TENDER DOCUMENT

VOLUME 2

FOR

BID NO: NDOHF 12/2019-2020 – NEW SILOAM DISTRICT HOSPITAL PHASE 2

TENDERING PROCEDURES

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NAME OF TENDERER: ______________________________________

CRS NUMBER: ____________________________________________

FEBRUARY 2020
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PART C2: PRICING DATA
C2.1: PRICING INSTRUCTIONS
Project Name: NEW SILOAM DISTRICT HOSPITAL PHASE 2
Tender No: NDOHF 12/2019-2020

C2.1 Pricing Instructions

1. The Bills of Quantities have been drawn up in accordance with the Standard System of Measuring Building Work as amended) published and issued by the Association of South African Quantity Surveyors (Sixth Edition (Revised)), 1999. Where applicable the:
   a) Civil engineering work where so stated, has been drawn up in accordance with the provisions of the latest edition of SABS 1200 Standardised Specifications for Civil Engineering Works.

2. The agreement is based on the JBCC Series 2000 Principal Building Agreement, prepared by the Joint Building Contracts Committee, Edition 4.1, 2005. The additions, deletions and alterations to the JBCC Principal Building Agreement as well as the contract specific variables are as stated in the Contract Data. Only the headings and clause numbers for which allowance must be made in the Bills of Quantities are recited.

3. Preliminary and general requirements are based on the preliminaries for the use of JBCC Series 2000 – Third Addition – January. Only the headings and clause numbers for which allowance must be made in the Bills of Quantities are recited.

4. It will be assumed that prices included in the Bills of Quantities are based on Acts, Ordinances, Regulations, By-laws, International Standards and National Standards that were published 28 days before the closing date for tenders. (Refer to www.stanza.org.za or www.iso.org for information on standards).

5. The drawings listed in the Scope of Works used for the setting up of these Bills of Quantities are kept by the Principal Agent or Engineer and can be viewed at any time during office hours up until the completion of the works.

6. Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard and approved by the Principle Agent may be substituted.

7. The bills of quantities forms part of and must be read and priced in conjunction with all the other documents forming part of the contract document, The Standard Conditions of Tender, Conditions of Contract, Specifications, Drawings, “Department of Public Works: Specifications of Materials and Methods to be used – PW371” and all other relevant documentation.

8. Where any item is not relevant to this specific contract, such item is marked N/A (signifying “not applicable”)

9. The Contract Data and the standard form of contract referenced therein must be studied for the full extent and meaning of each and every clause set out in Section 1 (Preliminaries) of the Bills of Quantities.
10 The Bills of Quantities is not intended for the ordering of materials. Any ordering of materials, based on the Bills of Quantities, is at the Contractor’s risk.

11 The amount of the Preliminaries to be included in each monthly payment certificate shall be assessed as an amount prorated to the value of the work duly executed in the same ratio as the preliminaries bears to the total of prices excluding any contingency sum, the amount for the Preliminaries and any amount in respect of contract price adjustment provided for in the contract.

12 Where the initial contract period is extended, the monthly charge shall be calculated on the basis as set out in 11 but taking into account the revised period for completing the works.

13 The amount or items of the Preliminaries shall be adjusted to take account of the theoretical financial effect which changes in time or value (or both) have on this section. Such adjustments shall be based on adjustments in the following categories as recorded in the Bills of Quantities:

   a) an amount which is not to be varied, namely Fixed (F)
   b) an amount which is to be varied in proportion to the contract value, namely Value Related (V); and
   c) an amount which is to be varied in proportion to the contract period as compared to the initial construction period excluding revisions to the construction period for which no adjustment to the contractor is not entitled to in terms of the contract, namely Time Related (T).

14 Where no provision is made in the Bills of Quantities to indicate which of the three categories in 13 apply or where no selection is made, the adjustments shall be based on the following breakdown:

   a) 10 percent is Fixed;
   b) 15 percent is Value Related
   c) 75 percent is Time Related.

15 The adjustment of the Preliminaries shall apply notwithstanding the actual employment of resources in the execution of the works. The contract value used for the adjustment of the Preliminaries shall exclude any contingency sum, the amount for the Preliminaries and any amount in respect of contract price adjustment provided for in the contract. Adjustments in respect of any staged or sectional completion shall be prorated to the value of each section.

16 The tender price must include Value Added Tax (VAT). All rates, provisional sums, etc. in the bills of quantities must however be net (exclusive of VAT) with VAT calculated and added to the Total Value thereof in the Final Summary.
C3.1: SCOPE OF WORKS
C3.1 SCOPE OF WORKS

The works will consist of the reconfiguration and renovations, including electrical, mechanical and works on a number of existing buildings and a complete new Hospital Complex.

A. EXTENT OF THE WORKS

A1 Reconfiguration and renovations.

A.1.1 Temporary Female Mental Health decanting facility

Minor renovations to a section of an existing building (± 110m²)

A.1.2 Temporary Male Mental Health decanting facility

Minor reservations and alterations of an existing building (± 170m²) and new addition of ± 60m².

A.1.3 Existing mortuary block and temporary cold room

Temporary steel structure canopy to accommodate temporary container tyre cold room. Renovations and upgrading of existing mortuary including cold room electrical, mechanical installation.

A.1.4 Existing Mental Health Block

Major renovations and upgrading of existing buildings (±1290 m²) and new addition of (± 60 m²) including electrical, Mechanical and IT and Security installation.

A.2 New Hospital Complex

The work consists of the construction of THE MAIN HOSPITAL COMPLEX as indicated on the site plan with mainly single storey blocks with only a small section which is a double storey. (Total building area ± 19 600 m²)

The building consist mainly of brick wall structure on concrete strip footings, profiled sheet iron roof covering with coloured finish on one side on steel roof structure and concrete flat roof construction. The buildings are finished internally mainly with plaster and paint, with some tiling and externally with facebrick work and plaster and paint panels, suspended and screwed up ceilings, vinyl sheet and porcelain tile flooring. Aluminium windows and steel door frames with timber doors.

A.3 External Works

Site works are mainly walkways, court yards, landscaping and paving adjacent to the buildings. The civil services such as earthworks, water supply, sewerage, stormwater, roads, etc. and the demolition of two houses with outbuildings.

The aforesaid information serves only as a guide to Bidders, but if more detailed information is required, the drawings can be viewed at the Office of the Architects.
B. SEQUENCE OF CONSTRUCTION

Temporary fencing, pedestrian walkway, upgrading of gravel road, new temporary gravel road and temporary guard house have to be constructed first as shown on the Contractors sequence plan. All will be explained at the compulsory clarifying meeting.

The tenderer shall notice the following will apply to work on existing buildings:

**Mortuary and Temporary Cold Room:**

The temporary cold room shall be constructed and commissioned first before the work can commence on the mortuary building.

**Mental Health Ward, Male Decanting facility and Female Decanting Facility:**

It is a requirement that work on both the temporary male and female decanting facilities shall be completed and commissioned, the patients moved out of the Mental Health Facility before renovations of the Main Metal Health building can start.

C. RESTRICTIONS AND CONSTRAINTS

1. The work is executed on an existing hospital site, which shall remain fully functional 24 hours per day and 7 days a week. The operation of the hospital must not be compromised at all.
2. Noise must be kept to a minimum and within acceptable levels at all times.
3. All shut-offs and tie/cut-ins to existing services must be arranged in advance with the Facilities Manager and a methodology with appropriate mitigation of risks must be prepared by the contractor and submitted to the relevant Professional discipline in advance, for approval.
4. Dust emanating from the work site must be controlled.
5. Noise control of the project is urgent and work shall be executed during normal working hours i.e. 07h00 until 17h00 daily including weekends. Work required to be executed outside of these hours must be arranged with the Facilities Manager and the Chief Executive of the hospital, in advance.

D. OPERATIONAL PROTOCOLS

1. Security is a priority and the site shall be kept safe at all times
2. The approved Health and Safety plan shall be adhered to at all times
3. All staff members of the contractor shall wear PPE at all times
4. All staff members of the contractor shall be specifically identifiable at all times and to this end shall wear a predetermined coloured overall to be able to enter and work on the site.
5. Regular meetings, the frequency of which is to be determined, shall be held with The management of the hospital to ensure a cohesive spirit of co-operation at all times.

E. ACCESS

Prospective bidders are to fully familiarize themselves with the site and access to the site.

**List of drawings used to compile the Bill of Quantities**

**Existing Buildings:**
New Hospital Complex:

Architect drawings:

000-001, -004 - -008, -010; A-010 -0101, -012; A-013 -0101, -014; A-015 -001, -006; A-015-101 - -102; A-020-001 - -003; A-030-001, A-030-101-116; A-040-001 - -003; A-042-001-003; A-043-001 - -003; A-044-001 - -003; A-045 -001 - -007; A-050-001 - -004; A-060-001, A-060-002; A-070-001 - -002; A-070-001; A-100-001; U-010-001; U-011-001; U-013-001; U-014-001; U-020-001; U-030-001; U-060-001; W-010-001 - -002; W-011-001; W-013-001; W-014-001; W-020-001; W-030-001; W-060-001; X-010-001; X-011-001; X-013-001

Engineers drawings:

C3.2: PROJECT SPECIFIC HEALTH AND SAFETY SPECIFICATION
National Department of Health

Occupational health and safety specification for Siloam Hospital – Construction of New District Hospital

Proudly prepared by

EMPOWERisk (Pty) Ltd

February 2020
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Occupational health and safety specification for Siloam Hospital – Construction of New District Hospital

1. Definitions

In this document the following expressions shall bear the meanings assigned to them below:

1.1 **Client** means any person for whom construction work is being performed and/or undertaken [i.e. National Department of Health for purposes of this specification];

1.2 **Construction Regulations** means the Occupational Health and Safety Act’s, No 85 of 1993, new Construction Regulations that came into effect on 01 March 2014;

1.3 **Occupational health and safety plan** means a sufficiently documented plan to the standards of the Client, which addresses hazards identified and includes safe working procedures to mitigate, reduce or control the hazards identified;

1.4 **Occupational health and safety specification** means a documented specification of all health and safety requirements pertaining to the associated works on a construction site, so as to ensure the health and safety of persons working, visiting, passing, staying and/or working close to the construction site and/or other applicable areas such as site camp;

1.5 **OHSACT** means the Occupational Health and Safety Act, No 85 of 1993, as amended; and

1.6 **Principal Contractor** means an employer, as defined by Section 1 of the OHSACT who performs construction work and is appointed by the Client to be in overall control and management of the construction site and works.

2. Introduction

In terms of Construction Regulation 5(1)(b) of the OHSACT, the Client is required to compile an occupational health and safety specification for any intended project and provide such specification to prospective tenderers/bidders.

This specification has as objective to ensure that the principal contractor entering into a contract with the Client achieves and maintain an acceptable level of occupational health and safety performance and compliance. This document forms an integral part of the contract between the Client and the principal contractor and the principal- and other contractors should make it part of any contract/s that they may have with other contractors and/or suppliers as far as this project is concerned.

Compliance with this document does not absolve the principal contractor from complying with any other minimum legal requirements and the principal contractor remains responsible for the health and safety of his employees, those of his mandatories as well as any persons coming on site or on adjacent properties as far as it relates to the construction activities.
3. **Scope**

To develop a project specific occupational health and safety specification that addresses the reasonable and foreseeable risks, exposures and aspects of occupational health and safety as affected by the abovementioned contract work.

The specification will provide the requirements that the principal contractor and other contractors will have to comply with in order to reduce the risks associated with the abovementioned contract work and that may lead to incidents causing injury and/or ill health, to a level as low as reasonably practicable and possible.

Any contractor interested in submitting a bid in response to the Client’s formal tender for any construction project, has to prepare and include a draft occupational health and safety plan based on this specification and the OHSACT in its tender submission. The Client will evaluate this plan as part of its formal tender adjudication processes to ensure compliance with Construction Regulation 5 that stipulates that the Client may only appoint a contractor who has the necessary competencies and resources to carry of the work appointed for safely.

4. **General occupational health and safety provisions**

4.1 **Hazard identification and risk assessment (Construction Regulation 9)**

4.1.1 **Risk assessments**

Annexure 5 of this specification contains a list of risk assessment headings that have been identified by the Client as possibly applicable to the abovementioned contract work. It is, by no means, exhaustive and is only offered as assistance to the contractors intending to tender for the applicable works. It therefore remains the overall responsibility of the principal contractor to consider all applicable risks and pro-actively undertake risk assessments and implement appropriate risk mitigation measures.

4.1.2 **Development of risk assessments**

Every principal contractor performing construction work shall, before the commencement of any construction work or work associated with the aforesaid construction work and during such work, ensure that risk assessments are undertaken by a competent person, appointed in writing, and the risk assessments shall form part of the occupational health and safety plan and be implemented and maintained as contemplated in Construction Regulation 9(1).

The risk assessments shall include, at least:

- The identification of the current as well as emerging risks and hazards to which persons may be exposed to;
- The analysis and evaluation of the risks and hazards identified;
- A documented plan of safe working procedures (SWP) and any method statements to mitigate, reduce or control the risks and hazards that have been identified;
- A plan to monitor the application of the SWPs; and
• A plan to review the risk assessments as the work progresses and changes are introduced or incidents occurred which requires the re-evaluation of the processes/risk mitigation.

Based on the risk assessments, the principal contractor must develop a set of site-specific occupational health and safety rules that will be applied to regulate the occupational health and safety aspects of the construction.

The risk assessments, together with the site-specific occupational health and safety rules, must be submitted to the Client before mobilisation on site commences.

Despite the risk assessments listed in Annexure 5, the principal contractor is required to conduct a baseline risk assessment and the aforesaid risk assessments must be incorporated into the baseline risk assessment. The baseline risk assessment must further include the SWPs and the applicable method statements based on the risk assessments.

Hazard identification and risk assessments must be undertaken whilst SWPs must be developed for all out-of-scope work.

4.1.3 Review of risk assessments

The principal contractor is to review the hazards identified, the risk assessments and the SWPs at each production planning and progress report meeting as the contract work develops and progresses and each time changes are made to the designs, plans and construction methods and/or processes.

It is also proposed that should an incident occur the SWPs and all other applicable processes be re-evaluated to ensure that the mitigation measures are still applicable and appropriate and if not a revision of the risk assessments be undertaken.

The principal contractor must provide the Client, other contractors and all other concerned or affected parties with copies of any changes, alterations or amendments as soon as possible but within 14 calendar days of such changes.

4.2 Legal Requirements

All Contractors entering into a contract with the Client shall, as a minimum, comply with the -

• OHSACT and a current, up-to-date copy of the OHSACT and its Regulations must be available on site at all times; and
• Compensation for Occupational Injuries and Diseases Act, No 130 of 1993 (COIDAct) as amended. The principal contractor will be required to submit a letter of registration and “good-standing” from the Compensation Commissioner or compensation insurer before being
awarded the contract. A current, up-to-date copy of the COIDAct must be available on site at all times.

4.3 Structure and responsibilities

4.3.1 Overall supervision and responsibility for occupational health and safety

a. The principal contractor [appointed in terms of Construction Regulation 5(1)(k)] is responsible to implement and maintain the occupational health and safety plan approved by the Client.

b. The Chief Executive Officer (in terms of Section 16(1) of the OHSACT) of the principal contractor is to ensure that the Employer (as defined in the OHSACT) complies with the OHSACT. Annexure 1 “Legal Compliance Checklist” may be used for this purpose and assistance.

c. The principal contractor’s Chief Executive Officer may appoint any person reporting to him/her as Designated Person in terms of Section 16(2) of the OHSACT. Such Designated Person is responsible to assist the Chief Executive Officer to ensure that the Employer complies with the requirements of the OHSACT.

d. The construction manager, assistant construction manager, construction supervisor and assistant construction supervisor(s) appointed in terms of Construction Regulation 8 are responsible for supervising the construction work and in specific to ensure that all work undertaken comply with the requirements of the OHSACT, its Regulations and the Client’s specifications.

