITY - CONSTRUCTION PHASE						
Impact Management Outcome: Minimise impact to the environment through the control/mitigation of air quality impacts						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Earthworks-dust formation						
Construction areas must be dampened to prevent excessive dust formation when applicable during earthworks	Contractor	Water spray	During dry windy conditions	Contractor/ECO	Daily checking	Visual
Removal of vegetation must be avoided until such time as soil stripping is required and similarly exposed surfaces must be revegetated or stabilised as soon as is practically possible;	Contractor	Follow construction plan	During construction	Contractor/ECO	Daily checking	
Movement and operation of vehicles and machinery (digging of trenches, removal of concrete and removal of solid waste e.g. plastics, cans, etc. on the construction site – smoke, fumes or dust						
Vehicles used on or entering the construction site must be in good working order/well serviced to reduce excessive smoke or fumes during operation.	Contractor	Service vehicles	Continuous	Contractor	Maintenance records according to schedule	Records
Construction areas must be dampened to minimise dust generation when applicable during movement of vehicles and machinery	Contractor	Water spray	Windy and dry conditions	Contractor/ECO	Daily checking	
Speed of construction vehicles should be kept as low as possible to reduce the generation of dust.	Contractor	Set of Rules Speed humps	Prior to and during construction	Contractor/ECO	Daily checking	
Burning of waste (domestic/building rubble)-Smoke						
No waste may be burned on site. Waste generated must be kept in wind-, water- and animal-proof containers and removed on a weekly basis to the municipal registered landfill site.	Contractor	Supply waste containers Remove weekly	Continuous	Contractor/ECO	Daily checking	Continuous checking Disposal records
Cooking must be done on gas stoves and not on open fires	Contractor	Awareness training	Prior to construction	Contractor/ECO	Daily	Visual

AMENDED EMPR: Siloam Hospital dangerous goods storage

NOISE - CONSTRUCTION PHASE						
Impact Management outcome: Minimise impact to the environment and people through the control/mitigation of noise impacts at source						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Movement and operation of vehicles and machinery (digging of trenches, removal of concrete and removal of solid waste e.g. plastics, cans, etc. on the construction site - noise generation)						
Contractors must comply with municipal/provincial noise regulations.	Contractor		Continuous			
Construction machinery must be fitted with noise mufflers and be in good working order.	Contractor	Vehicle maintenance	Continuous	Contractor	Maintenance records according to schedule	Records
Speed of construction vehicles should be kept as low as possible to reduce the generation of noise.	Contractor	Set of Rules Speed humps	Prior to and during construction	Contractor/ECO	Daily checking	
All employees must be given the necessary ear protection gear where applicable.	Contractor	Physical handout	Always	Contractor/ECO	Daily	Checking
Construction should only take place during the hours between sunrise and sunset on weekdays and Saturdays	Contractor	Construction rules	Construction period	Contractor/ECO	Daily	
GROUNDWATER AND SURFACE WATER - CONSTRUCTION PHASE						
Impact Management outcome: Minimise impact to the environment and people through the minimisation and control of groundwater and surface water pollution						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Site clearance						
Restrict clearance of construction site to the proposed footprint area to limit impacts on ground water and surface water	Contractor	Site instruction Work according to layout plan	During construction phase	Contractor/ECO	Daily	Visual check Inspection log sheet
Sanitation seepage						
Chemical toilets must be placed on level ground.	Contractor	Placement	Once off	Contractor/ECO	Continuous	Visual check
These toilets must be emptied/cleaned on a weekly basis by an approved contractor.	Contractor	Pump into tanker	Weekly	Contractor	Weekly	Disposal Records
Daily inspection for any damages to the toilets must be done to ensure that	Contractor	Visual Inspection	Daily	ECO	Daily	Records

AMENDED EMPR: Siloam Hospital dangerous goods storage

GROUNDWATER AND SURFACE WATER - CONSTRUCTION PHASE						
Impact Management outcome: Minimise impact to the environment and people through the minimisation and control of groundwater and surface water pollution						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
no spillages take place.						
Chemical toilets and the temporary sanitation system may not be placed within 100m from any watercourse	Contractor Developer	Placement Visual Inspection	Once off	Contractor Developer	Continuous	Visual checks
Spillage of fuel and lubricants from construction vehicles and machinery						
Machinery to be checked, serviced and maintained according to a schedule to prevent oil and fuel leaks.	Contractor	Maintenance	According to schedule	Contractor	According to schedule	Records
Machinery must as far as possible not be serviced or refuelled on the construction site or if not possible be serviced/parked on an area that will be covered by a plastic lining. Any fuel or oil must be taken together with the plastic lining to an approved site that handles hazardous waste.	Contractor		Continuous	Contractor/ECO	Daily	Records of disposal
During servicing of vehicles or equipment, especially where emergency repairs are affected outside a workshop area, a suitable drip tray must be used to prevent spills onto the soil.	Contractor	Prepare suitable emergency repair area with drip trays and plastic sheets	Prior to construction	Contractor/ECO	Once off at beginning of construction Continuous checking	Photographic evidence
Any spills must be treated and removed by a qualified contractor. All spillages must be cleaned up immediately. Large spillages must be reported and cleaned by a spills response team.	Contractor	Appoint contractor to treat spill	When applicable	Contractor/ECO	When applicable	Records
Stationary construction equipment & vehicles must be parked with spill pans underneath. A dedicated parking area must be defined with drip trays beneath any leaking equipment. Equipment to be repaired immediately	Contractor	Mark out parking area	Once off	Contractor/ECO	Check drip trays daily	Visual
The vehicle maintenance yard and construction storage area should be placed at least 100m away from watercourses.	Contractor	According to site plan				
Tanks and pipes for the diesel tank must be installed in accordance with SANS 10131: 2004 code: Above ground storage tanks for petroleum products and the LPG according to SANS 10087-3:2008: 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	Contractor	Construct according to Standards	During construction	Contractor/ECO	During construction	Contractor sign off document
Temporary diesel storage must not exceed 30 000 litres at construction	Contractor	Site plans	During	Contractor/ECO	Once off	Record

AMENDED EMPR: Siloam Hospital dangerous goods storage

GROUNDWATER AND SURFACE WATER - CONSTRUCTION PHASE						
Impact Management outcome: Minimise impact to the environment and people through the minimisation and control of groundwater and surface water pollution						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
camps. Diesel tanks and other harmful chemicals and oils must be stored within a bunded area behind a lock. Any water from out of this bunding must flow through an oil/water skimmer.			construction			
Drip pans should be used during re-fuelling and servicing of construction vehicles. Used parts like filters should be contained and disposed of at a site licensed for dumping of these waste products.	Contractor	Utilise drip pans Appoint contractor to dispose of waste	During construction	Contractor/ECO	Check drip trays daily	Visual checking or pans Records of disposal
The mixing of cement and paints must be done at designated areas on a protective plastic lining to contain any spillages into surface and groundwater resources.	Contractor	Use areas where water resources are protected	Continuous during construction	Contractor/ECO	Daily	Visual checking
Solid and domestic waste removal						
Domestic waste must be kept in adequate wind-, water- and animal-proof waste bins or storage cages and must be disposed of weekly at a registered municipal landfill site. Waste must be sorted and recycled as far as practically possible.	Contractor	Continuous implementation	Weekly removal	Contractor/ECO	Daily checking Weekly removal	Records
Building rubble must be neatly stockpiled to the side of the site and then removed to a licensed disposal site on a weekly basis.	Contractor	Continuous implementation	Weekly removal	Contractor/ECO	Daily checking Weekly removal	Records
Rubble must not be allowed to be stockpiled for extensive periods before being removed.	Contractor			Contractor/ECO	Daily checking Weekly removal	Records
Handling/use of dangerous substances						
Any dangerous substances that might be used during the construction phase must be handled with care and stored in a safe place behind a lock. All spillages must be cleaned up immediately.	Contractor	Store correctly	When applicable	Contractor/ECO	When applicable	Records
Large spillages must be reported and cleaned by a spills response team.	Contractor	Clean up when required	When applicable	Contractor/ECO	When applicable	Records
Dangerous waste (e.g. fuel, oils, paints, etc.) must be taken to the nearest approved oil refiner or fuel recycling point for recycling and must not be stored for extended periods within the construction site	Contractor	Appoint contractor dispose of waste	Weekly/monthly removal	Contractor/ECO	Daily checking Weekly/monthly removal if applicable	Records

AMENDED EMPR: Siloam Hospital dangerous goods storage

GROUNDWATER AND SURFACE WATER - CONSTRUCTION PHASE						
Impact Management outcome: Minimise impact to the environment and people through the minimisation and control of groundwater and surface water pollution						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
All storage areas must be bunded and lined with an impermeable liner. The bunded area must be of sufficient capacity to contain a spill/leak from the stored containers.	Contractor	Construct such bunded areas on site	Prior to construction	Contractor/ECO	Once off	Inspection log sheet
All dangerous chemicals that will be used on site must have Material Safety Data Sheets (MSDS available on site).	Contractor	Acquire MSDS's	Prior to construction	Contractor/ECO	Once off	Document records
The contractor must ensure that diesel and other liquid fuel, oil is stored in appropriate storage tanks or in bowsers.	Contractor	Supply and erect surface tanks <30 000 litre total storage	When required	Contractor/ECO	Weekly	Inspection log sheet
The tanks/bowsers must be stored on a smooth impermeable surface (concrete) with a permanent bund. The impermeable lining must extend to the crest of the bund and the volume inside the bund must be 130% of the total capacity of all the storage tanks/bowsers (110% statutory requirement plus an allowance for rainfall).	Contractor	Construct bunding for tanks	When installing tanks	Contractor/ECO	Once off	Inspection log sheet
The floor of the bund must be sloped, draining to an oil/water separator	Contractor	Construction of bundings as per plan	When installing tanks	Contractor/ECO	Once off	Inspection log sheet
Provision must be made for refuelling at the storage area by protecting the soil with an impermeable groundcover. Where dispensing equipment is used, a drip tray must be used to ensure small spills are contained.	Contractor	Supply drip trays and sheeting	Prior to any refuelling	Contractor/ECO	When required	
Where refuelling away from the dedicated refuelling station is required, a mobile refuelling unit must be used. Appropriate soil protection such as drip trays must be used.	Contractor	Supply drip trays and sheeting	Prior to any refuelling	Contractor/ECO	When required	
An appropriately number of spill kits must be kept on-site relevant to the scale of the activity/s involving the use of dangerous substances and must be available at all times.	Contractor	Supply spill kits	Prior to operating the fuel tank(s)	Contractor/ECO	Weekly	Inspection log sheet
Spillages of cement and paints						
The mixing of cement and paints must be done at designated areas on a protective plastic lining to contain any spillages into surface and groundwater resources.	Contractor	Mix correctly	When applicable	Contractor/ECO	Daily	Incident Book

AMENDED EMPR: Siloam Hospital dangerous goods storage

GROUNDWATER AND SURFACE WATER - CONSTRUCTION PHASE						
Impact Management outcome: Minimise impact to the environment and people through the minimisation and control of groundwater and surface water pollution						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Regular clean-up programs must be put into effect through-out the premises to limit the impact of littering caused by construction activities.	Contractor	Team to clean up	When applicable	Contractor/ECO	Daily	Incident Book
No contaminants (soaps, detergents, lime, glues, paints, cement or fuels) may be disposed of on the site.	Contractor	Fine for transgressors Appoint contractor dispose of waste	When applicable	Contractor/ECO	Daily	Incident Book
Trenching for cables, excavation for storage tank foundations, sewage and water infrastructure						
Ensure strict compliance that no foreign matter is deposited in trenches. Any foreign matter must be removed immediately.	Contractor	Fine for transgressors	Continuous during construction	Contractor/ECO	Daily	Incident Book
Tanks and pipes for the diesel tank must be installed in accordance with SANS 10131: 2004 code: Above ground storage tanks for petroleum products and the LPG according to SANS 10087-3:2008: 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.	Contractor Developer	Construct according to plans and standard	During construction phase	Contractor/ECO	During installation process	Signed off inspection sheet.
Installed tanks and pipes must undergo a pressure test to ensure that the whole system is leak-proof prior to the operational phase. (SANS 10089-1:2008)	Contractor Developer	Do pressure test	During construction phase	Contractor/ECO	During installation process	Records
Storm water across cleared and polluted areas						
Keep construction areas clean so that storm water is not polluted.	Contractor	Construction according to plans	Continuous during construction	Contractor/ECO	Daily checking	Inspection log sheets
Slopes must be kept to the minimum. Erosion control measures must be implemented to control and minimise the amount of soil loss especially during the rainy season.	Contractor	Construction according to plans	During construction phase	Contractor/ECO	Daily checking	Inspection log sheets
Unpaved, bare areas to be re-vegetated or paved as soon as practicable to limit erosion.	Contractor	Construction according to plans	During construction phase	Contractor/ECO	Daily checking	Inspection log sheets
An efficient storm water drainage system must be installed around the apron	Contractor	Construction	During	Contractor/ECO	Daily checking	Inspection log

AMENDED EMPR: Siloam Hospital dangerous goods storage

GROUNDWATER AND SURFACE WATER - CONSTRUCTION PHASE						
Impact Management outcome: Minimise impact to the environment and people through the minimisation and control of groundwater and surface water pollution						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
to effectively catch and drain surface water.		according to plans	construction phase			sheets
Clean storm water must be channelled away from dirty areas so that clean and contaminated water do not mix. Ensure that storm water drains are not located within the fuel dispensing area.	Contractor	Construction according to plans	During construction phase	Contractor/ECO	Daily checking	Inspection log sheets
Contaminated water from paved areas must flow through an oil/water separator and the oily substances must be reclaimed and recycled.	Contractor	Construction according to plans	During construction phase	Contractor/ECO		Signed off inspection sheet

WATER SUPPLY MANAGEMENT - CONSTRUCTION PHASE						
Impact Management outcome: Implement responsible water usage						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Construction process ; Dust suppression measures; Domestic use & sanitation						
Water use must be kept to a minimum. Ensure that pipes and taps are not leaking - be aware of damages by construction machines to underground water pipes.	Contractor	Keep water use records	Continuous	Contractor/ECO	Daily checking	Inspection log sheets Water use records
Construction workers must be educated on the importance and ways to use water sparingly.	Contractor	Weekly training	Weekly	Contractor/ECO	Weekly	Training records
Low-flow taps or tap aerators and dual-flush toilets could be installed to reduce water consumption.	Contractor	Construction according to plans	During construction phase	Contractor/ECO	Once off	Sign off when done

AMENDED EMPR: Siloam Hospital dangerous goods storage

SOIL POLLUTION AND DEGRADATION - CONSTRUCTION PHASE						
Impact Management outcome: Minimise impact to the environment and people through the minimisation and control of soil pollution and degradation						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Site clearance						
Restrict clearance of construction site to the proposed footprint area to limit impacts on ground water and surface water	Contractor	Site instruction Work according to layout plan	During construction phase	Contractor/ECO	Daily	Visual check Inspection log sheet
Operation of construction vehicles and machinery						
Machinery are to be checked, serviced and maintained daily to prevent oil and fuel leaks.	Contractor	Maintenance	According to schedule	Contractor	According to schedule	Records
Machinery must be serviced and re-fuelled at existing facilities as far as is possible.	Contractor		Continuous	Contractor/ECO	Daily	Records
Any oil/fuel spills must be treated and removed by a qualified contractor.	Contractor	Appoint contractor to dispose of waste	When applicable	Contractor/ECO	When applicable	Records
Spill trays must be used during refuelling of vehicles on site.	Contractor	Utilise drip pans	During construction	Contractor/ECO	Check drip trays daily	Visual checking or pans
Spillages from temporary sanitation facilities (chemical toilets)						
These toilets must be emptied on a weekly basis by an approved contractor and proof of dumping at a sewerage works must be provided.	Contractor	Pump into tanker	Weekly	Contractor	Weekly	Records of disposal must be kept
Chemical toilets (if used) must be placed on level ground and not within 100m from any stream.	Contractor	Placement	Once off	Contractor/ECO	Continuous	Visual check
Contain and clean up when sanitation effluent is spilled.	Contractor	Clean up program	When applicable	Contractor		
Daily inspection for any damages to the toilets must be conducted and any damage observed must be repaired immediately.	Contractor	Inspection program	Daily	ECO	Daily	Records
Trenching for cables, storage tank foundations, sewage and water infrastructure						
Ensure that no solid or liquid waste, including building rubble end up in trenches. All backfilling to be with original and clean material only.	Contractor	Fine for transgressors	Continuous	Contractor/ECO	Daily	Incident Book