4.3.2 Operational responsibilities for occupational health and safety

The principal contractor shall appoint designated competent employees and/or other competent persons as outlined in the following list to assist with the operational responsibilities for occupational health and safety. This list is only the minimum requirement and is therefore in no way exhaustive.

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Fall protection supervisor | Construction Regulation 10
First-aiders | General Safety Regulation 3
Fire fighting equipment inspector | Construction Regulation 29
Hazardous chemical substances supervisor | Hazardous Chemicals Substances Regulations 10
Incident investigator | General Administrative Regulation 9
Ladder inspector | General Safety Regulation 13(a)
Lifting machines and equipment inspector | Construction Regulation 22
Occupational health and safety committee | OHSACT Section 19
Occupational health and safety representatives | OHSACT Section 17
Person responsible for machinery | General Machinery Regulation 2
Risk assessor | Construction Regulation 9(1)
Scaffolding supervisor | Construction Regulation 16
Stacking and storage supervisor | Construction Regulation 28
Structures supervisor | Construction Regulation 11
Temporary works supervisor | Construction Regulation 12
Traffic management supervisor | OHSACT Section 9(1)
Traffic safety officer | OHSACT Section 9(1)
Pressure equipment supervisor | Pressure Equipment Regulations
Welding supervisor | General Safety Regulation 9

These appointments must be in writing and the responsibilities clearly stated together with the period for which each appointment is made. This information must be communicated to and agreed with the appointees.

Copies of appointments must be submitted to the Client together with concise CV’s of the appointees as part of the principal contractor’s health and safety plan and if appointed copies of the appointments included in the occupational health and safety file. All appointments must be approved by the Client and any changes of appointees or appointments must be communicated to the Client and agreed upon before being implemented.

The principal contractor must, furthermore provide the Client with an organogram of all contractors that he/she has appointed or intends to appoint and keep this list updated on a weekly basis.

4.3.3 Construction health and safety officer

This project requires the appointment of a full-time construction health and safety officer, appointed in terms of Construction Regulation 8(5). This appointee should be duly registered and in good standing with a statutory body approved by the Chief Inspector as is required by Construction Regulation 8(6).

The South African Council for Project and Construction Management Professions (SACPCMP) is currently the statutory body responsible for
the professional registration of construction health and safety officers and a copy of the appointee’s SACPCMP’s registration certificate should be submitted as part of the principal contractor’s health and safety plan and also be readily available in the health and safety file to be kept and maintained on site.

4.3.4 Designation of occupational health and safety representatives (Section 17 of the OHSACT)

Where the principal contractor employs more than 20 persons (including the employees of other contractors (sub-contractors) and its supervisors) he has to appoint one occupational health and safety representative for every 50 employees or part thereof. General Administrative Regulation 6 requires that the election, appointment and subsequent designation of the occupational health and safety representatives be executed in consultation with employee representatives or employees. (Section 17 of the OHSACT as well as General Administrative Regulation 6 and 7 refer).

Occupational health and safety representatives have to be designated in writing and the designation must include the area of responsibility of the person and term of the designation.

4.3.5 Duties and functions of the occupational health and safety representatives (Section 18 of the OHSACT)

a. The principal contractor must ensure that the designated occupational health and safety representatives conduct a weekly inspection of their respective areas of responsibility, using a checklist, and report thereon to the principal contractor.

b. Occupational health and safety representatives must be included in accident and/or incident investigations.

c. Occupational health and safety representatives must attend all occupational health and safety committee meetings.

4.3.6 Appointment of occupational health and safety committee (Section 19 of the OHSACT)

The principal contractor must establish an occupational health and safety committee consisting of all the designated occupational health and safety representatives together with a number of management representatives that are not allowed to exceed the number of occupational health and safety representatives on the committee and a representative of the Client who shall act as the chairperson without voting rights. The members of the occupational health and safety committee must be appointed in writing and copies of the appointments included in the occupational health and safety file.

The occupational health and safety committee must meet as a minimum on a monthly basis and consider, at least, the following agenda items:

1. Opening and welcome.
2. Members present, apologies and absent.
3. Minutes of previous meeting.
4. Matters arising from the previous meeting.
5. Occupational health and safety representatives' reports.
6. Incident and/or accident reports and investigations.
7. Incident, accident and/or injury statistics.
8. Other matters.
9. Endorsement of registers and other statutory documents by a duly authorised representative of the principal contractor.
10. Close and next meeting.

4.4 Mandataries

It is a requirement that the principal contractor, when he appoints contractors or sub-contractors in terms of Construction Regulations 7(1)(c) includes an OHSACT Section 37(2) agreement (i.e. Agreement with Mandatary) in his agreement with such contractor.

4.5 Administrative controls and the occupational health and safety file

4.5.1 The occupational health and safety file [Construction Regulation 7(1)(b)]

As required by Construction Regulation 7(1)(b), the principal contractor and other contractors will each keep an occupational health and safety file on site containing the following documents as a minimum:

1. Copy of the construction work permit (for applicable projects) (Construction Regulation 3)
2. Notification of construction work (Construction Regulation 4.).
3. Updated copies of the OHSACT and its Regulations as well as the COID Act (General Administrative Regulation 4.).
4. Proof of registration and good standing with the Compensation Commissioner or a COID Insurer [Construction Regulation 5(1)(j)].
5. Occupational health and safety plan agreed with the Client including the underpinning risk assessment(s) and method statements [Construction regulation 7(1)].
6. Copies of occupational health and safety committee meetings and other relevant minutes.
7. Designs and/or drawings [Construction Regulation 7(1)(b)].
8. A list of contractors (sub-contractors) including copies of the agreements between the parties, proof of good standing with the Compensation Commissioner or COID Insurer, and the type of work to be undertaken by each contractor (Construction Regulation 7).
9. Appointment and designation forms as per paragraphs 4.3.1 and 4.3.2 above.
10. Copy of the construction health and safety officer’s SACPCMP registration certificate.
11. The following registers:
   - Accident and/or incident register (Annexure 1 of the General Administrative Regulations);
• Occupational health and safety representatives’ inspection register;
• Construction vehicles and mobile plant inspections by controller;
• Daily inspections of vehicles, plant and other equipment by the operator, driver and/or user;
• Designer’s inspections and structures record;
• Inspection and maintenance of explosive actuated fastening devices;
• Inspection of electrical installations (including inspection of portable electrical tools, electrical equipment and other electrical appliances);
• Fall protection inspections;
• First-aid box content;
• Record of first-aid treatment;
• Fire equipment inspections and maintenance;
• Record of hazardous chemical substances kept and used on site;
• Ladder inspections;
• Machine safety inspections (including machine guards, lock-outs etcetera);
• Inspection registers and logbooks for lifting machines and – tackle (including daily inspections by drivers/operators);
• Inspections of scaffolding;
• Inspections of stacking and storage;
• Inspections of structures;
• Pressure equipment inspections; and
• Inspections of welding equipment.

12. All other applicable records.

The Client will conduct and evaluation of the principal contractor’s occupational health and safety file from time to time.

4.6 Occupational health and safety goals and objectives and arrangements for monitoring and review of occupational health and safety performance

The principal contractor is required to maintain a casualty incident frequency rate (CIFR) of not more than four (See Annexure 2 to this document: “Measuring Injury Experience”) and report on this to the Client on a monthly basis.

4.7 Notification of construction work (Construction Regulation 4)

The principal contractor does not need to notify the Department of Labour of its intention to carry out construction work as the Client, due to the value of the construction work, needs to apply for a construction work permit in terms of Construction Regulation 3. The principal contractor may not commence with any construction work until a site-specific permit number was issued by the Department of Labour and the principal contractor must display this site-specific permit number conspicuously at the entrance to the main site camp.
4.8 Medical certificates of fitness (Construction Regulation 7)

As required by Construction Regulation 7(1)(g), the principal contractor must ensure that all employees have a valid medical certificate of fitness specific to the construction work to be performed. These certificates must be issued by an occupational health practitioner in the form of Annexure 3 (i.e. Annexure 3 in the Construction Regulations).

4.9 Training, awareness and competence

The contents and syllabi of all training required by the OHSACT and Regulations must be included in the principal contractor’s occupational health and safety plan.

4.9.1 General induction training

All members of the contractor’s site management as well as all the persons appointed as responsible for occupational health and safety in terms of the Construction and other Regulations will be required to attend a general induction session.

All employees of the principal and other contractors must be in possession of proof of general induction training.

All subsequent and newly appointed employees must also be subjected to the induction training as soon as possible after the appointment but prior to starting working on site.

4.9.2 Site-specific induction training

The principal contractor will be required to develop a contract work project specific induction training course based on the risk assessments for the contract work and train all employees and other contractors and their employees in this.

All employees of the principal and other contractors must be in possession of proof that they have attended a site-specific occupational health and safety induction training at all times.

4.9.3 Other training

1. All operators, drivers and users of construction vehicles, mobile plant and other equipment must be in possession of valid proof of training and where applicable licenses or proof of competency.

2. All employees in jobs requiring training in terms of the OHSACT and Regulations must be in possession of valid proof of training.

3. Occupational health and safety training requirements [as required by the Construction Regulations and as indicated by the occupational health and safety specification and the risk assessment(s)] i.e. -
   a. General induction (Section 8 of the OHSACT);
b. Site and job specific induction, including visitors (Sections 8 and 9 of the OHSACT);
c. Site and project manager;
d. Construction supervisor;
e. Occupational health and safety representatives [Section 18 (3) of the OHSACT];
f. Training of the appointees indicated in paragraphs 4.3.1 and 4.3.2;
g. Operators and drivers of construction vehicles and mobile plant (Construction Regulation 23);
h. Basic fire prevention and protection (Environmental Regulations 9 and Construction Regulation 29);
i. Basic first-aid (General Safety Regulations 3);
j. Storekeeping methods and safe stacking (Construction Regulation 28); and
k. Emergency, security and fire coordinator.

4.9.4 Awareness and promotion

The principal contractor is required to have a promotion and awareness programme in place to create an occupational health and safety culture within employees as well as sub-contractors. The following are some of the methods that may be used:

- Toolbox talks
- Posters
- Videos
- Competitions
- Suggestion schemes
- Participative activities such as employee “occupational health and safety circles”.

4.9.5 Notices and signs

The following notices and signs are, where applicable, compulsory on the construction site as well as the contractors’ yards:

<table>
<thead>
<tr>
<th>Area and/or activity where notice or sign is required</th>
<th>Notice or sign required in terms of</th>
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</thead>
<tbody>
<tr>
<td>Display of notices and signs</td>
<td>General Safety Regulation 2B and SABS Code 1186</td>
</tr>
<tr>
<td>Entry</td>
<td>General Safety Regulation 2C(2)</td>
</tr>
<tr>
<td>First-aid</td>
<td>General Safety Regulation 3(6)</td>
</tr>
<tr>
<td>Toilets and change rooms</td>
<td>Facilities Regulation 2 (5) 4(2)(f)</td>
</tr>
<tr>
<td>Storage of flammable materials</td>
<td>General Safety Regulation 4(8)(a)(i) and (ii) [10(e) only applicable to contractor’s yards]</td>
</tr>
<tr>
<td>Grinding wheels</td>
<td>Driven Machinery Regulation 8(1)(7)</td>
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<tr>
<td>Machinery</td>
<td>General Machinery Regulation 9 (Schedule D)</td>
</tr>
<tr>
<td>Explosive actuated fastening devises</td>
<td>Construction Regulation 21(2)(f)</td>
</tr>
<tr>
<td>Prohibition on smoking and eating or drinking at the workplaces where high risk substances [FR5 (1)] are stored or</td>
<td>Facilities Regulation 6(b)</td>
</tr>
</tbody>
</table>
4.9.6 Competence

The principal contractor shall ensure that his and other contractors’ employees appointed are competent and that all training required to undertake the work safely and without risk to health of their or other persons, has been successfully completed before work commences.

The principal contractor shall ensure that follow-up and refresher training is conducted on a regular basis as well as the contract work progresses and the work situation or requirements changes.

Records of all training must be kept on the occupational health and safety file for auditing purposes.

4.10 Consultation, communication and liaison

The following arrangements will apply-

4.10.1 Occupational health and safety liaison between the Client, the principal contractor, the other contractors, the designer and other concerned parties will be through the occupational health and safety committee. In the absence of a health and safety committee, the Client and principal contractor will agree on an alternative communication forum to be implemented.

4.10.2 In addition to the above, communication may be directly to the Client or his appointed Agent, verbally (followed up in writing within 14 calendar days) or in writing, as and when the need arises.

4.10.3 Consultation with the workforce on occupational health and safety matters will be through their supervisors, occupational health and safety representatives, the occupational health and safety committee and their elected trade union representatives, if any.

4.10.4 The principal contractor will be responsible for the dissemination of all relevant occupational health and safety information to the other contractors, for example design changes agreed with the Client and the designer, instructions by the Client and/or his Agent, exchange of information between contractors, the reporting of hazardous and/or dangerous conditions and/or situations etcetera.

4.10.5 The principal contractor will be required to do site safety walks with the Client and/or his Agent on a basis to be determined and agreed between the parties.

4.10.6 The principle and other contractors will be required to conduct toolbox talks with their employees on at least a weekly basis and records of
these including the topics discussed must be kept on the occupational health and safety file. Employees must acknowledge the receipt of toolbox talks which record must, likewise be kept on the occupational health and safety file.

4.10.7 The principal contractor’s most senior manager on site will be required to attend all the Client’s occupational health and safety meetings.

4.10.8 The Client or his Agent and the principal contractor will agree on the dates, times and venues of the occupational health and safety meetings.

4.11 Checking, reporting and corrective actions

4.11.1 Monthly compliance assessment by Client [Construction Regulation 5(1)(o)]

The Client will be conducting a periodic assessment to comply with Construction Regulation 5(1)(o) and to confirm that the principal contractor has implemented and is maintaining the agreed and approved occupational health and safety plan.

4.11.2 Other assessments and inspections by the Client

The Client reserves the right to conduct other ad-hoc assessments and inspections as deemed necessary. This could include among others site safety walks.

4.11.3 Conducting an assessment

A representative of the principal contractor must accompany the Client on all assessments and inspections and may conduct his/her own inspection at the same time. Each party will, however, take responsibility for the results of his/her own assessment and/or inspection.

4.11.4 Contractor’s assessments and inspections

The principal contractor is to conduct his own internal assessments and inspections to verify compliance with his own occupational health and safety plan and management system as well as the requirements of this specification and the compliance of other contractors under his/her control.

4.11.5 Inspections by occupational health and safety representatives and other appointees

Occupational health and safety representatives must conduct weekly inspections of their areas of responsibility and report thereon to their foreman or supervisor whilst other appointees must conduct inspections and report thereon as specified in their appointments for example vehicle, plant and machinery drivers, operators and users must conduct daily inspections before start-up.
4.11.6 Recording and review of inspection results

All the results of the abovementioned inspections must be in writing, reviewed at occupational health and safety committee meetings, endorsed by the chairperson of the meeting and placed on the occupational health and safety file.

4.11.7 Reporting of inspection results

The principal contractor is required to provide the Client with a monthly report in the format as per the attached Annexure 3: “Safety, Health and Environment Risk Management Report”.

4.12 Incident reporting and investigation

4.12.1 Reporting of accidents and incidents (Section 24 and General Administrative Regulation 8 of the OHSACT)

The principal contractor must report all incidents where an employee is injured on duty to the extent that he/she:
- dies
- becomes unconscious
- loses a limb or part of a limb
- is injured or becomes ill to such a degree that he/she is likely either to die or to suffer a permanent physical defect or likely to be unable for a period of at least 14 days either to work or continue with the activity for which he/she was usually employed
- or where -
  - a major incident occurred
  - the health or safety of any person was endangered
  - where a dangerous substance was spilled
  - the uncontrolled release of any substance under pressure took place
  - machinery or any part of machinery fractured or failed resulting in flying, falling or uncontrolled moving objects
  - machinery ran out of control

To the Client within two calendar days and to the Provincial Director of the Department of Labour within seven calendar days from date of incident (Section 24 of the OHSACT and General Administrative Regulation 8), except that, where a person has died, has become unconscious for any reason or has lost a limb or part of a limb or may die or suffer a permanent physical defect, the incident must be reported to both the Client and the Provincial Director of the Department of Labour forthwith by telephone, telefax or e-mail. All other reports should still be completed and provided as required.