AMENDED EMPR: Siloam Hospital dangerous goods storage

SOIL POLLUTION AND DEGRADATION - CONSTRUCTION PHASE						
Impact Management outcome: Minimise impact to the environment and people through the minimisation and control of soil pollution and degradation						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Tanks and pipes for the diesel tank must be installed in accordance with SANS 10131: 2004 code: Above ground storage tanks for petroleum products. Buy the code from the SABS and for the LPG according to SANS 10087-3:2008: 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.	Contractor Developer	Construct according to plans and standard	During construction phase	Contractor/ECO	During installation process	Signed off inspection sheet.
Installed tanks and pipes must undergo a pressure test to ensure that the entire system is leak proof prior to the operational phase.	Contractor Developer	Do pressure test according to industry standard	During construction phase	Contractor/ECO	During installation process	Records
Trenches that are dug for the supply of services and electrical cables must be filled up and compacted well and slightly higher than the areas around it.	Contractor	Construction according to plans	During construction phase	Contractor/ECO	Daily checking	Inspection log sheets
Spillages of cement and paints						
The mixing of cement and paints must be done at designated areas on a protective plastic lining to contain and prevent any spillages into surface and groundwater resources.	Contractor	Mix correctly	When applicable	Contractor/ECO	Daily	Incident Book
Daily clean-up programs should be put into effect throughout the premises to limit the impact of littering caused by construction activities.	Contractor	Team to clean up	When applicable	Contractor/ECO	Daily	Incident Book
No contaminants (soaps, detergents, lime, glues, paints, cement or fuels) may be disposed of on the site.	Contractor	Fine for transgressors	When applicable	Contractor/ECO	Daily	Incident Book
Storm water over cleared areas - Soil erosion and pollution						
Slopes must be kept to the minimum. Erosion control measures must be implemented to control and minimise the amount of soil loss.	Contractor	Construction according to plans	During construction phase	Contractor/ECO	Daily checking	Inspection log sheets
Unpaved, bare areas to be re-vegetated or paved as soon as practicable to limit erosion.	Contractor	Construction according to plans	During construction phase	Contractor/ECO	Daily checking	Inspection log sheets
An efficient storm water drainage system must be installed around the diesel	Contractor	Construction	During	Contractor/ECO	Daily checking	Inspection log

AMENDED EMPR: Siloam Hospital dangerous goods storage

SOIL POLLUTION AND DEGRADATION - CONSTRUCTION PHASE						
Impact Management outcome: Minimise impact to the environment and people through the minimisation and control of soil pollution and degradation						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
tanks to effectively catch and drain surface water.		according to plans	construction phase			sheets
Clean storm water must be channelled away from the dirty areas so that clean and contaminated water do not mix. Ensure that storm water drains are not located within the fuel dispensing area.	Contractor	Construction according to plans	During construction phase	Contractor/ECO	Daily checking	Inspection log sheets
Contaminated water from paved areas must flow through an oil/water separator and the oily substances must be reclaimed and recycled.	Contractor	Construction according to plans	During construction phase	Contractor/ECO		Signed off inspection sheet
All material that is excavated during the project development phase (either during piling (if required) or earthworks) must be stored appropriately on site in order to minimise impacts to watercourses and water bodies;	Contractor	Site instruction	Continuous in construction phase	Contractor/ECO	Daily checking	Inspection log sheet
Topsoil stockpiles must not exceed 2 m in height;	Contractor	Site instruction	Continuous in construction phase	Contractor/ECO	Daily checking	Inspection log sheet
Where possible, sandbags (or similar) must be placed at the bases of the stockpiled material in order to prevent erosion of the material.	Contractor	Site instruction	Continuous in construction phase	Contractor/ECO	Daily checking	Inspection log sheet
Repair all erosion damage as soon as possible after a rain storm to allow for sufficient rehabilitation growth.	Contractor	Physical repair	When applicable	Contractor/ECO	When applicable	Signed off inspection sheet
Solid and dangerous waste accumulation on/in soil						
Solid waste must be kept in adequate wind-, water- and animal-proof waste bins or storage cages and must be disposed of weekly at a registered municipal landfill site. Waste must be sorted and recycled as far as practically possible.	Contractor	Continuous implementation of actions	Weekly removal	Contractor/ECO	Daily checking Weekly removal	Records of waste disposal to be kept.
Dangerous waste must be disposed of at a registered waste disposal site.	Contractor	Appoint contractor to dispose of waste	Continuous in construction phase	Contractor/ECO	When applicable	Records
Building rubble must be stockpiled and then removed to a licensed disposal site on a weekly basis.	Contractor	Continuous implementation	Weekly removal	Contractor/ECO	Daily checking Weekly removal	Records
No contaminants (soaps, detergents, lime, glues, paints, cement, or fuels are	Contractor	Fine for	When applicable	Contractor/ECO	Daily	Incident Book

AMENDED EMPR: Siloam Hospital dangerous goods storage

SOIL POLLUTION AND DEGRADATION - CONSTRUCTION PHASE						
Impact Management outcome: Minimise impact to the environment and people through the minimisation and control of soil pollution and degradation						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
to be discharged on site.		transgressors				
Contaminated soil must be rehabilitated using appropriate and applicable methods or removed to a suitable waste disposal facility.	Contractor	Clean up when required. Appoint contractor to dispose of waste	When applicable	Contractor/ECO	When applicable	Records
Daily clean-up -programmes should be put into effect throughout the premises to limit the impact of littering caused by construction activities.	Contractor	Team to clean up	When applicable	Contractor/ECO	Daily	Incident Book Inspection log sheet
Handling/use/storage of dangerous substances (spillages)						
Any dangerous substances that might be used during the construction phase must be handled with care and stored in a safe place behind lock.	Contractor	Store correctly	When applicable	Contractor/ECO	When applicable	Records
Temporary diesel storage must not exceed 30 000 litres at construction camps. Diesel tanks and other harmful chemicals and oils must be stored within a bunded area behind a lock. Any water from out of this bunding must flow through an oil/water skimmer.	Contractor	Site plans	During construction	Contractor/ECO	Once off	Record
All spillages must be cleaned up immediately.	Contractor	Store correctly	When applicable	Contractor/ECO	When applicable	Inspection log sheet Incident record
Used oil must be taken to the nearest approved oil refiner for recycling and must not be stored for extended periods within the construction site.	Contractor	Dispose of correctly Appoint contractor to dispose of waste	When applicable	Contractor/ECO	When applicable	Records
All storage areas must be bunded and lined with an impermeable liner. The bunded area must be of sufficient capacity to contain a spill/leak from the stored containers;	Contractor	Construct such bunded areas on site	Prior to construction	Contractor/ECO	Once off	Inspection log sheet
All dangerous chemicals that will be used on site must have Material Safety Data Sheets (MSDS);	Contractor	Acquire MSDS's	Prior to construction	Contractor/ECO	Once off	Document records
The Contractor must ensure that diesel and other liquid fuel, oil is stored in	Contractor	Supply and erect	When required	Contractor/ECO	Weekly	Inspection log