The principal contractor is required to provide the Client with copies of all statutory reports required in terms of the OHSACT within seven calendar days of the incident occurring.
The principal contractor is required to provide the Client with copies of all internal and external accident/incident investigation reports, including the reports contemplated in 4.11.2 (3) and (4) below, within seven calendar days of the incident occurring.

4.12.2 Accident and incident investigation (General Administrative Regulation 9)

1. The principal contractor is responsible for the investigation of all accidents and/or incidents where employees and non-employees were injured to the extent that he, she and/or they had to be referred for medical treatment by a doctor, hospital or clinic.

2. The results of the investigation to be entered into the accident and/or incident register.

3. The principal contractor is responsible for the investigation of all minor and non-injury incidents as described in Section 24 (1) (b) and (c) of the OHSACT and keeping a record of the results of such investigations including the steps taken to prevent similar accidents/incidents in future.

4. The principal contractor is responsible for the investigation of all road traffic accidents, related to the construction activities, and keeping a record of the results of such investigations including the steps taken to prevent similar accidents in future.

5. The Client reserves the right to hold its own investigation into an incident or call for an independent external investigation.

5. Operational control

5.1 Emergency preparedness, contingency planning and response

5.1.1 The principal contractor must appoint a competent person to act as emergency controller and/or coordinator.

5.1.2 The principal contractor must conduct an emergency identification exercise and establish what emergencies (such as health, safety, environmental, third party or community related actions etcetera) could possibly develop. He/she must then develop detailed contingency plans and emergency procedures, taking into account any emergency plan that the Client may have in place.

5.1.3 The principal contractor and the other contractors must hold regular practice drills of contingency plans and emergency procedures to test them and familiarise employees with them.
5.2 First-aid (General Safety Regulation 3)

5.2.1 The principal contractor must provide first-aid equipment and have qualified first-aider(s) on site as required by General Safety Regulation 3 of the OHSACT.

5.2.2 The contingency plan of the principal contractor must include arrangements for the speedily and timeously transportation of injured and/or ill person(s) to a medical facility or getting emergency medical support to person(s) who may require it.

5.2.3 The principal contractor must have firm arrangements with his contractors in place regarding the responsibility of these contractor’s first-aid arrangements as well as treatment of injured and/or ill employees.

5.3 Security

5.3.1 The principal contractor must establish site access rules and implement and maintain these throughout the construction period. Access control must, among others, include the rule that non-employees will not be allowed on site unaccompanied.

5.3.2 The principal contractor must develop a set of project applicable security rules and procedures and maintain these throughout the construction period.

5.4 Accommodation of traffic

5.4.1 Where construction work is undertaken close to a public road, the use of appropriate as well as a sufficient number of road signs is of paramount importance to protect employees against traffic and to warn all road users of the presence of construction work as well as construction employees/risks/vehicles.

5.4.2 The principal contractor shall ensure that appropriate as well as a sufficient number of road signs are posted to protect employees against traffic and to warn all road users of the presence of construction work as well as construction employees/vehicles. These signs shall be repeated and utilised, where appropriate, as actual construction work is approached.

5.4.3 The following signage is required as a minimum where construction work is undertaken in, next to or close to a public road:

a. “Construction work ahead” sign at least 45 meters before the start of the construction work;
b. “Lane narrows” sign 30 meters before the start of the construction work;
c. “Keep right/left” sign 15 meters before the start of the construction work and again where the tapering begins; and
d. Delineators and cones every 5 meters for the entire stretch of construction work.
5.4.4 The maintenance of all signage and especially those that is suitable after dark should be duly managed.

5.4.5 Where appropriate duly trained flag persons should be deployed a good distance ahead of areas where traffic is deviated or lanes closed off. These flag persons should be managed assertively to ensure that they add optimal value and should they not do so they should be retrained and if necessary replaced.

5.4.6 The community liaison officer (CLO) should also be sensitised on the optimal management of traffic and the risks involved and then be instructed to increase community awareness through talking to all stakeholders including the distribution of suitable information brochures.

5.5 Work in fall risk positions [Fall protection (Construction Regulation 10)]

5.5.1 Although the risk posed by working in a fall risk position is as far as reasonable possible mitigated by the project design, a pre-emptive risk assessment is required for any work to be carried out from a fall risk position.

5.5.2 As far as is practicable, any person working in a fall risk position will work from a stable platform, ladder or other device that is at least as safe as if he or she is working at ground level and whilst working in this position be wearing suitable fall arrest equipment to prevent the person falling from the platform, ladder or other device utilised. This fall arrest equipment will be, as far as is possible, secured to a point away from the edge over which the person might fall and the lanyard must be of such a length and strength that the person will not be able to move over the edge.

Alternatively any platform, slab, deck or surface forming an edge over which a person may fall shall be fitted with suitable guard rails at two different heights as prescribed in SANS 10085 code of practice for the design, erection, use and inspection of access scaffolding.

5.5.3 Where the requirement in paragraph 5.5.2 is not practicable, the person will be provided with a full body harness that will be worn and attached above the wearer’s head at all times and the lanyard must be fitted with a shock absorbing device or the person must be attached to a fall arrest system that is approved by the Client.

5.5.4 Where the requirements in paragraph 5.5.3 are not practicable, a suitable catch net, which must be able to sustain the weight of at least the average person working in the elevated position, must be erected.

5.5.5 Employees working in fall risk positions must be trained to do this safely and without risk to their or other person’s health and safety.
5.5.6 Where work on roofs is carried out, the risk assessment must take into account the possibility of persons falling through fragile material, i.e. skylights and openings in the roof.

5.5.7 Updated records confirming the physical and psychological fitness of employees working in fall risk positions should be kept on the health and safety file at all times.

5.6 **Structures (Construction Regulation 11)**

The principal contractor must ensure that:

5.6.1 Only skilled employees are allowed to erect structures and that the skills of these employees are being verified at regular intervals.

5.6.2 Steps are taken to ensure that no structure becomes unstable or collapses due to construction work being performed on it or in the vicinity of it.

5.6.3 No structure is overloaded to the extent where it becomes unsafe.

5.6.4 He or she has received from the designer the following information:

- Information on known or anticipated hazards relating to the construction work and the relevant information required for the safe execution of the construction work.
- A geo-scientific report (where applicable).
- The loading the structure is designed to bear.
- The methods and sequence of the construction process.
- Any other applicable information.

5.6.5 All drawings pertaining to the design are on site, utilised and available for inspection.

5.7 **Access scaffolding (Construction Regulation 16)**

Access scaffolding must be erected, used and maintained safely in accordance with Construction Regulation 16 and SA Bureau of Standards Code of Practice, SANS 10085 entitled, “The Design, Erection, Use and Inspection of Access Scaffolding”.

Detailed consideration must be given to all scaffolding to ensure that it is properly planned to meet the working requirements, designed to carry the necessary loadings and maintained in a sound condition. It must also be ensured that there is sufficient material available to erect the scaffolding properly and safely.

Scaffolding must be erected, altered, maintained or dismantled by person(s) who has/have adequate training and experience in this type of work or under the continuous and direct supervision of such a person.
5.8 Lifting equipment (Construction Regulation 22)

Lifting equipment must be designed and constructed in accordance with the manufactures/designers specifications as well as generally accepted technical standards and operated, used, inspected and maintained in accordance with the manufactures requirements as well as that of the Driven Machinery Regulation 18 of the OHSACT:

The Driven Machinery Regulation requires that:

a. Lifting equipment to be clearly and conspicuously marked with the maximum mass load (MML) that it is designed to carry safely. When the MML varies with the conditions of use, the table of maximum loads should be used by the driver/operator;

b. Each winch on a lifting machine must at all time have, at least, three full turns of rope on the drum when the winch has been run to its lowest limit;

c. Lifting equipment be fitted with a brake or other applicable device capable of holding the MML. This brake or device must automatically prevent the downward movement of the load when the lifting power is interrupted;

d. Lifting equipment fitted with a load limiting device that automatically arrest the lift when the load reaches its highest safe position or when the mass of the load is greater than the MML;

e. Every chain or rope on a lifting machine that forms an integral part of the machine must have a factor of safety as prescribed by the manufacturer of the machine and where no standard is available the factor of safety must be:
   - chains – 4 (four)
   - steel wire ropes - 5 (five)
   - fibre ropes- 10 (ten)

f. Every hook or load attaching device must be designed as such or fitted with a device that will prevent the load from slipping off or disconnecting;

g. Every lifting machine must be inspected and load tested by a competent person every time it has been dismantled and re-erected and every 12 months after that. The load test must be in accordance with the manufacturers prescription or to 110% of the MML in addition all ropes, chains, hooks or other attaching devices, sheaves, brakes and safety devices forming an integral part of a lifting machine must be inspected every 6 months by a competent person;

h. All maintenance, repairs, alterations and inspection results must be recorded in a log book and each lifting machine must have its own log book; and

i. No person may be lifted by a lifting machine not designed for lifting persons unless in a cradle approved by an inspector of the Department of Labour.

5.9 Lifting tackle

The following requirements will apply to lifting tackle:

a. Manufactured of sound material, well constructed and free from latent defects;

b. Clearly and conspicuously marked with an identity number;
c. **Maximum mass load factor of safety:**
   - Natural fibre ropes - 10 (ten)
   - Man-made fibre ropes and woven webbing - 06 (six)
   - Steel wire ropes – single rope - 06 (six)
   - Steel wire ropes – combination slings - 08 (eight)
   - Mild Steel chains - 05 (five)
   - High tensile/alloy steel chains - 04 (four)

d. Steel wire ropes must be discarded (not used any further for lifting purposes) when wear and corrosion is evident and must be examined by a competent person every three months for this purpose and the results recorded in a designated log book.

5.10 **Construction vehicle and mobile plant operators**

The following requirements will apply to construction vehicle and mobile plant operators:

a. Only certified and/or competent employees may be allowed to operate any construction vehicle and mobile plant.

b. Every lifting machine operator must be trained specifically for the type of lifting machine that he or she is operating.

c. Only employees duly authorised to do so may operate any construction vehicle and mobile plant.

d. Only employees physically and psychologically fit, i.e. in possession of a medical certificate of fitness, may be allowed to operate any construction vehicle and mobile plant.

5.11 **Construction vehicles and mobile plant (Construction Regulation 23)**

Construction vehicles and mobile plant should be formally and duly inspected by a competent person appointed by the principal contractor prior to being allowed on a project site and suppliers of hired vehicles, plant and equipment must be required to comply with this specification as well as the OHSACT and Regulations.

Construction vehicles and mobile plant must be:

a. Of acceptable design and construction;

b. Maintained in good working order;

c. Used in accordance with their design and intention for which they were designed;

d. Operated and/or driven by trained, competent and authorised operators/drivers. No unauthorised persons to be allowed to drive construction vehicles and mobile plant;

e. Provided with safe and suitable means of access;

f. Fitted with adequate signalling devices to make movement safe including reversing;

g. Excavations and other openings must be provided with sufficient barriers to prevent construction vehicles and mobile plant from falling into same;

h. Provided with roll-over protection;

i. Inspected daily before start-up by the driver, operator and/or user and the findings recorded in a register/log book and any defects addressed as matter of urgency;
j. Fitted with two head and two tail lights that is in good working condition whilst operating under poor visibility conditions; and

k. Used for transporting persons must have seats firmly secured and sufficient for the number of persons being transported.

No loose tools, material etcetera is allowed in the driver and/or operators compartment/cabin nor in the compartment in which any other persons are transported.

No person may ride on construction vehicles and mobile plant except for in a safe place designed and provided for this purpose.

The construction site must be organised to facilitate the movement of construction vehicles and mobile plant in such a manner that pedestrians and other vehicles are not endangered. Traffic routes to be suitable, sufficient in number and adequately demarcated.

Construction vehicles and mobile plant left unattended after hours adjacent to roads and areas where there is traffic movement must be fitted with lights, reflectors or adequate barricades to prevent moving traffic from a sudden emergency, or to come into contact with the parked construction vehicles and mobile plant.

In addition construction vehicles and mobile plant left unattended after hours must be parked with all buckets, booms etc. full lowered, the emergency brakes engaged and, where necessary, the wheels chocked, the transmission in neutral and the motor switched off and the ignition key removed and stored safely.

All construction vehicles and mobile plant daily inspection records must be kept in the occupational health and safety file.

5.12 Electrical installations (Construction Regulation 24)

Any electrical work undertaken as part of the project, including the installation of temporary electricity for construction use shall be in accordance with Construction Regulation 24 and the Electrical Installation Regulations.

The principal contractor must ensure that:

a. Existing services are to be located and clearly marked before construction commences and during the progress thereof;

b. Where the abovementioned is not possible, employees with jackhammers etc. will be protected against electric shock by the use of suitable protective equipment e.g. rubber mats, insulated handles etcetera;

c. Electrical installations and machinery are sufficiently robust to withstand normal working conditions on site;

d. Temporary electrical installations must be inspected at least once per week by a competent person and a record of the inspections kept on the occupational health and safety file;

e. Electrical machinery used on a construction site must be inspected daily before start-up by the competent driver/operator or any other competent
person and a record of the inspections kept on the occupational health and safety file; and

f. A competent person appointed in writing must control all temporary electrical installations.

5.13 Electrical and mechanical lockout

An electrical and mechanical lockout procedure must be developed by a competent person (i.e. duly qualified and certified electrician) and signed off by the Construction Manager. The principal contractor must ensure that the lockout procedure is duly implemented and maintained, i.e. all contractors on site are informed of and adhere to this lockout procedure.

5.14 Use and storage of flammables (Construction Regulation 25)

The principal contractor must ensure that:

a. No person is required or permitted to work in a place where there is the danger of fire or an explosion due to flammable vapours being present unless adequate precautions is taken;

b. Flammables stored on a construction site are stored in a well-ventilated, reasonably fire-resistant container, cage or room that is kept locked with consistent access control measures in place and sufficient firefighting equipment installed and fire prevention methods practiced for example proper housekeeping;

c. Only one day’s quantity of flammable is to be kept in the workplace;

d. Containers (including empty containers) to be kept closed to prevent fumes/vapours from escaping and accumulating in low lying areas; and

e. Welding and other flammable gases to be stored segregated as to the type of gas and empty and full cylinders.

5.15 Hazardous chemical substances

The principal contractor must ensure that:

a. Employees receive the necessary information and training to be able to use, handle and store hazardous chemical substances safely;

b. The risk assessments required in terms of Construction Regulation 9 include employee exposure to hazardous chemical substances and that the necessary measures be taken to protect persons from being detrimentally affected by hazardous chemical substances present or used in the workplace;

c. Suppliers provide the necessary information in the form of material safety data sheets regarding hazardous chemical substances required to ensure the safe use, handling and storage of these substances;

d. An up-to-date list is kept on site of hazardous chemical substances stored and used together with the material safety data sheet of the said hazardous chemical substances;

e. Hazardous chemical substances containers be clearly marked as to the contents and main hazardous category e.g. “Flammable” or “Corrosive” and the reference number of the hazardous chemical substances on the list indicated above;
f. Hazardous chemical substances for example asbestos dust is not cleared by using compressed air but should be vacuumed;
g. No person eats or drinks in an area where hazardous chemical substances are stored or utilised; and
h. Hazardous chemical substances waste is disposed of safely in terms of hazardous waste disposal requirements.

5.16 Storage of flammable and hazardous chemicals (Hazardous Chemical Substances Regulations)

See paragraphs 5.14 and 5.15 above.