AMENDED EMPR: Siloam Hospital dangerous goods storage

SOIL POLLUTION AND DEGRADATION - CONSTRUCTION PHASE						
Impact Management outcome: Minimise impact to the environment and people through the minimisation and control of soil pollution and degradation						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
appropriate storage tanks or in bowzers;		surface tanks <30 000 litre				sheet
The tanks/ bowzers must be situated on a smooth impermeable surface (concrete) with a permanent bund. The impermeable lining must extend to the crest of the bund and the volume inside the bund must be 130% of the total capacity of all the storage tanks/ bowzers (110% statutory requirement plus an allowance for rainfall);	Contractor	Construct bunding for tanks	When installing tanks	Contractor/ECO	Once off	Inspection log sheet
The floor of the bund must be sloped, draining to an oil separator;	Contractor	Construction of bundings as per plan	When installing tanks	Contractor/ECO	Once off	Inspection log sheet
Provision must be made for refuelling at the storage area by protecting the soil with an impermeable groundcover. Where dispensing equipment is used, a drip tray must be used to ensure small spills are contained;	Contractor	Supply drip trays and sheeting	Prior to any refuelling	Contractor/ECO	When required	Visual
Where refuelling away from the dedicated refuelling station is required, a mobile refuelling unit must be used. Appropriate ground protection such as drip trays must be used;	Contractor	Supply drip trays and sheeting	Prior to any refuelling	Contractor/ECO	When required	Visual
An appropriately number of and sized spill kits kept on-site relevant to the scale of the activity/s involving the use of dangerous substance must be available at all times;	Contractor	Supply spill kits	Prior to operating the fuel tank(s)	Contractor/ECO	Weekly	Inspection log sheet

ECOLOGY - CONSTRUCTION PHASE						
Impact Management outcome: Minimise and control impact to the ecological aspects during construction.						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Site clearance-loss of protected plants/other vegetation						
If any protected tree (<i>Sclerocarya birrea</i> - marula) has to be removed the	Contractor	Apply for permit	Prior to	Contractor/ECO	Once off	Record of

AMENDED EMPR: Siloam Hospital dangerous goods storage

ECOLOGY - CONSTRUCTION PHASE						
Impact Management outcome: Minimise and control impact to the ecological aspects during construction.						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
necessary permits to do so must be obtained from DAFF prior to the removal of the trees.			construction period			Authorisation
Killing, snaring or collection of animals						
Strict rules and penalties against the snaring, killing, catching or poaching of any animals (small mammals like rodents, birds, herpetofauna) will be enforced for all personnel and temporary workers. This restriction includes collection of fauna as pets, food or for use as muti.	Contractor	Fine for transgressors	During construction phase	Contractor/ECO	Continuous	Incident log sheet
Inappropriate use of herbicides and pesticides						
The use of poisons for the control of any animals or plant species may only be done with the input and consent from a pest control specialist.	Contractor	Appoint specialist	When applicable	Contractor/ECO	When applicable	Inspection log sheet
Limit pesticide use to non-persistent, immobile pesticides and apply in accordance with label and application permit directions and stipulations for terrestrial and aquatic applications.	Contractor	Apply according to label.	When applicable	Contractor/ECO	When applicable	Application records
A daily register must be kept of all relevant details of herbicide usage;	Contractor	Draw up register	Prior to construction	Contractor/ECO	Weekly	Inspection log sheet
Accidental fires						
Staff must be educated on the dangers of accidental fires. The necessary safety measures must be in place on site. This includes fire extinguishers, backup water tanks and the regular removal of stockpiled plant material.	Contractor	Weekly training session	Weekly	Contractor/ECO	Weekly	Training records
Fires are not allowed in the construction camp and extra care should be taken to prevent veldt fires from occurring.	Contractor	Construction rules	Continuous during construction	Contractor/ECO	Daily	Inspection log sheet Incident records
Handling of solid waste						
Solid waste must be kept in adequate animal proof waste bins at the construction camp and construction sites. Building rubble and various wastes should be removed on a regular basis to the closest available landfill site.	Contractor	Site instruction	Continuous during construction	Contractor/ECO	Daily	Inspection log sheet Incident records

AMENDED EMPR: Siloam Hospital dangerous goods storage

ECOLOGY - CONSTRUCTION PHASE						
Impact Management outcome: Minimise and control impact to the ecological aspects during construction.						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Regular clean-up programs should be put into effect along the access road and throughout the premises to limit the impact of littering caused by construction activities.	Contractor	Team to clean up	Continuous during construction	Contractor/ECO	Daily	Inspection log sheet Incident records
Cutting and collection of firewood						
No trees may be cut for firewood. No fires may be made on site.	Contractor	Fine for transgressors	When applicable	Contractor/ECO	Continuous	Incident log sheet
No indigenous trees on adjacent areas may be cut or wood be collected for firewood or any other purposes. Removal of vegetation to be confined to the site. Only the removal of vegetation that is essential is to be allowed.	Contractor	Fine for transgressors	When applicable	Contractor/ECO	Continuous	Incident log sheet
Distribution of alien invader seeds						
The applicant is responsible for the eradication of alien invasive species during the construction phase. Control of such plants will involve killing the plants present, killing the seedlings and establishing and introducing alternative plant cover to suppress regrowth. Strict control measures must be implemented regarding the introduction of materials into the area/brought onto the site which should be inspected for potential invasive invertebrates and steps to be taken to eradicate these species before introduction to the site.	Contractor	Checking materials and area	Continuous	Contractor/ECO	Continuous	Incident log sheet
Monitor for alien invasive species on a monthly basis during the rainy season.	Contractor	Walk over monitoring	Monthly	Contractor/ECO	Monthly	Incident log sheet
Disturbance of area						
Where trenches or excavations pose a risk to animal safety (small mammals like rodents & herpetofauna), they should be adequately cordoned off to prevent animals falling in and being trapped and/or injured. This could be prevented by the constant excavating and backfilling of trenches during construction process.	Contractor	Site instruction	Continuous	Contractor/ECO	Continuous	Incident log sheet

AMENDED EMPR: Siloam Hospital dangerous goods storage

VISUAL - CONSTRUCTION PHASE						
Impact Management outcome: Prevent unnecessary negative visual impact by ensuring that visual impacts are mitigated.						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Lights - nuisance						
Care must be taken that only the most important and necessary lighting is used at night at the construction site.	Contractor	Correct installation	As required	Contractor/ECO	Continuous	Checking
Littering (domestic waste and building rubble)						
All domestic waste and building rubble must be removed to a permitted waste facility site on a weekly basis.	Contractor	Removal program	Weekly	Contractor/ECO	Weekly	Records
Waste must be sorted and recycled as far as practically possible.	Contractor	Provide different bins	Daily	Contractor/ECO	Daily	Visual checking
Domestic waste must not remain on site for more than one week.	Contractor	Dispose of on weekly basis	Weekly	Contractor/ECO	Weekly	Disposal records
Wind-, water- and animal-proof refuse bins must be provided on site and contents can be emptied in a refuse cage before removal to the registered dumping site.	Contractor	Provide bins on site	Continuous	Contractor/ECO	Continuous	Visual checking
No solid waste may be buried in any excavations on site.	Contractor	Checking Fine to transgressors	Daily	Contractor/ECO	Continuous	Visual checking
No waste may be burned on site.	Contractor	Checking Fine to transgressors	Daily	Contractor/ECO	Continuous	Visual checking
Presence of construction vehicles and machinery						
Construction equipment must be organised neatly on site.	Contractor	Provide procedure	Daily	Contractor/ECO	Continuous	Visual checking
Equipment not in use should be removed from site.	Contractor		When required	Contractor/ECO	Continuous	Visual checking

AMENDED EMPR: Siloam Hospital dangerous goods storage

HERITAGE RESOURCES - CONSTRUCTION PHASE						
Impact Management outcome: Prevent/minimise negative impacts on heritage resources						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Earthworks and excavations						
Immediately halt construction activities and call in an archaeologist should anything of heritage value be discovered.	Contractor	Stop all construction Call Archaeologist	When required	Contractor/ECO	When required	Incident log sheet

SAFETY, SECURITY, SOCIO-ECONOMICS AND FIRE HAZARDS - CONSTRUCTION PHASE						
Impact Management outcome: Ensuring a safe/secure construction environment, enhanced socio-economic development and prevention of fires.						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Construction activities - safety of employees						
The Safety act (Act 85 of 1993) and the Regulations are applicable. The Act requires the designation of a Health and Safety representative when more than 20 employees are employed.	Contractor	Apply conditions of the Act	Continuous	Contractor/ECO	Continuous	Incident log sheet
A security officer may be employed to protect the property from theft.	Contractor	Appoint officer	As required	Contractor/ECO	As required	Records
A first aid kit must be available at the site office.	Contractor	First Aid kit available	Prior to construction starting	Contractor/ECO	Continuous	Inspection log sheet
All personnel must be informed of emergency procedures and contact numbers must be displayed prominently.	Contractor	Training talks	Weekly	Contractor/ECO	Weekly	Training records
Personal Protective Equipment (PPE) and safety gear must be provided to all site personnel (e.g. hard hats, safety boots, masks etc.).	Contractor	Supply PPE	When required	Contractor/ECO	Daily	Records of issue
Open trenches or excavations must be marked with danger tape.	Contractor	Mark all dangerous areas	While trenches are open	Safety & Health representative	Daily	Incident/ inspection log sheet

AMENDED EMPR: Siloam Hospital dangerous goods storage

SAFETY, SECURITY, SOCIO-ECONOMICS AND FIRE HAZARDS - CONSTRUCTION PHASE						
Impact Management outcome: Ensuring a safe/secure construction environment, enhanced socio-economic development and prevention of fires.						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Accidental fires						
An emergency plan must be in place so that any uncontrolled fire can be combated in the most efficient manner. An emergency response plan that is aligned with the local fire Department must be in place.	Contractor	Training on Emergency plan during training talks	Weekly	Contractor/ECO	Weekly	Training records
No solid waste or vegetation may be burned on the premises or surrounding areas.	Contractor	Fine to transgressors	When required	Contractor/ECO	Continuous	Incident log sheet
All employees must be properly trained in the use of firefighting equipment and the emergency procedures in case of a fire.	Contractor	Training session	Once off prior to start working	Contractor/ECO	Once off	Training records
Firefighting equipment must be available and must be serviced and inspected regularly to ensure that it is in proper working order and easily accessible.	Contractor	Check according to program	Weekly checking	Contractor/ECO	Weekly	Inspection log sheet
Construction activities - socio-economic impact						
Local labour must be used wherever possible during the construction phase.	Contractor	Appoint local people	Construction phase	Contractor/ECO		Staff records
Where viable, the work must be executed in a labour intensive manner to create as many jobs possible.	Contractor	According to construction program	Construction phase			
Unhygienic working conditions						
Occupational Health and Safety standards must be implemented.	Contractor	Implement standards	Continuous during construction	Contractor/ECO	Continuous	Records
Workplaces must be kept clean to ensure hygienic working conditions	Contractor	Implement health standards	Continuous during construction	Safety & health representative	Daily	Inspection log sheet
Security Issues						
A security officer may be employed to protect the property from theft.	Contractor			Contractor		
All personnel must be informed of emergency procedures and emergency contact numbers must be displayed prominently.	Contractor	Training sessions	Once off weekly	Contractor/ECO	Weekly	Training records
Proper access control (I.D. cards) should be enforced to ensure that no	Contractor	Supply and control	Prior to work on	Contractor/ Safety	Daily checking	Visual Check

AMENDED EMPR: Siloam Hospital dangerous goods storage

SAFETY, SECURITY, SOCIO-ECONOMICS AND FIRE HAZARDS - CONSTRUCTION PHASE						
Impact Management outcome: Ensuring a safe/secure construction environment, enhanced socio-economic development and prevention of fires.						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
unauthorised persons enter the site.		issuing of cards	site	representative		Records of workers
Traffic – heavy vehicles entering and exiting the site during loading and off- loading of construction equipment – increase in traffic volume						
The necessary safety signage (construction boards) must be displayed at or near the construction site to notify pedestrians and motorists of the dangers and to restrict access to dangerous places on site.	Contractor	Construct signage on site	Construction phase	Contractor/ECO	Weekly checks	Inspection log sheet
Where feasible, no workers, with the exception of security personnel, must be permitted to stay overnight on the site. This would reduce the risk to local people.	Contractor	Compile site rules Fine for transgressors	Prior to Construction	Contractor/ECO	Random spot checks	Inspection log sheet Incident log sheet

AIR QUALITY - OPERATIONAL PHASE						
Impact Management outcome: Minimise impact to the environment through the control of impacts on air quality						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Fumes/vapours emanating from fuel tanks and LPG/Oxygen installation as well as N2O and Entonox cylinders						
Take care that all explosive gasses and fumes from the fuel tanks are released well away from any sources of flames or static electricity according to the SABS regulations. All the firefighting equipment must be maintained in good working order.	Management	Ensure vent pipes are open Service Firefighting equipment	Continuous Monthly check	Management	Yearly service	Records of service
Ensure tanks seals are kept in good condition and caps are appropriately sealed.	Management	Visual checking	When filling tanks When dispensing diesel	Management	When filling tanks	Inspection log sheet
Fire extinguishers and fire-fighting equipment must be available and in good	Management	Test according to a	Operational phase	Management	Checking-	Records of

AMENDED EMPR: Siloam Hospital dangerous goods storage

AIR QUALITY - OPERATIONAL PHASE						
Impact Management outcome: Minimise impact to the environment through the control of impacts on air quality						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
working order.		program		Safety Manager	Minimum annually	Checking and testing
Train all employees properly in the use of firefighting equipment and the emergency procedures in case of a fire or other emergency situation	Management	Training plan	According to training schedule	Training Manager	Yearly	Training records
Get an emergency plan in place to combat any uncontrolled fires.	Management	Compile emergency plan and train people	Before operation commences	Safety manager	Yearly updating and refresher training	Document control records Training records
Align the emergency response plan with the nearest local fire Department.	Management	Meeting with Fire department	Prior to Activity commencing	Safety manager	Yearly	Records
Burning of waste						
No solid waste may be burned on the premises or surrounding areas.	Management	Strict monitoring	Continuous	Management	Continuous	Inspection log sheet Incident records

GROUNDWATER AND SURFACE WATER POLLUTION - OPERATIONAL PHASE						
Impact Management outcome: Minimise impact to the environment and people through the minimisation and control of ground- and surface water pollution						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Storm water over unsurfaced sections of the site– surface containing oils and other lubricants – can reach streams						
Keep premises clean and prevent contaminated run-off entering the storm water system.	Management	Clean-up sessions	Daily	Management	Daily	Inspection log sheet
Inspect the fuel dispensing area to check that storm water from run-off or roof gutters is not entering the tank area.	Management	Control storm water	Rainy season	Management	During rain events	Inspection log sheet
Protect all areas susceptible to erosion and ensure that there is no undue soil	Management	Cover area with	Continuous during	Management	After rain events	Inspection log

AMENDED EMPR: Siloam Hospital dangerous goods storage

GROUNDWATER AND SURFACE WATER POLLUTION - OPERATIONAL PHASE						
Impact Management outcome: Minimise impact to the environment and people through the minimisation and control of ground- and surface water pollution						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
erosion resultant from activities within and adjacent to the site.		Paving	operation			sheet
Repair all erosion damage as soon as possible to allow for sufficient rehabilitation.	Management	Construction	Within a month	Management	After rain events	Inspection log sheet
Do not allow surface water or storm water to become concentrated.	Management	Control storm water as sheet flow	In rainy season	Management	During rain events	Inspection log sheet
Storm water from the apron or other polluted areas must flow through an oil/water separator. The oil and water separator must be cleaned regularly by an approved contractor and the contents taken to a hazardous landfill site or oil recycling company.	Management	Oil/water separator must be cleaned	Monthly	Management	Weekly inspections	Inspection log sheet
Malfunctioning of oil/water separators						
Oil and water separators must always be maintained at the points where contaminated washing water or storm water will flow to (eg. drainage from apron/tanks) in order to remove oily substances (hydrocarbons) from the water. Effluent must meet DWS requirements before being discharged.	Management	Clean out oily substances from separator	Monthly	Management	Monthly	Inspection log sheet
Clean storm water must be channelled away from the dirty areas so that clean and contaminated water do not mix. Contaminated water must flow through an oil/water separator and the oily substances must be reclaimed and recycled.	Management	Prepare/maintain terrain for storm water flow around dirty areas	Continuous	Management	During rainy season	Inspection Log sheet.
The operation, maintenance and inspection of the oil-water separator must be in conformance to the manufacturer's instructions.	Management	Follow correct instructions	Continuous	Management	Monthly	Inspection Log sheet.
Minimize the amount of solids entering the oil-water separator.	Management	Keep terrain clean	Continuous	Management	Weekly inspections	Inspection Log sheet.
Oil and hydrocarbons from the oil-water separator must be disposed of by an approved hazardous waste disposal contractor or taken to an oil recycling operator.	Management	Appoint Contractor Dispose of Hydrocarbons correctly	When applicable/ necessary	Management	Monthly checking of separator.	Disposal records