5.17 Fire prevention and protection

The principal contractor must ensure that:

a. The risk of fire is avoided;
b. Sufficient and suitable storage of flammables is provided;
c. All employees are instructed in the use of the firefighting equipment and know how to attempt to extinguish a fire;
d. A sufficient number of employees are appointed and trained to act as an emergency team to deal with fires and other emergencies;
e. Employees are informed regarding emergency evacuation procedures and escape routes;
f. Emergency escape routes are kept clear at all times and clearly marked;
g. Evacuation assembly points are demarcated and made known to employees;
h. Evacuation is regularly practiced to ensure that all persons are evacuated timeously and;
i. Roll call is held after evacuation to account for all employees and to ensure that no-one including visitors and disabled persons have been left behind; and
j. A clearly audible, to all persons on site, siren or alarm is fitted and regularly tested.

5.18 Housekeeping (Construction Regulation 27)

The principal contractor must ensure that:

a. Housekeeping is continuously implemented and maintained;
b. Materials and equipment is properly stored;
c. Scrap, waste and debris is removed off site regularly;
d. Materials placed for use are placed safely and not allowed to accumulate or cause obstruction to the free-flow of pedestrians and vehicular traffic;
e. Waste and debris not to be removed by throwing from heights but by chute or crane;
f. Where practicable, construction sites are fenced off to prevent entry of unauthorised persons;
g. Catch platforms or -nets are erected over entry and exit ways or over places where persons are working to prevent them being struck by falling objects;
h. An unimpeded work space is maintained for every employee;
i. Every workplace is kept clean, orderly and free of tools and the likes that are not required for the work being done;
j. As far as is practicable, every floor, walkway, stair, passage and gangway is kept in good state of repair, skid-free and free of obstruction, waste and materials;
k. The walls and roof of every indoor workplace be sound and leak-free; and
l. Openings in floors, hatchways, stairways and open sides of floors or buildings are barricaded, fenced, boarded over or provided with protection to prevent persons from falling.

5.19 Stacking and storage (Construction Regulation 28)

The principal contractor must ensure that:

a. A competent person is appointed in writing to supervise all stacking and storage on a construction site;
b. Adequate storage areas are provided and demarcated;
c. The storage areas are kept neat and under control;
d. The base of any stack is level and capable of sustaining the weight exerted on it by the stack;
e. The items in the lower layers can support the weight exerted by the top layers;
f. Cartons and other containers that may become unstable due to wet conditions are kept dry;
g. Pallets and containers are in good condition and no material is allowed to spill out;
h. The height of any stack does not exceed 3 times the base unless stepped back at least half the depth of a single container at least every fifth tier or the approval of an inspector of the Department of Labour has been obtained to build the stacks higher with the aid of a machine. (The operator of the machine must be protected against items falling from overhead or off the stack and no items may overhang);
i. The articles that make up a single tier are consistently of the same size, shape and mass;
j. Structures for supporting stacks are structurally sound and able to support the mass of the stack;
k. No articles are removed from the bottom of the stack first but from the top tier first;
l. Anybody climbing onto a stack can and does do it safely and that the stack is sufficiently stable to support him or her;
m. Stacks that are in danger of collapsing are broken down and restacked;
n. Stability of stacks are not threatened by vehicles or other moving plant and machinery;
o. Stacks are built in a header and stretcher fashion and that corners are securely bonded; and
p. Persons climbing onto stacks do not approach unguarded moving machinery or electrical installations.

5.20 Eating, changing, washing and toilet facilities (Construction Regulation 30)
5.20.1 Toilets

a. The provision of toilets for each sex is required in terms of the National Building Regulations and Construction Regulation 30.

b. Chemical toilets are allowed instead of the water borne sewerage type. Toilets have to be provided at a ratio of at least 1 toilet per 30 employees.

5.20.2 Showers

At least cold-water showers of some sort for each sex have to be provided at a ratio of at least 1 shower per 15 employees.

5.20.3 Change rooms

Some form of screened off changing facility must be provided separately for each sex.

5.20.4 Eating facility

Some form of eating facility sheltered from the sun, wind and rain must be provided.

5.20.5 Living accommodation

Where the site is in a remote location and transport to home is not readily available, reasonable and suitable living accommodation must be provided after obtaining of the necessary permission from authorities and adhering to requirements such as Bylaws of the local municipality.

5.21 Personal and other protective equipment (Sections 8, 15 and 23 of the OHSACT)

The principal contractor is required to proactively identify the hazards in the workplace and deal with them on an ongoing basis. He/she must either remove them or, where impracticable take steps to protect employees and make it possible for them to work safely and without risk to health under the hazardous conditions.

Personal protective equipment should, however, be the last resort and there should always first be an attempt to apply re-engineering and other solutions to mitigating hazardous situations before the issuing of personal protective equipment is considered.

Where it is not possible to create an absolutely safe and healthy workplace the principal contractor is required to inform employees regarding this and issue, free of charge, suitable equipment to protect them from any hazards being present and that allows them to work safely and without risk to health in the hazardous environment.

It is a further requirement that the principal contractor maintain the said equipment, that he/she instructs and trains the employees in the use of the
equipment and ensures that the prescribed equipment is used by the employee/s in a consistent and correct manner.

Employees do not have the right to refuse to use and/or wear the equipment prescribed by the employer and, if it is impossible for an employee to use or wear prescribed protective equipment through health or any other valid reason, the employee cannot be allowed to continue working under the hazardous condition(s) for which the equipment was prescribed but an alternative solution has to be found that may include relocating the employee.

The principal contractor may not charge any fee for protective equipment prescribed by him or her but may charge for equipment under the following conditions:

- Where the employee requests additional issue in excess of what is prescribed;
- Where the employee has blatantly abused or neglected the equipment leading to early failure; and
- Where the employee has lost the equipment.

Please note: Bullet points two and three above should form part of a formal disciplinary process, i.e. following a disciplinary hearing.

5.22 Portable electrical tools and equipment (Electrical Machinery Regulation 9)

Portable electrical tools and equipment includes every unit that takes electrical power from a 15 ampere plug point and is moved around for use in the workplace i.e. drills, saws, grindstones, portable lights, etcetera. In addition electrical appliances such as fridges, hotplates, heaters, etcetera must be inspected regularly but at least on a weekly basis and maintained to the same standards as portable electrical tools and appliances.

The use, inspection and maintenance of portable electrical tools and equipment must be governed by the following:

- Regular inspections by a competent person appointed in writing;
- Inspection results must be recorded in a register;
- Only competent authorised persons are allowed to use portable electrical tools and equipment; and
- The correct protective equipment is worn/used whilst operating portable electrical tools and equipment.

This equipment -

- Must be maintained in good condition at all times to prevent an electrical shock to the user;
- The main source should incorporate an earth leakage protection device or receive power through a double wound transformer or be double insulated and clearly marked as such; and
- All equipment must be fitted with a switch to allow for safe and easy starting and stopping.
5.23 Public health and safety (Section 9 of the OHSACT)

The principal contractor is responsible for ensuring that non-employees affected by the construction work are made aware of the dangers likely to arise from said construction work as well as the precautionary measures to be observed to avoid or minimise those dangers. This includes among others:

a. Non-employees entering the site for whatever reason;
b. The surrounding community; and
c. Passers by the site.

Appropriate signage must be posted to this effect and all employees on site must be instructed to ensure that non-employees are protected at all times.

All non-employees entering the site must receive site applicable induction into the hazards and risks and the control measures for these.

5.24 Excavations (Construction Regulation 13)

All excavation work has to comply with the following:

5.24.1 Excavation work must be carried out under the supervision of a competent person with at least two years practical experience in excavation work who has been appointed in writing.

5.24.2 Before excavation work begins the stability of the ground must be evaluated.

5.24.3 Whilst excavation work is being performed, the principal contractor must take suitable and sufficient steps to prevent any person from being buried or trapped by a fall or dislodgement of material.

5.24.4 No person may be required or permitted to work in an excavation that has not been adequately shored or braced.

5.24.5 Where the excavation is in stable material or where the sides of the excavation are sloped back to at least the maximum angle of repose measured relative to the horizontal plane, shoring or bracing may be left out but only after written permission has been obtained from the appointed competent person.

5.24.6 Shoring and bracing must be designed and constructed to safely support the sides of the excavation and prevent it from collapsing.

5.24.7 Where uncertainty exists regarding the stability of the soil the opinion of a competent professional engineer or professional technologist must be obtained, before excavation proceeds, whose opinion will be decisive. The opinion must be in writing and signed by the engineer or technologist as well as the appointed excavation supervisor.

5.24.8 No load or material may be placed near the edge of an excavation if it is likely to cause a collapse of the excavation, unless suitable
shoring has been installed to be able to carry the additional load. Best practice requires a one meter clearance so as to reduce the pressure on the side walls as well as risk of material falling onto persons inside the excavation.

5.24.9 Neighbouring/adjoining buildings, structures or roads that may be affected or endangered by the excavation must be suitably protected.

5.24.10 Every excavation must be provided with means of access that must be within 6 metres of any employee within the excavation at any time. Should ladders be utilised for this purpose they should be duly secured.

5.24.11 The location and nature of any existing services such as water, electricity, gas, telecommunication etcetera must be established before any excavation is commenced with and any service that may be affected by the excavation must be protected and made safe for employees working in or near in the excavation.

5.24.12 Every excavation, including the shoring and bracing or any other method to prevent a possible collapse, must be inspected by the appointed competent person as follows:
- Daily before work commences
- After an unexpected collapse of the excavation or part thereof
- After substantial damage to any support
- After rain

5.24.13 The results of any inspections must be recorded in a register kept on site in the health and safety file.

5.24.14 Every excavation accessible to the public or that is adjacent to a public road or thoroughfare or that threatens the safety of persons, must be adequately barricaded or fenced off, on all sides, to at least one meter high and as close to the excavation perimeter as practicable. All such excavations must also be provided with warning lights or visible boundary indicators after dark or when visibility is poor.

5.25 Working in confined spaces

5.25.1 Ventilation

The confined space, such as bulk mixing plant) must be opened and allowed to ventilate for at least 15 minutes before entering the confined space. All confined spaces must be barricaded and manned at all times.

A gas monitor must be lowered to the bottom of the confined space with a rope to test the presence of any toxic/flammable gas. If any gas is detected, the space must be force ventilated by means of a blower for at least 15 minutes where after the air must be tested.
again. Under no circumstances may any space be entered while there is a toxic/flammmable gas present.

After the undertaking of the necessary work, the person in charge of the activities must confirm that all the employees are accounted for.

5.25.2 Entering a confined space

When entering a confined space, the person entering the space must wear a safety harness and fully operational gas detector. A lifeline must be attached to the safety harness and a person on the surface must be in continuous contact with the person in the confined space. At least one person on the surface must be trained in basic first-aid (level 1) with proof of such training as well as a fully equipped first aid box available on site.

No person shall remain within a confined space for a period of more than one hour at a time. A minimum of 5 minute rest periods on the surface must be taken after this period before re-entering.

Should the alarm sound on the gas monitor, all employees must exit the confined space and the immediate area must also be evacuated immediately. The area must be properly ventilated and re-tested before re-entering the confined space. Professional support should be called for if necessary.

Employees must be provided with flameproof lighting when entering a confined space with the possibility of flammable gases. No naked lights, smoking or unprotected electrical apparatus which may cause sparks, shall be permitted in any confined space or in its vicinity.

5.25.3 General

All employees working in confined spaces must be issued with fully functioning gas monitoring equipment and safety harnesses. All these employees must be trained (including refresher training on a regular and continuous basis) in the use thereof.

5.25.4 Safety equipment

All teams must be issued with fully functional gas monitoring equipment and safety harnesses where applicable. All employees must be trained (including refresher training on a regular and continuous basis) in the use thereof.

5.25.5 General records

The following records shall be implemented and maintained by the principal contractor:

a. Confined space entry permits
b. Confined space entry registers
c. Safety harness and gas monitoring equipment registers
d. Risk assessments
e. Incident registers

5.25.6 Training

a. All employees that have to enter a confined space must be formally trained and confirmed competent before being required to enter such areas (new employees to complete this training and be declared competent before allowed to work in a confined space).
b. Refresher courses must be attended by employees at least once every 2 years or immediately if new methodologies or equipment are adopted or acquired.
c. Continuous onsite training and support by supervisory staff should be undertaken and enforced where required.

5.26 Temporary work

a. Temporary work must be carried out under the supervision of the competent person designated in writing.
b. Temporary work structures must be so designed, erected, supported, braced and maintained that they will be able to support any vertical or lateral loads that may be applied.
c. No load may be imposed onto a structure that the structure is not designed to carry.
d. Temporary work must be erected in accordance with the structural design drawings for such temporary work and if there is any uncertainty, the designer must be consulted before proceeding with the erection/use of the temporary work.
e. All drawings pertaining to the temporary work must be kept and be available on site.
f. All equipment used in the erection of temporary work must be checked by a competent person before use.
g. The foundation or base upon which the temporary work is erected must be able to bear the weight and keep the structure stable.
h. Employees erecting temporary work must be trained in the safe work procedures for the erection, moving and dismantling of the temporary work.
i. Safe access and emergency escape must be provided for employees.
j. A competent person must inspect the temporary work structures that have been erected before, during and after pouring of concrete or the placing of any other load and thereafter daily until the temporary work is stripped. The dismantling must also be undertaken under the direct supervision of the appointed competent person. The results of all inspections must be recorded in a register kept on the site health and safety file.
k. The temporary work must be left in place until the designated competent person has authorised its stripping in writing.
l. Any damaged temporary work must be repaired and/or rectified without delay.
m. Deck panels must be secured against displacement.
n. The slipping of employees and other persons on release agents on deck panels must be prevented at all times.
o. Employees' health must be protected against the use of solvents, oils or other similar substances.

5.27 Demolition Work

5.27.1 Demolition work must be carried out under the supervision of a competent person who has been appointed in writing.

5.27.2 A detailed structural engineering survey of the structure to be demolished must be carried out and a method statement on the procedure to be followed in demolishing the structure must be developed by a competent person, before any demolition may be commenced.

5.27.3 As demolishing progresses the structural integrity of the structure must be checked at intervals as determined in the method statement by the appointed competent person in order to prevent any premature or uncontrolled collapse.

5.27.4 Steps must be taken to ensure that where a structure is being demolished:
   a. no floor, roof or any other part of the structure is overloaded with debris, material or equipment that would make it unsafe;
   b. precautions are taken to prevent the collapse of the structure when any frame, support or reinforcement is cut or removed;
   c. shoring or propping is applied where necessary;
   d. no employee is required or allowed to work under unsupported overhanging material; and
   e. the stability of an adjacent building, structure, road or services is maintained at all times.

5.27.5 The location and nature of any existing services such as water, electricity, gas etcetera must be established before any demolition is commenced with and any service that may be affected by the demolition must be protected and made safe for employees and other persons.

5.27.6 Convenient and safe means of access must be provided and maintained at all times.

5.27.7 No material may be dropped on the outside of the building unless the area into which it is dropped is fenced off or barricaded.

5.27.8 Asbestos related work must be conducted to the requirements of the Asbestos Regulations promulgated under the OHS ACT and in particular Asbestos Regulation 21, i.e.:
   a. demolition of asbestos may only be carried out by a registered (with the Department of Labour) asbestos contractor;
   b. all asbestos materials likely to become airborne must be identified; and
   c. a plan of work must be submitted for approval to an Approved Asbestos Inspection Authority (AAIA), whom is approved by the Department of Labour, thirty calendar days prior to commencement of demolishing work unless the plan was drawn up by an AAIA and a signed (by all parties) copy is submitted to the Department of Labour fourteen calendar days before commencement of the demolishing.

5.27.9 During demolition work:
   a. all asbestos containing material must be disposed of safely, i.e. deposited only at a suitable site and proof of such deposits kept;
b. employees must be issued with appropriate personal protective equipment and the proper use thereof enforced at all times; and
c. after the demolition has been completed the area/premises must be thoroughly checked to ensure that all asbestos waste has been removed.