AMENDED EMPR: Siloam Hospital dangerous goods storage

GROUNDWATER AND SURFACE WATER POLLUTION - OPERATIONAL PHASE						
Impact Management outcome: Minimise impact to the environment and people through the minimisation and control of ground- and surface water pollution						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Fuel spillage while filling tanks & leaks from tanks						
All installations must comply with the relevant South African National Standards (SANS) including inter alia SANS 10131:2004 relating to storage of petroleum products in aboveground tanks and for the LPG according to SANS 10087-3:2008: 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	Management	Apply to any "new" installations	Continuous	Management	Yearly inspection	Inspection log sheet
Daily stock reconciliation must be done to ensure early detection of fuel leaks. Updated records must be kept on site.	Management	Checking with measuring stick and records	Daily	Management	Daily	Fuel records
Pressure testing must be undertaken on the tanks and infrastructure according to applicable regulations to ensure the integrity of the tanks and to verify that it is not leaking.	Management	Call specialists to do testing	According to applicable regulations	Management	Testing according to applicable regulations	Records
Take care that pipe couplings are "spill –tight" and that the pipes are empty before being released from the tanks.	Management	Follow operating procedure	When filling tanks	Management	When receiving stock	Visual check
Ensure that all fuel lines and fuel dispensers are leak-proof.	Management	Checking while operating	Continuous	Management	Monthly	Visual check Inspection log sheet
Make a list of emergency numbers including that of the spill response team visible at the dangerous goods storage areas at all times.	Management	Put list up at conspicuous places at dangerous goods storage areas.	Continuous	Management	Daily	Inspection log sheet
Ensure that the fuel tanker service contractor regularly checks the flanges, caps and seals to ensure that these components are not leaking or are damaged.	Management	Enforce correct operating procedure	When receiving stock	Management	When receiving stock	Visual Checks
Diesel storage tanks must be installed in a bunding large enough to contain at least 110% of the largest tank volume.	Management	Correct installation according to plans	Prior to operation	Management	Yearly inspection	Water quality records

AMENDED EMPR: Siloam Hospital dangerous goods storage

GROUNDWATER AND SURFACE WATER POLLUTION - OPERATIONAL PHASE						
Impact Management outcome: Minimise impact to the environment and people through the minimisation and control of ground- and surface water pollution						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Cover diesel tank storage area with a roof cover if possible to keep rain water out of the bunded area.	Management	Build a roof	Prior to operation			
Fuel spillage while dispensing fuel from tanks						
Spillages must be cleaned up by an operator licensed to do so.	Management	Call in specialist to remove and dispose of substances	When required	Management	When required	Incident log sheet
Polluted areas must be cleaned up regularly with bio-digesters to digest the oils and fuels and to keep the soil clean.	Management	Clean according to operation procedure	Once or twice per year	Management	Once or twice per year	Inspection log sheet
A Spill kit and sawdust must be available on site should emergencies occur.	Management	Keep spill kit at hand	Always available	Management	Continuous	Inspection log sheet
Washing of paved areas (apron) – surface containing oils and other lubricants which can enter storm water systems and reach streams						
All surfaces where any dangerous product will be handled must be sealed off (by means of compaction or with solid cement slabs), as best possible, to prevent the infiltration of any pollutant to the groundwater system.	Management	Done during construction	Construction phase			
Paved areas around pumps must be washed regularly to clean the paving from spilled fuel and oil.	Management	Weekly washing of paved areas	Daily washing of paving	Management	Weekly inspection	Inspection log sheet
Water from this washing process must flow through an oil/water separator to remove the oil from the water. Oil and hydrocarbons from the oil/water separator must be disposed of by an approved hazardous waste disposal contractor or taken to an oil recycling operator.	Management	Oil/water separator must be cleaned according to operating procedures	Monthly	Management	Weekly inspections	Inspection log sheet
Only biodegradable, detergents and chemicals must be used for cleaning purposes.	Management	Operating procedure	When required	Management	Ad hoc checks	Visual checks
Develop a spillage contingency plan	Management		Prior to operation	Management	Yearly Revision	Document records

AMENDED EMPR: Siloam Hospital dangerous goods storage

WATER SUPPLY MANAGEMENT - OPERATIONAL PHASE						
Impact Management outcome: Undertake responsible water usage at the Dangerous goods installation						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Potable water use Cleaning of diesel bunding area						
Use high pressure sprayers to reduce water use.	Management	Operating procedure	When cleaning daily	Management	Ad hoc	Visual checks
Ensure that pipes, taps and toilet systems are not leaking.	Management	Regular maintenance schedule	Monthly checking	Management	Monthly	Visual checks Inspection log sheet
Staff must be educated to use water sparingly.	Management	Weekly training sessions	Weekly	Management	Weekly	Training records
SOIL POLLUTION AND DEGRADATION - OPERATIONAL PHASE						
Impact Management outcome: Minimise impact to the environment and people through the minimisation and control of soil pollution and degradation						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Spillage/leakages of fuel from fuel storage tanks						
Pressure testing must be undertaken on the tanks and infrastructure according to applicable regulations to ensure the integrity of the tanks and pipes and to verify that it is not leaking.	Management	Call specialists to do testing	According to applicable regulations	Management	Testing according to applicable regulations	Records
Tanks must not be filled beyond their safe filling level.	Management	Senior pump attendants to oversee filling operations	With construction of the pumps	Management	Ad hoc	Visual checks
Take care that pipe couplings are “spill –tight” and that the pipes are empty before being released from the tanks.	Management	Follow operating procedure	When filling tanks	Management	When receiving stock	Visual check
Any polluted areas must be cleaned and rehabilitated as soon as possible after any pollution incident.	Management	According to operating	When required	Management	When required	Records of soil analysis

AMENDED EMPR: Siloam Hospital dangerous goods storage

SOIL POLLUTION AND DEGRADATION - OPERATIONAL PHASE						
Impact Management outcome: Minimise impact to the environment and people through the minimisation and control of soil pollution and degradation						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
		procedures				
Contaminated soil must be remediated using appropriate and applicable methods or removed to a suitable waste disposal facility and the site must be rehabilitated to the satisfaction of the DWS. On site remediation can also be done. Keep the DWS well informed.	Management	According to legal thresholds Soil analysis must be done	When required	Management	When required	Records of soil analysis
Make a list of emergency numbers including that of the spill response team visible at the dangerous goods storage areas at all times.	Management	Put list up at conspicuous places at dangerous goods storage areas.	Continuous	Management	Daily	Inspection log sheet
Spillage of fuel on apron or in bunding (surface containing oils and other lubricants which can reach exposed/unpaved sections – infiltration into soil)						
Oil/water separators must be cleaned regularly by an approved contractor.	Management	According to operating procedures	Monthly	Management	Weekly inspections	Inspection log sheet
An impermeable layer must be put under the paving to prevent pollution from leaching deep into the soil.	Management	Construction according to a plan	During construction of the paving			
Oil/water separators must be constructed downstream of polluted areas to intercept oily waters.	Management	Construct separator	Prior to operation of dangerous goods installation (Tank)	Management	Monthly inspection	Inspection log sheet
Polluted areas must be cleaned up monthly with bio-digesters to digest the oils and fuels and to keep the soil clean.	Management	According to operating procedures	Monthly	Management	Monthly	Inspection log sheet
A spill kit must be kept at the filling station for emergencies.	Management	Keep spill kit at hand	Always available	Management	Continuous Check on a monthly basis	Inspection log sheet
Contaminated spoil must be remediated after an incident to the satisfaction of the DWS.	Management	Take soil samples of polluted soil	When required	Management	When required	Incident log sheet Records of soil analysis