5.27.10 No employee is allowed to:
   a. use compressed air or permit the use of compressed air to remove asbestos dust from any surface or employee or person;
   b. smoke, eat, drink or keep food or beverages in an area not specifically designated for this; and
   c. apply asbestos by spraying.

5.28 Bulk mixing plants

The principal contractor shall ensure that:

a. All bulk mixing plants are operated and supervised by a competent person who has been appointed in writing.
b. A detailed risk assessment is undertaken for the erection, maintenance and operation of any bulk mixing plant on site. This risk assessment should be kept on the health and safety file and also duly communicated to all employees working with or close to the bulk mixing plant.
c. The placement and erection of a bulk mixing plant complies with the requirements set out by the manufacturer and that such plant is erected as designed.
d. All devices to start and stop a bulk mixing plant are provided and that these devices are-
   • placed in an easily accessible position; and
   • constructed in such a manner as to prevent accidental starting.
e. The machinery and plant selected is suitable for the task and that all dangerous moving parts of a mixer are placed beyond the reach of persons by means of doors, covers or other similar means.
f. No person is permitted to remove or modify any guard or safety equipment relating to a bulk mixing plant, unless authorised to do so by the competent person duly appointed as bulk mixing plant supervisor.
g. The top platform is provided with guardrails.
h. Dust abatement methods are implemented and maintained at all time when the bulk mixing plant is in operation.
i. Operators are utilising appropriate and correct personal protective equipment (PPE) i.e. eye, noise, hands and respiratory.
j. The bulk mixing plant and surrounding areas are kept clean, dry and free from tripping and slipping hazards.
k. All persons authorised to operate the bulk mixing plant are fully-
   • aware of all the dangers involved in the operation thereof; and
   • conversant with the precautionary measures to be taken in the interest of health and safety.
l. No person supervising or operating the bulk mixing plant authorise any other person to operate the plant, unless such person is competent to operate such machinery.
m. All precautionary measures as stipulated for confined spaces in paragraph 5.25 (i.e. entering confined spaces) of this specification are adhered to when entering any silo.
n. A record is kept of any repairs or maintenance to a bulk mixing plant and that it is readily available on site.
o. The bulk mixing plant is inspected weekly by a competent person and inspections register kept in the health and safety file.
p. All precautionary measures are adhered to regarding the usage of electrical equipment in explosive atmospheres, when entering a silo.

5.29 **Welding, flame cutting or similar operations**

Should any welding work be undertaken as part of emergency repairs to plant and equipment on site or as part of the construction activities, the principal contractor must ensure that:

5.29.1 A competent person will be appointed to supervise welding, flame cutting or similar operations on site.

5.29.2 The following rules will govern all welding and flame cutting or similar operations:

a. The welder will be trained regarding the safe use/operation of the equipment.
b. The welder and his assistant will be provided with effective and appropriate personal protective equipment and/or clothing.
c. Cables and electrode holders will be effectively insulated.
d. The workplace will be effectively screened off to prevent bystanders from being affected by the welding rays or they will be provided with personal protective equipment.
e. Special precautions will be taken where welding is undertaken in confined spaces e.g. proper and sufficient ventilation will be provided.
f. In wet or damp conditions the welding equipment and the welder will be properly insulated and someone will be on standby to assist in the event of any emergency.
g. A qualified person will certify in writing that it is safe to enter and work in a specific confined space before welding or flame cutting is undertaken.
h. No welding, flame cutting, grinding, soldering or similar work shall be undertaken in respect of any drum, vessels or similar object or container where such object or container-
   • is completely closed, unless the rise in internal pressure cannot render it dangerous; or
   • contains any substance which, under the action of heat may explode or react to form dangerous or poisonous substances.
i. Where pressure vessels/welding cylinders containing oxygen or acetylene are transported or used, the proper precautionary measures will be taken against bumping, falling, rolling etcetera.
j. Gas welding hoses may only be joined with approved connectors and clamps.
k. No oil or grease may be applied to oxygen valves and fittings.
l. It is a sound practice to store pressure vessels and/or welding cylinders vertically and to secure them by means of a chain.
m. Acetylene cylinders may never be inclined in excess of 45°.
n. Proper and adequate fire prevention measures will be instituted and maintained for as long as the welding continues.
o. Where explosive and/or flammable vapours are present welding will only be done under “hot work” permits.

5.30 Transportation of employees

5.30.1 Any vehicle used to transport employees must have seats firmly secured and adequate for the number of employees to be carried.

5.30.2 Regulation 247 of the National Road Traffic Act, Number 93 of 1996 (NRTA) stipulates that the principal contractor shall not allow employees to be transported in a vehicle unless the portion of the vehicle in which the employees are being conveyed is enclosed to a height of –

a. at least 350 mm above the surface on which employees are seated; or
b. at least 900 mm above the surface on which employees are standing,

in a manner and with a material of sufficient strength to prevent employees from falling from such vehicle when it is in motion.

5.30.3 Regulation 247 of the NRTA also stipulates that the principal contractor shall also not allow any employees to be conveyed in the goods compartment of a vehicle together with any tools or goods, except their personal effects, unless that portion in which the employees are being conveyed is separated by means of a partition, from the portion in which such goods are being conveyed.

5.31 Demolition of asbestos

The principal contractor shall ensure that:

a. No demolition of asbestos is undertaken unless the principal contractor or any sub-contractor designated to do so is duly registered as an asbestos contractor with the Department of Labour
b. A plan of work is developed, approved by an Approved Asbestos Inspection Authority and submitted to the Department of Labour at least 14 days prior to commencement of any asbestos demolition work. Proof that the plan of work was submitted to the Department of Labour should be available in the health and safety file which should be kept on site at all times.
c. Asbestos waste is only disposed of in a waste disposal site specifically designated for this purpose in terms of the Environment Conservation Act, 1989 (Act 73 of 1989), as amended. A certificate from the designated disposal site should be obtained and submitted to the client for evaluation. A copy of this certificate should also be available in the health and safety file at all times.
5.32 Working under or close to overhead power lines

The principal contractor shall ensure that the following requirements are duly considered and adhere to:

5.32.1 Passing underneath overhead lines to access the site

Some of the access roads to the site cross under existing power lines. To ensure that vehicles traveling to and from the site do not damage these lines and to reduce the risk of accidental contact the principal contractor should erect ground-level barriers to establish a safety zone to keep employees, other persons as well as construction vehicles and plant away from the wires. These barriers should be constructed out of large steel drums filled with rubble, concrete blocks, wire fence earthed at both ends, or earth banks marked with posts.

a. If steel drums are used they should be highlight by painting them with red and white horizontal stripes.
b. If a wire fence is used, put red and white flags on the fence wire posts.
c. Make sure the barriers can be seen at night, by using white or fluorescent paint or attaching reflective strips.

The principal contractor has to –

a. keep the number of passageways to a minimum;
b. define the route of the passageway using fences and erect goalposts at each end to act as gateways using a rigid, non-conducting material, for example timber or plastic pipe, for the goalposts, highlighted with, for example, red and white stripes. If the passageway is too wide to be spanned by a rigid non-conducting goalpost, the principal contractor has to use tensioned steel wire, earthed at each end, or plastic ropes with bunting attached. These should be positioned further away from the overhead line to prevent them being stretched and the safety clearances being reduced by plant moving towards the line;
c. ensure the surface of the passageway is levelled, firmed-up and well maintained to prevent undue tilting or bouncing of the vehicles and/or equipment;
d. put warning notices at either side of the passageway, on or near the goalposts and on approaches to the crossing giving the crossbar clearance height and instructing drivers to lower booms, tipper bodies etcetera and to keep below this height while crossing;
e. illuminate the notices and crossbar at night, or in poor weather conditions, to make sure they are visible;
f. enforce strict speed control measures; and
g. make sure that the barriers and goalposts are maintained.
5.32.2 Working underneath overhead lines

a. The principal contractor must confirm with the local authority or if applicable Eskom what the standard is for working close to and under these overhead lines.

b. A risk assessment should be undertaken taking into account any situations that could lead to danger from the overhead wires, for example, consider whether someone may need to stand on top of a machine or scaffold platform and lift a long item above their head, or if the combined height of a load on a low truck breaches the safe clearance distance. If this type of situation could exist, applicable precautionary measures have to be taken.

c. Where there is a risk of contact from, for example, the upward movement of cranes or tipper trucks or employees carrying tools and equipment, the principal contractor should carefully assess the risks and precautionary measures.

d. Vehicles, plant, machinery, equipment, or materials that could reach beyond the safe clearance distance should not be taken near the line.

e. Under no circumstances may any part of plant or equipment such as ladders, poles and hand tools be able to be utilised within the danger zone or make contact with the lines.

f. The principal contractor should allow for uncertainty in measuring the distances and for the possibility of unexpected movement of the equipment due, for example, to wind conditions.

g. Long objects should be carried horizontally and close to the ground and vehicles positioned so that no part can reach into the danger zone, even when fully extended.

h. Construction vehicles and plant working underneath overhead lines such as cranes, excavators and tele-handlers should be modified by the suppliers with the addition of suitable physical restraints so that they cannot reach beyond the safe clearance distances, measures should be put in place to ensure these restraints are effective and cannot be altered or tampered with.

i. Operators of high machinery should be instructed not carry out any work on top of the machinery near overhead power lines.

j. Make sure that employees, including any sub-contractors, understand the risks and are provided with instructions about the risk prevention measures.

k. Arrange for the work to be directly supervised by a competent person at all times who is familiar with the risks and can make sure that the required safety precautions are observed.

5.32.3 Emergency procedures

If someone or something comes into contact with an overhead line, it is important that everyone involved knows what action to take to reduce the risk of anyone sustaining an electric shock or burn injuries. Key points include –

a. Never touch the overhead line’s wires.

b. Always assume that the wires are live, even if they are not arcing or sparking, or if they otherwise appear to be dead. Even if lines
are dead, they may be switched back on either automatically after a few seconds or remotely after a few minutes or even hours if the line’s owner is not aware that their line has been damaged.

c. In the event of accidental contact call the emergency services. Give them the location of the incident, tell them what has happened and that electricity wires are involved.

d. Should any employee or other person come in contact with, or close to, a damaged wire, he must away as quickly as possible and stay away until the line’s owner advises that the situation has been made safe.

e. In the event of a vehicle touching a wire, the driver and occupants should either stay in the vehicle or, should the need to get out, jump out of it as far as you can. Never touch the vehicle while standing on the ground. Do not return to the vehicle until it has been confirmed that it is safe to do so.

f. All employees and other persons should be aware that if a live wire is touching the ground the area around it may be live. A safe distance from the wire or anything else it may be touching should therefore be maintained.

g. Only duly competent and authorised persons may work on electrical wires and installations.

5.33 Exposure to poisonous animals or insects

Due to the nature and location of the construction site, i.e. rural area, employees and other persons visiting could be exposed to poisonous animals and insects.

The principal contractor shall therefore ensure that the following are duly adhered to:

a. the emergency procedure be expanded to provide for the effective treatment of employees or other persons visiting exposed to bites or stings from poisonous animals and insects, i.e. the contact details of the nearest medical unit that could treat employees exposed to bites or stings be obtained and arrangements be made with this service provider on the procedures to be followed to ensure swift response when required;

b. confirmation be obtained from this medical unit that they have anti venom reserved to treat employees or other persons visiting that may be exposed to snake bites or scorpion stings;

c. competent first aiders be available to facilitate the treatment of employees or other persons visiting exposed to stings or bites; and

d. the potential exposure posed by poisonous animals or insects and awareness thereof is discussed with all employees as part of the toolbox talks and general awareness training and other persons visiting as part of the pre-site visit induction process.

5.34 Working in inclement weather

The principal contractor shall implement an early warning system to identify inclement weather and to prevent such weather from posing negative implications on the safety of employees and other persons visiting.
The early warning system shall as a minimum provide for the following:

5.34.1 Construction work done during electrical storms

a. The principal contractor shall ensure that all employees are removed from heights and all employees are as safe as possible, in inclement weather conditions.
b. No work is allowed on the construction site during electric storms where employees cannot be protected from it. Protection involves employees being restricted to:
   • eating area fitted with a lightning mast
   • workshops
   • inside buildings
c. No work is allowed in electrical storms on top of open structural steel, even when earthed.
d. No work is allowed on heights when the lightning is within a 10 kilometre radius.
e. After inclement weather on-site risk assessments will be reviewed to include wet conditions.

5.34.2 Lifting equipment operations during inclement weather

a. Lifting operations will stop during lightning within a 10 kilometre radius and wind above 28 km/h, and the lifting equipment operator will not be allowed to leave the lifting equipment with the booms extended.
b. Lifting operations will stop during rain, rigging and hand lifts.
c. Booms on all lifting equipment will be retracted.
d. All rigging operations will stop and employees will be removed from site.

5.34.3 Construction work done during rain

a. During rainy conditions all work on steel structures will stop.
b. No electrical tools will be used during rainy weather in open areas.
c. Work can be done in water proof areas where there is a zero risk for electrocution.
d. Areas that may be cleared for work during rain includes:
   • workshops
   • offices
   • work on ground level with the provision that the area is maintained in a safe dry condition

5.34.4 Scaffolding activities during inclement weather conditions

During inclement weather only limited scaffolding actions will be permitted i.e. erecting and dismantling activities.
Guidelines for safe choices:

<table>
<thead>
<tr>
<th>Weather type</th>
<th>Building and dismantling of scaffolding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lightning</td>
<td>Stop all activities</td>
</tr>
<tr>
<td>Light rain</td>
<td>Stop all activities</td>
</tr>
<tr>
<td>Heavy rain</td>
<td>Stop all activities</td>
</tr>
<tr>
<td>Wind &lt;28 km/h</td>
<td>Full use</td>
</tr>
<tr>
<td>Wind &gt;40 km/h</td>
<td>Stop all activities</td>
</tr>
<tr>
<td>Light mist</td>
<td>Full use</td>
</tr>
<tr>
<td>Heavy mist</td>
<td>Full use</td>
</tr>
<tr>
<td>Hail</td>
<td>Stop all activities</td>
</tr>
</tbody>
</table>

All scaffold users will:

a. Ensure that scaffolding is inspected immediately after inclement weather conditions.
b. Ensure that the risks associated with working at heights during inclement weather are identified and reasonably mitigated.
c. Be cautious of slip/trip hazards when performing activities during inclement weather.
d. Take note of the weather when completing the daily safe task instructions on site, where applicable.

5.34.5 Driving in inclement weather

The principal contractor shall ensure that the danger of driving in wet conditions is adequately covered in a risk assessment.

The risk assessment will include, but not limited to:

a. route planning
b. speed reduction
c. planning for emergency situations
d. driving precautions for slippery surfaces
e. visibility hazards

5.35 Pressure equipment

The principal contractor must ensure that:

a. any pressure equipment in use is subjected to a formal inspection and pressure test by an approved inspection authority before commissioning, after installation, re-erection or repairs (i.e. Pressure Equipment Regulation 11 has reference). Once installed, similar inspections and pressure tests are required every 36 months.
b. formal registers by an approved inspection authority are duly maintained (with copies readily available in the occupational health and safety file) to proof that any pressure equipment in use was subjected to the necessary inspections and pressure tests.
c. pressure equipment (such as compressors) is provided with all appropriate safety accessories required to ensure that it is safe for use (i.e. Pressure Equipment Regulations 10(1) has reference). This include but are not limited to safety latches to secure the pressure hoses to the compressor’s outlet valves as well as the pressure driven
equipment at the other end of the hoses to prevent these pressure hoses from causing serious injuries to employees should their securing mechanisms fail and they become loose whilst under pressure.

d. should gas fuel be utilised, either on site or as part of the construction process, no person be allowed to install a fixed appliance, equipment or system for gas fuel unless such person is a holder of a certificate of registration (i.e. Pressure Equipment Regulation 17(3) has reference).