AMENDED EMPR: Siloam Hospital dangerous goods storage

SOIL POLLUTION AND DEGRADATION - OPERATIONAL PHASE						
Impact Management outcome: Minimise impact to the environment and people through the minimisation and control of soil pollution and degradation						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Spillages during filling of tanks						
All installations must comply with the relevant South African National Standards (SANS) including inter alia SANS 10131 2004 relating to storage of petroleum products in aboveground installations and for the LPG according to SANS 10087-3:2008: 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	Management	Built according to required standards. Apply to new installations	Continuous	Management	Once off	Records
Daily stock reconciliation must be done to ensure early detection of fuel leaks. Updated records must be kept on site.	Management	According to operating procedures	Daily	Management	Daily	Fuel records
Pressure testing must be undertaken on the tanks and infrastructure according to applicable regulations to ensure the integrity of the tanks and pipes and to verify that it is not leaking.	Management	Call specialists to do testing	According to applicable regulations	Management	Testing according to applicable regulations	Records
Take care that pipe couplings are “spill –tight” and that the pipes are empty before it is released from the tanks.	Management	Follow operating procedure	When filling tanks	Management	When receiving stock	Visual check
Care should be taken that all fuel lines and fuel dispensers are leak-proof.	Management		Continuous	Management	Daily	Visual check
Make a list of emergency numbers including that of the spill response team visible at the dangerous goods storage areas at all times.	Management	Put list up at conspicuous places at dangerous goods storage areas.	Continuous	Management	Daily	Inspection log sheet
Ensure that the Fuel tanker service contractor regularly checks the flanges, caps and seals to ensure that these components are not leaking or damaged.	Management	Enforce correct operating procedure	When receiving stock	Management	When receiving stock	Visual check.
Spillages during dispensing from tanks						
Spillages must be cleaned up by an operator licensed to do so.	Management	Call in specialist to remove and dispose of	When required	Management	When required	Incident log sheet

AMENDED EMPR: Siloam Hospital dangerous goods storage

SOIL POLLUTION AND DEGRADATION - OPERATIONAL PHASE						
Impact Management outcome: Minimise impact to the environment and people through the minimisation and control of soil pollution and degradation						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
		substances				
A Spill kit and sawdust must be available should emergencies occur.	Management	Keep spill kit at hand	Always available	Management	Continuous	Inspection log sheet
Care should be taken that all fuel lines and fuel dispensers are leak-proof.	Management		Continuous	Management	Daily	Visual check
ECOLOGY - OPERATIONAL PHASE						
Impact Management outcome: Minimise and control impacts to the ecology.						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Inappropriate use of pesticides and herbicides on site						
Only ecologically friendly pesticides may be used if necessary for the control of vermin or problem insects. An ecologist should be consulted on the use of herbicides/eco-friendly products to control exotic plant species. The advice of a pest control specialist should be obtained in this regard.	Management	Apply according to label prescriptions Appoint specialist	When applicable	Management	When required	Records of Pest control specialist
Limit pesticide use to non-persistent, immobile pesticides and apply in accordance with label and application permit directions and stipulations for terrestrial and aquatic applications.	Management	Apply according to label prescriptions Appoint specialist	When applicable	Management	When required	Records of Pest control specialist
Use sodium vapour lights on site to restrict the attraction of insects to the lights.	Manager	Install correct lights	During operational phase when lights need to be changed	Management Maintenance manager	Biannually When lights need to be changed	Inspection log sheet.
Fires on site-burning of waste						
No waste may be burned or fires made on site.	Management	Site rules	Operational phase	Management Safety Manager	Continuous	Inspection/ Incident log sheet
Firefighting equipment must be available on site.	Management	Install according to	Install in	Management	Checking-	Records of

AMENDED EMPR: Siloam Hospital dangerous goods storage

ECOLOGY - OPERATIONAL PHASE						
Impact Management outcome: Minimise and control impacts to the ecology.						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
		safety standards	construction phase Maintain in Operational phase	Safety Manager	Minimum annually	Checking and testing
VISUAL - OPERATIONAL PHASE						
Impact Management outcome: Prevent unnecessary negative visual impact by ensuring that visual impacts are mitigated.						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Change in appearance of area – completed installation						
Filling station area must be kept neat at all times.	Management	Clean-up program	Continuous	Management	Daily	
Restrict lighting to the minimum of what is needed for operation.	Management	Install according to site plans	Continuously	Management Maintenance Manager	When installing new lights	Maintenance records
Install light fixtures that provide precisely directed illumination to reduce light “spillage” beyond the immediate surrounds of the project site.	Management	Install according to site plans	Continuously	Management Maintenance Manager	When installing new lights	Maintenance records
HERITAGE - OPERATIONAL PHASE						
Impact Management outcome: Prevent unnecessary negative impact to heritage resources by protecting and reporting heritage resources found on site.						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance

AMENDED EMPR: Siloam Hospital dangerous goods storage

HERITAGE - OPERATIONAL PHASE						
Impact Management outcome: Prevent unnecessary negative impact to heritage resources by protecting and reporting heritage resources found on site.						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Discovery of heritage resources on site						
Anything of archaeological value that is unearthed must be recorded..	Management	Record any findings	When applicable			Records of Archaeologist notifications
The archaeologist or SAHRA must be notified whenever anything of importance is discovered	Management	Stop any operation around discovery Notification of Archaeologist	When Applicable			Records of Archaeologist notifications

SAFETY, SECURITY, SOCIO-ECONOMIC AND FIRE HAZARDS - OPERATIONAL PHASE						
Impact Management outcome: Ensuring a safe/secure environment, enhanced socio-economic development and prevention of fires.						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Security at the dangerous goods installation						
Security measures on site must be regularly updated. Staff must be properly trained and a security manager should undertake daily inspections.	Management	Appoint security company	Operational phase			
Job creation (local labour) - socio-economic impact						
Local labour should be employed wherever possible during the operation of the facility to provide temporary and permanent job opportunities for local people.	Management	Appoint local people	As required	Management	As required	Appointment records
Increased traffic to and from the site						
Strictly control traffic speeds of delivery vehicles with dangerous goods on site	Management	Security appointed on site	During operation	Management	Daily checking	Visual Fine records

AMENDED EMPR: Siloam Hospital dangerous goods storage

SAFETY, SECURITY, SOCIO-ECONOMIC AND FIRE HAZARDS - OPERATIONAL PHASE						
Impact Management outcome: Ensuring a safe/secure environment, enhanced socio-economic development and prevention of fires.						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Construct speed humps on the hospital site to keep speeds of traffic down.	Management	Construction according to site plan	Prior to operation	Management	Once off unless changes are to be made	
Petroleum products – Risk of flames/fires						
No solid waste or vegetation may be burned on the premises or surrounding areas.	Management	Checking fines to transgressors Supply waste containers & remove weekly	Continuous	Management	Continuous	Visual checking
Operational fire hydrants and fire extinguishers must be available and easily accessible.	Management	Checking	Daily	Management	Daily	Inspection log sheet
Trucks must be grounded properly to prevent static electricity discharges while filling the tanks.	Management	Checking	Daily	Management	Daily	Visual Checks Inspection log sheet
During fuel delivery the tanker driver must be present at all times during product off-loading and the tanker must be fitted with emergency cut-off switches.	Management	Checking	During deliveries	Management	During deliveries	Visual Check
No open flames may be used near the filler holes, especially when filling tanks. "No Smoking" signs must be placed at the storage tanks for diesel and LPG.	Management	Checking	Continuous	Management	Continuous	Visual Check
The following signs must be displayed at the storage areas for dangerous goods.to notify people about the dangers: NO SMOKING, NO NAKED FLAMES, NO CELL PHONES	Management	Put up signs	Prior to operating the filling station	Management	Weekly	Inspection log sheet
Firefighting equipment must be available at the filler points.	Management	Checking	Continuous	Management	Daily	Inspection log sheet
Firefighting equipment must be checked regularly to ensure it is in proper working order.	Management	Checking and testing	Annually	Management	Annually	Inspection log sheet
All employees must be properly trained in the use of firefighting equipment and the emergency procedures in case of a fire.	Management	Training program	Prior to starting to work Refresher training	Management	Annually	Training records