6. Health and safety policy

The principal contractor has to provide the Client, as an annexure to the health and safety plan, with a detailed health and safety policy outlining the principal contractor’s stance on and principles adopted for health and safety.

7. Cost for health and safety measures during the construction process

To enable the Client to comply with Construction Regulation 5(1)(g), all potential principal contractors submitting tenders/bids have to demonstrate to the Client that sufficient provision has been made for the cost to implement and maintain the health and safety plan proposed by the principal contractor to meet the requirements of this health and safety specification as well as that of the OHSACT and its Regulations.

A detailed schedule of costs has to be included in the health and safety plan submitted as part of the potential principal contractor’s tender document. Failure by the principal contractor to adhere to this requirement will force the Client to reject the tender/bid in terms of Construction Regulation 5(1)(h).

8. Project specific risk assessment requirements

See Annexure 5.

9. Overview of annexures

Annexure 1: Legal compliance assessment.
Annexure 2: Measuring injury experience.
Annexure 3: SHE risk management report.
Annexure 4: Guide to risk assessments.
Annexure 5: List of risk assessments.
10. Enquiries

For any enquiries regarding this occupational health and safety specification, please contact –

Name: Bertie Viljoen Pr CHSA
EMPOWERisk
Tel: 012 819 1600
Cell: 082 415 3714
Fax: 086 672 9573
E-mail: bviljoen@empowerisk.co.za
Occupational health, -safety and environment: Risk assessment checklist

(Based on the Construction Regulations of the Occupational Health and Safety Act)

* Denotes items applicable to both construction sites, contractor plant and storage yards

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<tr>
<th>ELEMENT</th>
<th>REMARKS</th>
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<td>2. Education, training and promotion</td>
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<td>3. Public safety, security measures and emergency preparedness</td>
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<td>4. Personal protective equipment</td>
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<td>5. Housekeeping</td>
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<td>6. Working at heights (including roof work)</td>
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<td>7. Scaffolding and temporary work</td>
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<td>8. Ladders</td>
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<td>9. Electrical safeguarding</td>
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<td>10. Emergency, fire prevention and protection</td>
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<td>11. Excavations and demolition</td>
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<td>12. Tools</td>
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<td>14. Builder’s hoist hoists</td>
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<td>15. Transport and materials handling equipment</td>
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<td>16. Site plant and machinery</td>
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<tr>
<td>17. Plant and storage yard or site workshop specifics</td>
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<td>18. Workplace environment, health and hygiene</td>
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</tbody>
</table>

1. Administrative and Legal Requirements

<table>
<thead>
<tr>
<th>OHSACT Section or Regulation</th>
<th>Subject</th>
<th>Requirements</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Regulation 3</td>
<td>Application for construction work permit</td>
<td>Should the project qualifies to trigger this requirement - Application for permit lodged; Copy of construction permit in the OHS file; and Is the site specific permit number conspicuously displayed at the main entrance.</td>
<td></td>
</tr>
<tr>
<td>OHSACT Section or Regulation</td>
<td>Subject</td>
<td>Requirements</td>
<td>Yes/No</td>
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</tbody>
</table>
| Construction Regulation 4   | Notice of carrying out Construction work | For construction projects where no permit is required -  
• Was the Department of Employment and Labour notified; and  
• Is a copy of notice available on site. |        |
| General Admin. Regulation 4  | Copy of OHSACT | Updated copy of the OHSACT and Regulations on site. Readily available for perusal by all employees. |        |
| COID Act Section 80 and Construction Regulation 5(1)(j) | Registration with Compensation Commissioner or other approved compensation insurer | Written proof of registration/Letter of good standing available on site. |        |
| Construction Regulation 4 and 5(1) | OHSACT specification, plans and program | OHSACT spec received from NDoH. OHSACT plan developed. OHSACT program implemented. Plans and program updated regularly. |        |
| Section 8(2)(d) Construction Regulation 9 | Hazard identification and risk assessment | Competent risk assessor appointed in writing  
Proof of risk assessor's competence available on site  
Risk assessment and –plan drawn up and updated  
Baseline risk assessment undertaken prior to commencement of construction work  
Copy of baseline risk assessment available on site  
Continued risk assessments undertaken and recorded  
Copies of ongoing risk assessments available on site  
Employees and sub-contractors informed and trained by a competent person in the risk assessment before work commences and an ongoing basis thereafter. Health and safety committee or employee representatives consulted on the monitoring and review of the risk assessments. |        |
<p>| Section 16(2) | Assigned duties (Managers) | Responsibility of complying with the OHSACT assigned to other person/s by CEO. |        |
| Construction Regulation 8(1) | Designation of person ultimately responsible for occupational health and safety on site | Competent person appointed in writing as construction manager. |        |
| Construction Regulation 8(2) | Designation of assistant for construction manager | Competent person appointed in writing as assistant construction manager. |        |</p>
<table>
<thead>
<tr>
<th>OHSACT Section or Regulation</th>
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<th>Yes/No</th>
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<tbody>
<tr>
<td>Construction Regulation 8(7)</td>
<td>Designation of person responsible for ensuring occupational health and safety compliance</td>
<td>Competent person appointed in writing as construction supervisor.</td>
<td></td>
</tr>
<tr>
<td>Construction Regulation 8(8)</td>
<td>Designation of assistant for responsible person</td>
<td>Competent person(s) appointed in writing as assistant construction supervisors.</td>
<td></td>
</tr>
<tr>
<td>Construction Regulations 8(5)</td>
<td>Health and safety officer</td>
<td>Competent and duly registered person appointed. Proof of health and safety officer’s competency on site. Health and safety officer duly registered with SACPCMP as Construction Health and Safety Officer (CHSO) Reports prepared and submitted to the client/contractor(s)?</td>
<td></td>
</tr>
<tr>
<td>Section 17 &amp; 18 and General Administrative Regulations 6 and 7</td>
<td>Election and designation of occupational health and safety representatives</td>
<td>More than 20 employees - one representative and one additional representative for each 50 employees or part thereof. Designation in writing, period and area of responsibility specified. Meaningful reports. Reports actioned by management.</td>
<td></td>
</tr>
<tr>
<td>Section 19 and 20 and General Administrative Regulations 5</td>
<td>Occupational health and safety committee/s</td>
<td>Committee/s established. Members appointed in writing. Meetings held monthly. Minutes kept. Actioned by management.</td>
<td></td>
</tr>
<tr>
<td>Section 37(1) and (2)</td>
<td>Agreement with mandataries, contractors and sub-contractors</td>
<td>Written agreement with contractors and sub-contractors. Updated list of contractors and sub-contractors displayed. Proof of Registration with Compensation Commissioner or Compensation Insurer as well as Letter of Good Standing. Construction Supervisor designated. Written arrangements regarding representatives and committee. Written arrangements regarding first-aid.</td>
<td></td>
</tr>
<tr>
<td>Construction Regulation 7(1)(c) and 7(2)(a)</td>
<td>Management of sub-contractors</td>
<td>Has the principal contractor – • provided all sub-contractors with relevant sections of the client’s OHS specification • formally evaluated and approved all sub-contractors’ OHS plans. • ensured that the sub-contractors appointed made sufficient provision for the costs to be incurred to implement and maintain their OHS plan.</td>
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<tr>
<td>OHSACT Section or Regulation</td>
<td>Subject</td>
<td>Requirements</td>
<td>Yes/No</td>
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<tr>
<td>Construction Regulation 7(1)(g)</td>
<td>Medical certificates of fitness</td>
<td>Are medical certificates of fitness (issued by an occupational health practitioners) specific to the construction work performed available for all employees on site.</td>
<td></td>
</tr>
<tr>
<td>Section 24 and General Administrative Regulation 8</td>
<td>Reporting of incidents (Department of Employment and Labour)</td>
<td>Incident reporting procedure displayed. All incidents in terms of section 24 reported to the Provincial Director, Department of Employment and Labour, within 3 days (Annexure 1 and/or WCL 1 or 2). Cases of occupational disease reported. Copies of reports available on site. Record of first-aid injuries kept.</td>
<td></td>
</tr>
<tr>
<td>General Administrative Regulation 9</td>
<td>Investigation and recording of incidents</td>
<td>All injuries which resulted in the person receiving medical treatment other than first aid, recorded and investigated by investigator designated in writing. Copies of reports (Annexure 1) available on site. Tabled at committee meeting. Actioned taken by site management.</td>
<td></td>
</tr>
<tr>
<td>Construction Regulation 10</td>
<td>Fall protection</td>
<td>Competent person appointed to draw up and supervise the fall protection plan. Proof of appointees’ competence available on site. Risk assessment carried out for work at heights. Fall protection plan drawn up and updated. Plan available on site.</td>
<td></td>
</tr>
<tr>
<td>Construction Regulation 10(5)</td>
<td>Roof work</td>
<td>Competent person appointed to plan and supervise roof work. Proof of appointees’ competence available on site. Risk assessment carried out. Roof work plan drawn up and updated. Roof work inspect before each shift and inspection register kept. Employees medically examined for physical and psychological fitness and written proof on site.</td>
<td></td>
</tr>
<tr>
<td>Construction Regulation 12</td>
<td>Temporary works</td>
<td>Competent person appointed in writing as temporary works designer to inspect and approved any erected temporary works before use. Proof of appointees’ competence available on site. Competent person appointed in writing as temporary works supervisor. Proof of appointees’ competence available on site. Risk assessment carried out for work on temporary works structures. Temporary works drawings approved by temporary works designer and available</td>
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<tr>
<td>OHSACT Section or Regulation</td>
<td>Subject</td>
<td>Requirements</td>
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<td>OHSACT Section or Regulation</td>
<td>Subject</td>
<td>Requirements</td>
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<td>on site. Other relevant documentation that includes construction sequence and method statements available on site. Competent person(s) appointed in writing to: • erect, move or dismantle temporary works structures; and • examine and check all temporary works structures before being used; Written proof of competence of above appointees. Temporary work structures are inspected: • before, during and after the placement of concrete; • after inclement weather; • after a load was imposed; • daily whilst in place; and • before stripping or dismantling and inspection register kept. Inspection registers kept. Fall protection plan drawn up and updated. Plan available on site.</td>
<td></td>
</tr>
<tr>
<td>Construction Regulation 16</td>
<td>Scaffolding</td>
<td>Competent persons appointed in writing to: • erect scaffolding (scaffold erector/s); • act as scaffold team leaders; and • inspect scaffolding weekly and after inclement weather (scaffold inspector/s). Written proof of competence of above appointees. Appointees available on site. Copy of SANS 10085 available on site. Risk assessment carried out. Inspected weekly and/or after bad weather. Inspection register/s kept.</td>
<td></td>
</tr>
</tbody>
</table>
| Construction Regulation 17  | Suspended platforms         | Competent persons appointed in writing to: • control the erection of suspended platforms; • act as suspended platform team leaders; and • inspect suspended scaffolding weekly and after inclement weather. Risk assessment conducted. Certificate of authorisation issued by a registered professional engineer available on site and copy forwarded to the Department of Employment and Labour. The following inspections of the whole installation carried out by a competent
<table>
<thead>
<tr>
<th>OHSACT Section or Regulation</th>
<th>Subject</th>
<th>Requirements</th>
<th>Yes/No</th>
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<tbody>
<tr>
<td>person</td>
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<td>after erection and before use;</td>
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<td></td>
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<td>daily prior to use; and</td>
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<td>inspection register kept.</td>
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<td>The following tests to be conducted by a competent person:</td>
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<td>load test of whole installation and working parts every 12 months;</td>
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<td>and</td>
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<td>hoisting ropes, hooks and load attaching devices quarterly; and</td>
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<td>tests log book kept.</td>
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<td></td>
<td>Employees working on suspended platforms should be medically examined for physical and psychological fitness. Written proof available.</td>
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<tr>
<td>Construction Regulation 13</td>
<td>Excavations</td>
<td>Competent person/s appointed in writing to supervise and inspect excavation work. Written proof of competence of above appointee/s available on site. Risk assessment carried out.</td>
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<td>Excavations inspected:</td>
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<td>before every shift;</td>
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<td>after any blasting;</td>
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<td>after an unexpected fall of ground;</td>
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<td>after any substantial damage to the shoring; and</td>
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<td>after rain. Inspections register kept. Method statement developed where explosives will be and/or are used.</td>
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</tr>
<tr>
<td>Construction Regulation 14</td>
<td>Demolition work</td>
<td>Competent person/s appointed in writing to supervise and control demolition work. Written proof of competence of above appointee/s available on site. Risk assessment carried out. Engineering survey and method statement available on site. Inspections to prevent premature collapse carried out by competent person before each shift. Inspection register kept.</td>
<td></td>
</tr>
<tr>
<td>Construction Regulation 19</td>
<td>Materials hoist</td>
<td>Competent person appointed in writing to inspect the material hoist. Written proof of competence of above appointee available on site. Materials hoist to be inspected weekly by a competent person. Inspection register kept.</td>
<td></td>
</tr>
<tr>
<td>Construction Regulation 26</td>
<td>Water environments (including caissons and cofferdams)</td>
<td>Competent person appointed in writing to supervise, control and inspect work on or over water and the construction, installation, and dismantling of caissons and/or cofferdams.</td>
<td></td>
</tr>
<tr>
<td>OHSACT Section or Regulation</td>
<td>Subject</td>
<td>Requirements</td>
<td>Yes/No</td>
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<tr>
<td>Construction Regulation 21</td>
<td>Explosive actuated fastening devices</td>
<td>Competent person appointed to control the issue of the Explosive actuated fastening devices and cartridges as well as the service, maintenance and cleaning. Register kept of above. Empty cartridge cases, nails and fixing bolts returns recorded. Cleaned daily after use.</td>
<td>Yes</td>
</tr>
<tr>
<td>Construction Regulation 20</td>
<td>Bulk mixing plant</td>
<td>Competent person appointed to control the operation of the bulk mixing plant as well as the service, maintenance and cleaning of this plant. Register kept of above. Risk assessment carried out. Bulk mixing plant to be inspected weekly by a competent person and inspections register kept.</td>
<td>Yes</td>
</tr>
</tbody>
</table>
| Construction Regulation 22 Driven Machinery Regulations 18 and 19 | Cranes and lifting machines equipment | Competent person appointed in writing to inspect cranes, lifting machines and equipment. Written proof of competence of above appointee available on site. Cranes and lifting tackle identified and numbered. Register kept for lifting tackle. Logbook kept for each individual crane. Inspection:  
  - All cranes: Daily by operator.  
  - Tower cranes: After erection and thereafter 6 monthly.  
  - Other cranes: Annually by competent person.  
  - Lifting tackle (slings, ropes, chain slings etcetera): Three monthly. | Yes |
| Construction Regulation 24 Electrical Machinery Regulations 9 and 10 Electrical Installation Regulations | Inspection and maintenance of electrical installation and equipment (including portable electrical tools) | Competent person appointed in writing to inspect/test the installation and equipment. Written proof of competence of above appointee available on site. Inspections:  
  - Electrical installation and equipment inspected after installation, alterations and quarterly thereafter. Inspection registers kept.  
  - Portable electric tools and -lights and extension leads identified/numbered. | Yes |
<table>
<thead>
<tr>
<th>OHSACT Section or Regulation</th>
<th>Subject</th>
<th>Requirements</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diving Regulations</strong></td>
<td>Diving operations</td>
<td>Competent person appointed in writing to supervise diving operations and ensure maintenance, statutory inspection and testing by an approved inspection authority of equipment used. Written proof of competence of above appointee available on site. Proof of registration of all divers present on site available. Risk assessment carried out. Diving manual produced and available on site. Record of voice communications kept. Diving operations record kept. Each diver keeps a personal logbook and entries countersigned by the diving supervisor. Decompression tables available on site. Records of any decompression illness kept. Certificate of manufacture of any compression chamber or diving bell in use available on site.</td>
<td></td>
</tr>
<tr>
<td><strong>Construction Regulation 28</strong> General Safety Regulation 8(1)(a)</td>
<td>Designation of stacking and storage supervisor</td>
<td>Competent persons with specific knowledge and experience designated to supervise all stacking and storage. Written proof of competence of above appointee available on site.</td>
<td></td>
</tr>
<tr>
<td><strong>Construction Regulation 29</strong> Environmental Regulation 9</td>
<td>Designation of a person to coordinate emergency planning and fire protection</td>
<td>Person/s with specific knowledge and experience designated to coordinate emergency contingency planning and execution and fire prevention measures. Emergency evacuation plan: • Developed and available on site; • Drilled and practiced; and • Records of drills and practices available on site. Fire risk assessment carried out. All fire extinguishing equipment: • Identified and on register; • Inspected weekly and inspection registers kept; • Replaced after use; and • Serviced annually.</td>
<td></td>
</tr>
<tr>
<td><strong>General Safety Regulation 3</strong></td>
<td>First-aid</td>
<td>Every workplace provided with sufficient number of first-aid boxes (required where 5 persons or more are employed). First-aid boxes freely available. Content of boxes as per the minimum requirements of the OHSACT. One qualified first-aider appointed for every 50 employees (required where more than 10 persons are employed).</td>
<td></td>
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</tbody>
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<table>
<thead>
<tr>
<th>OHSACT Section or Regulation</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>List of First-aiders and competency certificates available on site. Name and contact details of person in charge of first-aid box clearly displayed. Location of first-aid boxes clearly demarcated. Signs instructing employees to report all injuries and/or illness including first-aid injuries.</td>
<td></td>
</tr>
<tr>
<td>General Safety Regulation 2</td>
<td>Personal protective equipment (PPE)</td>
<td>PPE risk assessment carried out. Items of PPE prescribed and use enforced. Records of issue kept. Undertaking by employee to use and/or wear PPE.</td>
<td></td>
</tr>
<tr>
<td>General Safety Regulation 9</td>
<td>Inspection and use of welding and/or flame cutting equipment</td>
<td>Competent person/s with specific knowledge and experience designated to inspect electric arc, gas welding and flame cutting equipment. Written proof of competence of above appointee available on site. Equipment identified/numbered and entered into a register. Equipment inspected monthly. Inspection register kept.</td>
<td></td>
</tr>
<tr>
<td>Hazardous Chemical Substances (HCS) Regulations</td>
<td>Control of storage and usage of HCS and other flammables</td>
<td>Competent person/s with specific knowledge and experience designated to control the storage and usage of HCS (including flammables). Written proof of competence of above appointee available on site. Risk assessment carried out. Register of HCS kept and/or used on site.</td>
<td></td>
</tr>
<tr>
<td>Pressure Regulations</td>
<td>Pressure (PV)</td>
<td>Competent Person/s with specific knowledge and experience designated to supervise the use, storage, maintenance, statutory inspections and testing of PVs. Written proof of competence of above appointee available on site. Risk assessment carried out. Certificates of manufacture available on site. Register of PVs on site. Inspections and testing by approved inspection authority (AIA): • after installation, re-erection or repairs; • every 36 months; and • register or log kept of inspections, tests, modifications and repair on site.</td>
<td></td>
</tr>
</tbody>
</table>
### OHSACT Section or Regulation | Subject | Requirements | Yes/No
--- | --- | --- | ---
Construction Regulation 23 | **Construction vehicles and earth moving equipment** | Operators or drivers appointed to:  
- Carry out a daily inspection prior to use; and  
- Drive the vehicle or plant that he/she is competent to drive or operate. Written proof of competence of above appointee available on site. Record of daily inspections kept on site. Medical assessments. | 

General Safety Regulation 13A | **Inspection of Ladders** | Competent person appointed in writing to inspect ladders. Ladders inspected at arrival on site and monthly thereafter. Inspections register kept on site. | 

General Safety Regulation 13B | **Ramps** | Competent person appointed in writing to supervise the erection and inspection of ramps. Inspection register kept on site. | 

### 2. Education, training and promotion

| Subject | Requirement | Yes/No |
--- | --- | ---
*Occupational Health and Safety Policy as per OHSACT Section 7(1) | Policy signed by CEO and published and communicated to employees. Policy displayed on employee notice boards. Management and employees committed. | 

*Company and site health and safety rules as per OHSACT Section 13(a) | Rules published. Rules displayed on employee notice boards. Rules issued and explained to employees with written proof hereof. Follow-up to ensure employees understand and adhere to the rules. | 

*Induction and task safety training as per OHSACT Section 13(a) | All new employees receive health and safety induction training. Training includes task safety instructions. Employees acknowledge receipt of training. Follow-up to ensure employees understand and adhere to instructions. | 

*General health and safety training as per OHSACT Section 13(a) | All employees receive basic health and safety training. Written proof kept. Operators of plant and equipment receive specialised training. Follow-up to ensure employees understand and adhere to instructions. | 

*Occupational health and safety promotion | Incident experience board indicating among others -  
- Number of hours worked without an injury; and  
- Number of days worked without an injury. Safety grading - Board kept up to date. Relevant safety posters displayed and changed regularly. Employee notice board for health and safety notices. Site health and safety competitions. Company health and safety competition. Participation in regional health and safety competitions. Suggestion scheme. |
3. Public safety, security measures and emergency preparedness

<table>
<thead>
<tr>
<th>Subject</th>
<th>Requirement</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Notices and signs</td>
<td>Notices and signs at entrances along perimeters indicating “No unauthorised entry” and “Entry at own risk”. Notices and signs at entrance instructing visitors and non-employees what to do, where to go and where to report on entering the site or yard with directional signs for example “Visitors to report to office”. Notices and signs posted to warn of overhead work and other hazardous activities for example General Warning Signs.</td>
<td></td>
</tr>
<tr>
<td>Site safeguarding</td>
<td>Nets, canopies, stills, fans etcetera to protect members of the public passing and/or entering the site.</td>
<td></td>
</tr>
<tr>
<td>*Security measures</td>
<td>Access control measures and register in operation. Security patrols after hours and weekends. Sufficient lighting after dark. Guard has access to telephone or other means of emergency communication.</td>
<td></td>
</tr>
<tr>
<td>*Emergency preparedness</td>
<td>Emergency contact numbers displayed near telephone. Emergency evacuation instructions posted up on all notice boards (including employees’ notice boards). Emergency contingency plan available on site or in yard. Doors open outwards and unobstructed. Emergency alarm audible all over (including in toilets).</td>
<td></td>
</tr>
<tr>
<td>*Emergency drill and evacuation</td>
<td>Adequate number of employees trained to use fire equipment. Emergency evacuation plan available, displayed and practiced. (See Section 1 for designation and register).</td>
<td></td>
</tr>
</tbody>
</table>

4. Personal protective equipment (PPE)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Requirement</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>*PPE needs analysis</td>
<td>Need for PPE identified and prescribed in writing.</td>
<td></td>
</tr>
<tr>
<td>*Head protection</td>
<td>It is compulsory for all persons on site to wear safety helmets including sub-contractors and visitors (where prescribed).</td>
<td></td>
</tr>
<tr>
<td>*Foot protection</td>
<td>All persons on site have to wear safety footwear including gumboots for concrete or wet work and non-slip shoes for roof work.</td>
<td></td>
</tr>
<tr>
<td>*Eye and face protection</td>
<td>Eye and face protection (such as goggles, face shields, welding helmets) to be used when operating the following: • Jack or kango hammers; • Angle or bench grinders; • Electric drills (overhead work into concrete, cement and bricks); • Explosive actuated fastening devices; • Concrete vibrators or pokers; • Hammers and chisels; • Cutting or welding torches; • Arc welding equipment; • Skill or bench saws; and • Spray-painting equipment etcetera.</td>
<td></td>
</tr>
<tr>
<td>*Hearing protection</td>
<td>Hearing Protectors (such as muffs, plugs) used when operating the following: • Jack or kango hammers; • Explosive actuated fastening devices; and</td>
<td></td>
</tr>
<tr>
<td>Subject</td>
<td>Requirement</td>
<td>Yes/No</td>
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<tr>
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</tr>
<tr>
<td></td>
<td>• Wood or aluminium working machines such as saws, planers, routers.</td>
<td></td>
</tr>
<tr>
<td>*Hand protection</td>
<td>Protective gloves to be worn by employees handling or using: • Cement, bricks, steel or chemicals; • Welding equipment; • Hammers and chisels; and • Jack or kango hammers etcetera.</td>
<td></td>
</tr>
<tr>
<td>*Respiratory protection</td>
<td>Suitable and efficient respirators to be worn correctly by employees handling or using: • Dry cement; • Dusty areas; • Hazardous chemicals; • Angle grinders; and • Spray-painting etcetera.</td>
<td></td>
</tr>
<tr>
<td>*Fall Prevention Equipment</td>
<td>Suitable fall arrest equipment correctly used by persons working on or in unguarded, elevated positions such as: • Scaffolding; • Riggers; • Lift shafts; • Edge work; and • Ring beam edges etcetera. Other applicable methods of fall prevention should also be applied such as catch nets.</td>
<td></td>
</tr>
<tr>
<td>*Protective clothing</td>
<td>All jobs requiring protective clothing (such as overalls, rain wear, welding aprons etcetera) to be identified and clothing worn.</td>
<td></td>
</tr>
<tr>
<td>*PPE issue and control</td>
<td>Identified equipment to be issued free of charge. All PPE should be maintained in good condition (i.e. regular checks). Workers instructed in the proper use and maintenance of PPE. Commitment obtained from wearer accepting conditions and to wear the PPE. Record of PPE issued kept on file.</td>
<td></td>
</tr>
</tbody>
</table>

## 5. Housekeeping

<table>
<thead>
<tr>
<th>Subject</th>
<th>Requirement</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Scrap removal system</td>
<td>All items of scrap, unusable off cuts, rubble and redundant material removed from working areas on a regular basis. Scrap and/or waste removal from heights by chute, hoist or crane (i.e. nothing thrown or swept over sides). Scrap disposed of in designated containers or areas. Removal from site or yard on a regular basis.</td>
<td></td>
</tr>
<tr>
<td>Stacking and storage (See Section 1 for designation and register)</td>
<td>Stacking: • Stable; • On firm level surface or base; • Not leaning and/or collapsing; • Irregular shapes bonded; • Not exceeding 3 times the base; • Stacks accessible; and • Removal from top only. Storage: • Adequate storage areas provided;</td>
<td></td>
</tr>
<tr>
<td>Subject</td>
<td>Requirement</td>
<td>Yes/No</td>
</tr>
<tr>
<td>---------</td>
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</tr>
<tr>
<td>• Functional for example demarcated storage areas, racks, bins etcetera; • Special areas identified and demarcated for example flammable gas, cement etcetera; • Neat, safe, stable and square; • Store and storage areas clear of superfluous material; • Storage behind sheds etcetera should be neat and under control; and • Storage areas free from weeds, litter etcetera.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Waste control or reclamation**
Re-useable off cuts and other re-useable material removed daily and kept to a minimum in the work areas. All re-useable materials neatly stacked or stored in designated areas (i.e. nails removed or bent over in re-useable timber). Issue of hardware, nails, screws and cartridges etcetera should be controlled and return of unused items monitored.

| Sub-contractors | Sub-contractors required to comply with the site or yard’s housekeeping requirements. |

6. **Working at heights (including roof work)**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Requirement</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Openings</td>
<td>Unprotected openings adequately guarded, fenced and barricaded with catch nets installed where necessary. Covers over openings in roof of robust construction and secured against displacement.</td>
<td></td>
</tr>
<tr>
<td>General requirements</td>
<td>Roof work discontinued when bad or hazardous weather prevails. Fall protection measures (including warning notices) when working close to edges or on fragile roofing material.</td>
<td></td>
</tr>
</tbody>
</table>

7. **Scaffolding and temporary work**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Requirement</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access and system scaffolding (See Section 1 for designation and register)</td>
<td>Foundation firm and stable. Sufficient bracing. Tied to structure and secured from side or cross movement. Platform boards in good condition and secured. Sufficient platform boards to be used. Handrails and toe boards provided. Access ladders or stairs provided. Area/s under scaffolding tidy. Safe and unsafe for use signs to be used. Complying with OHSACT and SANS 10085.</td>
<td></td>
</tr>
<tr>
<td>Free Standing Scaffolding</td>
<td>Foundation firm and stable. Sufficient bracing. Platform boards in good condition and secured. Sufficient platform boards to be used. Handrails and toe boards provided. Access ladders or stairs provided. Area/s under scaffolding tidy. Safe or unsafe for use signs to be used. Height and base ratio correct. Outriggers used and tied to structure where necessary.</td>
<td></td>
</tr>
<tr>
<td>Subject</td>
<td>Requirement</td>
<td>Yes/No</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>Mobile scaffolding</td>
<td>Complying with OHSACT and SANS 10085.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Foundation firm and stable.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Sufficient bracing.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Platform boards in good condition and secured.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Sufficient platform boards to be used.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Handrails and toe boards provided.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Access ladders or stairs provided.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Area/s under scaffolding tidy.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Safe and unsafe for use signs to be used.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Wheels and swivels in good condition</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Brakes working and applied.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Height to base ratio correct.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Outriggers used where necessary.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complying with OHSACT and SANS 10085.</td>
<td></td>
</tr>
<tr>
<td>Scaffolding</td>
<td><strong>Suspended scaffolding</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Outriggers securely supported and anchored.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Correct number of steel wire ropes used.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Platform as close as possible to the structure.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Handrails on all sides.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* All winches, ropes, cables and brakes inspected regularly.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Inspection registers kept on site.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Scaffolding complies with OHSACT.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Winches maintained by competent person.</td>
<td></td>
</tr>
<tr>
<td>Temporary works</td>
<td><strong>Temporary works</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>* All components in good condition.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Foundation firm and stable.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Adequate bracing and stability ensured.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Good workmanship, uprights straight and plum.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Good cantilever construction.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Safe access provided.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Areas under support work tidy.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Same standards as for system scaffolding.</td>
<td></td>
</tr>
<tr>
<td>Special scaffolding</td>
<td><strong>Special scaffolding</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Special scaffolding for example cantilever, jib and truss-out scaffolds erected to an acceptable standard and inspected by specialists.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Inspection registers to be kept on site.</td>
<td></td>
</tr>
<tr>
<td>Edges and openings</td>
<td><strong>Edges and openings</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Edges barricaded to acceptable standards.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Manhole openings covered and/or barricaded.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Openings in floor and other openings covered, barricaded or fenced.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Stairs provided with handrails.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Lift shafts barricaded or fenced off.</td>
<td></td>
</tr>
</tbody>
</table>

### 8. Ladders

<table>
<thead>
<tr>
<th>Subject</th>
<th>Requirement</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical condition, use and</td>
<td>Stepladders – hinges, stays, braces and stiles in order.</td>
<td></td>
</tr>
<tr>
<td>Storage</td>
<td>Extension ladders – ropes, rungs, stiles, safety latch and hook in order.</td>
<td></td>
</tr>
<tr>
<td>(See Section 1 for designation</td>
<td>Extension or straight ladders secured or tied at the bottom or top.</td>
<td></td>
</tr>
<tr>
<td>and register)</td>
<td>No joined ladders used.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>All ladders stored on hooks or racks and not on ground.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ladders protrude 900 mm above landings, platforms or roof.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fixed ladders higher than 5 m have cages or fall arrest system.</td>
<td></td>
</tr>
</tbody>
</table>
9. **Electrical safeguarding**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Requirement</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Electrical distribution boards and earth leakage</em></td>
<td>Colour coded, numbered and symbolic sign displayed. Area in front kept clear and unobstructed. Fitted with inside cover plate, openings blanked off and no exposed “live” conductors or terminals. Door kept close. Switches and/or circuit breakers identified. Earth leakage protection unit fitted and operating. Tested with instrument - test results within 15 – 30 milli-amps. Aperture openings provided for the plugging in and removal of extension leads without the need to open the door.</td>
<td></td>
</tr>
</tbody>
</table>
| *Electrical installations and wiring*                       | Temporary wiring or extension leads in good condition with no bare or exposed wires. Earthing continuity and polarity correct:  
  “*Brown is live, Blue is neutral, Green and Yellow earth the lot*”  
  Cables protected from mechanical damage and moisture. Correct loading observed for example no heating appliance used from lighting circuit etcetera. Light fittings and lamps protected from mechanical damage/moisture. |        |
| *Physical condition of electrical appliances and tools*     | Electrical Equipment and Tools (includes all items plugging in to a 15 Amp supply socket):  
  • Insulation and casing in good condition.  
  • Earth wire connected or intact where not of double insulated design.  
  • Double insulation mark where no earth wire.  
  • Cord in good condition/no bare wires/secured to machine & plug.  
  • Plug in good condition, connected correctly and correct polarity. |        |