AMENDED EMPR: Siloam Hospital dangerous goods storage

SAFETY, SECURITY, SOCIO-ECONOMIC AND FIRE HAZARDS - OPERATIONAL PHASE						
Impact Management outcome: Ensuring a safe/secure environment, enhanced socio-economic development and prevention of fires.						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
End-of-line flame arresters at the end of the vent pipes must be maintained if installed to keep the tanks from exploding when gas flowing from the vents is struck by lightning.	Management	Maintenance by specialist	Annually	Management	Annually	Inspection log sheet
An emergency response plan that is aligned with the local Fire Department must be in place.	Management	Emergency response plan exercises	Annually	Management	Annually	Training records
Train all personnel to handle any emergency situation that could arise from the transport and transfer of fuel at sites	Safety manager	Training program	Prior to operation	Safety manager	Weekly/Monthly training session	Training records
The storage containers/cylinders for Liquid Oxygen, LPG, N2O, and Entonox must be monitored on a constant basis to detect any possible leaks. Gas detectors in these storage areas are strongly suggested for a timeously detection of gas leaks.	Safety manager	Make it part of operational Program	Install gas detectors prior to filling the tanks.	Safety manager	Daily monitoring	Inspection log sheet Incident records
The storage locations for these gasses must be well ventilated to successfully dilute any gaseous release in case of accidental releases inside these areas.	Safety manager	Correct construction according to site plans	During construction and operation	Safety manager	Daily checking	Inspection log sheet
Adhere to the Municipality's guidelines, principles and policies.	Management	Checking	Prior to operating the installation	Management	Annually	Records

HEALTH - OPERATIONAL PHASE						
Impact Management outcome: To protect the health of workers and public that can be influenced as a result of the operation of the filling station						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Unhygienic conditions prevailing at the ablution facility						
Occupational Health and Safety standards must be implemented.	Management	Appoint health and safety Officer	Prior to operation	Management	Annually	Safety and Health Audit records

AMENDED EMPR: Siloam Hospital dangerous goods storage

HEALTH - OPERATIONAL PHASE						
Impact Management outcome: To protect the health of workers and public that can be influenced as a result of the operation of the filling station						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
		on site				
Petroleum products on site - influence on health						
All mitigation measures must be followed to ensure that no pollution takes place that can harm human health.	Management	Checking Water/soils analysis	Continuously during operation	Management	As stated in the EMPr	Records of analyses
The storage areas for dangerous goods must be well ventilated to protect people from the fumes if there is accidental release of gasses.	Management	Construct ventilation features	Continuously during operation	Management	Continuously Check daily	Inspection log sheet.

AMENDED EMPR: Siloam Hospital dangerous goods storage

Before a closure/decommissioning can be effected, a decommissioning BA will have to be done according to the Environmental Regulation in effect at the time of decommissioning.

PHASE 4: CLOSURE PHASE (ENVIRONMENTAL ASSESSEMENT NEEDED PRIOR TO CLOSURE)

The direct impacts associated with the decommissioning of the site are likely to be similar to the construction phase. These are the impacts which has to do with:

- Air and noise pollution.
- Surface water pollution.
- Soil & groundwater pollution during storage tanks removal.
- Visual impact.
- Fires and explosions may occur.
- The demolition of the bund walls and the removal of all the pipes and fittings will result in waste that needs to be disposed of.

The **mitigation measures** to follow during this phase are the same as during the construction phase - in addition the following are important:

- All the fuel must be emptied from the tanks and the site in sealed containers.
- Drained fuel must be transported back to the filling station by an accredited transport company.
- Dismantling of equipment must be conducted by an accredited contractor.
- The sludge remaining in the tanks must be disposed of at an accredited hazardous waste facility.
- Once the tanks and pipes have been degassed they can be cut up.
- Certificates must be obtained for all actions performed.

The indirect impacts associated with the decommissioning of the site are likely to be similar to the construction phase.

- Security

The cumulative impacts associated with the decommissioning of the site are.

- Surface water pollution
- Ground water pollution
- Dust generation
- Loss of jobs

APPENDIX 1

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SOUTH AFRICAN NATIONAL STANDARD

**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**

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APPENDIX 2

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SOUTH AFRICAN NATIONAL STANDARD

Above-ground storage tanks for petroleum products

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APPENDIX 3

EMERGENCY RESPONSE PLAN (ERP)-Diesel and LPG Tanks

It is very important that every filling station must have a fully documented Emergency Response Plan (ERP) in place. This is also required in terms of the Occupational Health and Safety Act.

The ERP involves the following main process:

1. The Retailer must conduct a risk assessment of the filling station to establish the likelihood of any identified risks occurring.
 - The following are typical risks that could be identified at every service station:
 - fire
 - physical injury (gunshot wounds, broken limbs, lacerations, burns, electric shocks, etc.)
 - medical emergencies (heart attacks, loss of consciousness, etc.)
 - riots or demonstrations
 - fuel spillage
 - robbery
 - bomb threats
 - Less common risks identified at some sites could involve the following incidents:
 - flood (proximity to rivers)
 - insect /snake bites
2. The retailer must draw up an ERP to deal with each identified risk once it has occurred in order to minimize the negative impact and to prevent it from escalating or re-occurring.
3. An ERP must be tested at least twice per year for different scenarios.
4. It is the responsibility of each site manager to assess all the particular risks that could occur on site and must plan to deal with each one.
5. The ERP must be easily available on site for reference and a copy must be filed in a safe place.
6. Document control details and review dates for the ERP should be listed in this document.
7. A site map needs to be drawn up and displayed at visible points detailing the
 - firefighting equipment
 - escape routes
 - public assembly points
8. A training program for handling all the emergency related actions must be drawn up and training must be done for all related staff.

Explanation is given below how each risk should be identified and the action to be taken.

Fire Emergency Response Plan

- Switch off all pumps – use the emergency switch
- Attempt to extinguish the blaze as soon as possible if it is not already too large
- Use the fire-hose for fires in the building (do not use water on electrical fires or petrol fires)
- Evacuate the entire building
- Summon the fire brigade as soon as possible if the blaze cannot be immediately extinguished
- Keep onlookers away from the site
- Report incident to Fuel supply Company field force member as soon as possible

Product spills and leaks

If there is a large spill, the following should be done:

- Switch off all the pumps – use the emergency switch
- Ensure there is no smoking, fire or welding in the vicinity
- Do not switch on vehicle engines
- Ask customers to get out of their vehicles
- Keep fire extinguishers approximately 5 meters away, ready for action
- Call the fire brigade and advise Fuel Supply Company
- Soak up the product spill with sand or sawdust or spill kit and remove to a safe place designated for such waste.
- Do not use water as this will spread the product faster and carry it into the drains
- Form a dam to prevent the product from reaching any drains or streams

Physical injury

In the event of physical injury the following should be done:

- Apply first aid technique
- Phone doctor and / or hospital
- Take injured party to doctor or hospital or contact an ambulance service

Medical emergency

In the event of a medical emergency the following should be done:

- Apply first aid technique
- Phone doctor and / or hospital
- Take injured party to doctor or hospital or contact an ambulance service

Bomb Threats

- Those inclined to plant bombs will carefully search for a target that will best serve their objective at the lowest risk to themselves.
- Ensure therefore that your site is properly illuminated, also at the sides and back of the building. If you do not offer 24 hours service, consider employing a night watchman with no fire-arm
- Train forecourt attendants to keep the pump islands clear of rubbish. This will ensure that unattended parcels that might contain a bomb will be spotted immediately
- If someone should see a suspicious object, telephone the police
- Do not handle suspicious objects but redirect people away from it to a safe area.

All sites are required to openly display at a number of locations the telephone numbers of the Emergency service providers such as:

SERVICE PROVIDER	TELEPHONE NUMBER
Police	
Hospital	
Fire Department	
Site Manager	
Fuel Supply Company Customer Line	
Fuel Supply Company Representative	
Armed Response	
ATM Helpline	

Documented copy of the Emergency Response Plan (ERP)

Date : _____ Retailers signature: _____ Fuel Company representative: _____

Review ERP Date : _____ Retailers signature: _____

Fuel Company representative: _____

Review ERP Date : _____ Retailers signature: _____

Fuel Company representative: _____