10. **Emergency, fire prevention and protection**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Requirement</th>
<th>Yes/No</th>
</tr>
</thead>
</table>
| *Fire extinguishing equipment  
(See Section 1 for designation and register)*                 | Fire Risks Identified and on record. Fire Extinguishing Equipment available for:  
  • Offices;  
  • General stores;  
  • Flammable store;  
  • Fuel storage tanks;  
  • Gas welding or cutting operations; and  
  • Where flammable substances are being used or applied. |        |
| *Maintenance*                                                 | Fire equipment serviced minimum annually, but preferably 6 monthly.                                  |        |
| *Location & Signs*                                            | Fire Extinguishing Equipment:  
  • Clearly visible;  
  • Unobstructed; and  
  • Sign posted including “No Smoking” and “No Naked Lights” where required i.e. (flammable store, gas store, fuel tanks etc.). |        |
### Storage issue and control of flammables (incl. gas cylinders)

<table>
<thead>
<tr>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage area provided for flammables with suitable doors, ventilation, bund etcetera.</td>
</tr>
<tr>
<td>Flammable store neat and tidy with no Class A combustibles.</td>
</tr>
<tr>
<td>Decanting of flammable substances carried out in ignition free and adequately ventilated area.</td>
</tr>
<tr>
<td>Container bonding principles applied.</td>
</tr>
<tr>
<td>Only sufficient quantities issued for one day’s use.</td>
</tr>
<tr>
<td>Special gas cylinder store or storage area.</td>
</tr>
<tr>
<td>Gas cylinders stored, used and transported upright and secured in trolley, cradle or structure that is well ventilated.</td>
</tr>
<tr>
<td>Types of gas cylinders identified and stored separately.</td>
</tr>
<tr>
<td>Full cylinders stored separately from empty cylinders.</td>
</tr>
</tbody>
</table>

### Storage, issue and control of Hazardous Chemical Substances (HCS)

<table>
<thead>
<tr>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCS storage principles applied i.e. products segregated.</td>
</tr>
<tr>
<td>Provision made for leakage and spillage containment.</td>
</tr>
<tr>
<td>Emergency (serviceable) showers and eye wash facilities provided.</td>
</tr>
<tr>
<td>HCS under lock and key as well as controlled by designated person.</td>
</tr>
<tr>
<td>Decanted or issued in containers with information and warning labels.</td>
</tr>
<tr>
<td>Disposal of unwanted HCS by recognised disposal agent.</td>
</tr>
</tbody>
</table>

### Excavations and demolition

<table>
<thead>
<tr>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excavations deeper than 1.5 m.</td>
</tr>
<tr>
<td>Provided with an access ladder.</td>
</tr>
<tr>
<td>Excavations guarded, barricaded or lighted after dark in public areas.</td>
</tr>
<tr>
<td>Soil dumped at least 1 m away from edge of excavation.</td>
</tr>
<tr>
<td>On sloping ground soil dumped on lower side of excavation.</td>
</tr>
</tbody>
</table>

### Tools

<table>
<thead>
<tr>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand tools Shovels, Spades and Picks:</td>
</tr>
<tr>
<td>• Handles free from cracks and splinters;</td>
</tr>
<tr>
<td>• Handles fit securely; and</td>
</tr>
<tr>
<td>• Working end sharp and true. Hammers:</td>
</tr>
<tr>
<td>• Good quality handles, no pipe or reinforcing steel handles;</td>
</tr>
<tr>
<td>• Handles free from cracks and splinters; and</td>
</tr>
<tr>
<td>• Handles fit securely. Chisels:</td>
</tr>
<tr>
<td>• No mushroomed heads or heads chamfered;</td>
</tr>
<tr>
<td>• Not hardened; and</td>
</tr>
<tr>
<td>• Cutting edge sharp and square. Saws:</td>
</tr>
<tr>
<td>• Teeth sharp and set correctly; and</td>
</tr>
<tr>
<td>• Correct saw used for the job.</td>
</tr>
</tbody>
</table>

### Explosive actuated fastening devices

<table>
<thead>
<tr>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only used by trained and authorised personnel.</td>
</tr>
<tr>
<td>Prescribed warning signs placed or displayed where tool is in use.</td>
</tr>
</tbody>
</table>
### 13. Cranes

<table>
<thead>
<tr>
<th>Subject</th>
<th>Requirement</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>and register)</strong></td>
<td>Inspected at least monthly by competent person and results recorded in on site register. Issue and return recorded including cartridges or nails and unused cartridges, nails, empty shells recorded. Cleaned daily after use in on site register.</td>
<td></td>
</tr>
</tbody>
</table>

#### 13. Cranes

<table>
<thead>
<tr>
<th>Subject</th>
<th>Requirement</th>
<th>Yes/No</th>
</tr>
</thead>
</table>
| **Tower crane**  
(See Section 1 for designation and register) | Only operated by trained authorised operator with valid certificate of training. Certificate available on site. Structure - no visible defects. Electrical installation good and safe. Crane hook - throat pop marked, safety latch fitted and functional. SWL/MML displayed. Limit switches fitted and operational. Access ladder fitted with backrests or fall arrest system installed. Lifting tackle in good condition and inspection colour coding current. | | |

*Mobile crane*  

*Gantry crane* | Only operated by trained authorised persons. Correct slinging techniques used. Recognised displayed on chart signals used. Log book kept up to date. Prescribed inspections conducted on crane and lifting tackle. “Crane overhead” signage, where applicable. Crane hook - throat pop marked, safety latch fitted and functional. SWL/MML displayed and load limiting switches fitted and operational. | | |
### 14. Builder’s hoist

<table>
<thead>
<tr>
<th>Subject</th>
<th>Requirement</th>
<th>Yes/No</th>
</tr>
</thead>
</table>
| Builder’s hoist (See Section 1 for designation and register) | “Hoist in operation” - sign displayed. General construction strong and free from latent defects. Tower:  
  - Adequately secured and braced.  
  - At least 900 mm available for over travel.  
  - Barricaded at least 2 100 mm high at ground level and floors.  
  - Landing place provided with gate at least 1 800 high. Platform:  
  - No persons conveyed on platform.  
  - Steel wire ropes with breaking strain of six times maximum weight.  
  - Signal systems used.  
  - Goods prevented from moving/falling off.  
  - Effective brake capable of holding maximum weight. | |

### 15. Transport and materials handling equipment

<table>
<thead>
<tr>
<th>Subject</th>
<th>Requirement</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Site vehicles</td>
<td>All site vehicles, dumpers, bobcats, loaders etcetera checked daily before used by driver or operator. Inventory of vehicles used/operated on site. Inspection by means of a checklist and results recorded. No persons riding on equipment not designed for passengers. Site speed limit posted and not exceeded. Drivers and operators trained and licensed. Licenses available on site. No unauthorised persons allowed to drive or operate equipment.</td>
<td></td>
</tr>
<tr>
<td>Conveyors</td>
<td>Conveyor belt nip points and drive guarded. Emergency stop and lever brake fitted, clearly marked and accessible.</td>
<td></td>
</tr>
</tbody>
</table>

### 16. Site plant and machinery

<table>
<thead>
<tr>
<th>Subject</th>
<th>Requirement</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brick cutting machine</td>
<td>Operator trained and only authorised persons use the machine. Emergency stop switch clearly marked and accessible. Area around the machine dry and slip or trip free as well as clear of off cuts. All moving drive parts guarded. Electrical supply cable protected. Operator using correct PPE i.e. eye, face, hearing, foot, hands and body.</td>
<td></td>
</tr>
<tr>
<td>*Electric arc welder</td>
<td>Welder trained. Only authorised and trained persons use welder. Adequately earthed. Electrode holder in good condition and safe. Cables, clamps, lugs and connectors in good condition. Area in which welding machine is used is dry and protected from wet. Welder using correct PPE i.e. eye, face, foot, body and</td>
<td></td>
</tr>
<tr>
<td>Subject</td>
<td>Requirement</td>
<td>Yes/No</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td><strong>Woodworking machines</strong></td>
<td>Operator’s trained and only authorised persons use machines. Provided with guards and guards used. Operators using correct PPE i.e. eye, face, foot and hearing.</td>
<td></td>
</tr>
<tr>
<td>*Compressors</td>
<td>Relief valves set, locked and sealed. Maximum safe working pressure (MSWP) indicated on face of pressure gauge face and not on glass cover. All drives adequately guarded. Receiver and lines drained daily. Hoses good condition and clamped, not wired.</td>
<td></td>
</tr>
<tr>
<td>Concrete mixer and bulk mixing plant</td>
<td>Top platform provided with guardrails. Dust abatement methods in use. Operators using correct PPE i.e. eye, hands and respiratory. All moving drive parts guarded. Emergency stops identified, indicated and accessible. Area kept clean, dry and free from tripping and slipping hazards. Banksman identified and crane signals displayed and used.</td>
<td></td>
</tr>
<tr>
<td>*Gas welding and flame cutting equipment</td>
<td>Only authorised and trained persons use the equipment. Torches and gauges in good condition. Flashback arrestors fitted at cylinders and gauges. Hoses in good condition, correct type and all connections with clamps. Cylinders stored, used and transported in upright position, secured in trolley or cradle. Fire prevention control methods applied. Hot work permits.</td>
<td></td>
</tr>
</tbody>
</table>

17. **Plant and storage yard or site workshop specifics**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Requirement</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>OHSACT, Section 8(2)(1) General Machinery Regulation 2(1) <strong>Supervision of the use and maintenance of machinery</strong></td>
<td>Persons with specific knowledge and experience designated to supervise the use and maintenance of machinery. Critical items of machinery identified, numbered and placed on register or inventory. Inspection or maintenance schedules for abovementioned. Inspections or maintenance carried out to above schedules. Results recorded.</td>
<td></td>
</tr>
<tr>
<td>General Machinery Regulation 9(2) <strong>Notices regarding operation of machinery</strong></td>
<td>Schedule D notice posted in work areas.</td>
<td></td>
</tr>
<tr>
<td>Pressure Equipment Regulations <strong>Supervision of the use and maintenance of pressure equipment such as pressure vessels (PV)</strong></td>
<td>Persons with specific knowledge and experience designated to supervise the use and maintenance of PVs. PVs identified, numbered and placed on register. Manufacturers plate intact. Inspection or maintenance schedules for abovementioned. Inspections or maintenance carried out to above schedules. Results recorded and test certificates available.</td>
<td></td>
</tr>
<tr>
<td>Lock-out procedure</td>
<td>Lock-out procedure in operation.</td>
<td></td>
</tr>
<tr>
<td>Ergonomics</td>
<td>Ergonomics survey conducted. Results on record. Survey results applied.</td>
<td></td>
</tr>
</tbody>
</table>
### Demarcation and colour coding

Demarcation principles applied.
- All services, pipes, electrical installation, stop-start controls, emergency controls etcetera colour coded to own published or SABS standard.
- Employees trained to identify colour coding.

### Portable and bench grinders

Area around grinder clear and trip/slip free.
- Bench grinders mounted securely and grinder generally in good condition.
- No excessive vibration.
- On and off switch or button clearly demarcated and accessible.
- Adequate guards in place.
- Tool rest – secure, square and maximum 2 mm gap.
- Stone or disk - correct type and size, mounted correctly and dressed.
- Use of eye protection enforced.

### Ancillary lifting equipment

Chain blocks, tifors, jacks and mobile gantries etcetera identified and numbered on register.
- Chains in good condition and links no excessive wear.
- Lifting hooks – throat pop marked and safety latch fitted.
- SWL/MML marked or displayed.

### Presses, guillotines and shears

Only operated by trained and authorised persons.
- PPE used by operators.
- Interlocks or lockouts fitted.

### 18. Workplace environment, health and hygiene

<table>
<thead>
<tr>
<th>Subject</th>
<th>Requirement</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lighting</strong></td>
<td>Adequate lighting in places where work is being executed for example stairwells and basements or after sunset. Light fittings placed and installed causing no irritating or blinding glare.</td>
<td></td>
</tr>
<tr>
<td><strong>Ventilation</strong></td>
<td>Adequate ventilation, extraction and exhausting in hazardous areas for example where chemicals and adhesives are stored, welding takes place and where petrol or diesel motors are running in confined spaces or basements.</td>
<td></td>
</tr>
<tr>
<td><strong>Noise</strong></td>
<td>Tasks identified where noise exceeds 85 dBA. All reasonable steps taken to reduce noise levels at the source. Hearing protection used where noise levels could not be reduced to below 85 dBA.</td>
<td></td>
</tr>
<tr>
<td><strong>Heat stress</strong></td>
<td>Measures in place to prevent heat exhaustion in heat stress problem areas e.g. steel decks, when the WBGT index reaches 30 (see Environmental Regulation 4). Cold drinking water readily available when extreme temperatures are experienced.</td>
<td></td>
</tr>
<tr>
<td><strong>Ablution facilities</strong></td>
<td>Sufficient toilets provided for men and women separately i.e. 1 per 30 employees (National Building Regulations prescribe chemical toilets for Construction sites). Toilet paper available. Sufficient showers provided for men and women separately. Facilities for washing hands provided. Soap available for washing hands. Means of drying hands available. Changing facilities or area provided for men and women separately. Ablution facilities hygienic and clean.</td>
<td></td>
</tr>
<tr>
<td>Subject</td>
<td>Requirement</td>
<td>Yes/No</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>*Eating and cooking facilities</td>
<td>Adequate storage facilities provided. Weather protected eating area provided, separate from changing area.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Refuse bins with lids provided. Facilities clean and hygienic.</td>
<td></td>
</tr>
<tr>
<td>*Pollution of environment</td>
<td>Measures in place to minimize dust generation. Accumulation of empty cement pockets, plastic wrapping or</td>
<td></td>
</tr>
<tr>
<td></td>
<td>bags, packing materials etcetera prevented. Spillage or discarding of oil, chemicals and dieseline into</td>
<td></td>
</tr>
<tr>
<td></td>
<td>storm water and other drains prevented.</td>
<td></td>
</tr>
<tr>
<td>*Hazardous chemical substances</td>
<td>All substances identified and list available e.g. acids, flammables, poisons etc. Material Safety Data</td>
<td></td>
</tr>
<tr>
<td>(See Section 1 for designation and register)</td>
<td>Sheets (MSDS) indicating hazardous properties and emergency procedures in case of incident on file and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>readily available. Substances stored safely.</td>
<td></td>
</tr>
</tbody>
</table>

Name of person who have undertaken the assessment

_____________________________________________

Signature

_____________________________________________

Date

_____________________________________________

Received by

_____________________________________________

Designation

_____________________________________________

Date

_____________________________________________

Tabled at health and safety committee

_____________________________________________
Annexure 2

Measuring injury experience

Proudly prepared by

EMPOWERisk (Pty) Ltd
Measuring injury experience

1. Background

Injury experience has traditionally been measured by the use of a disabling injury frequency rate, the so-called “DIFR”. The DIFR is calculated by multiplying the number of disabling injuries by 1 million and dividing by the number of person-hours worked.

The DIFR has recently been replaced internationally with a disabling injury incidence rate (DIIR). The only difference between the two rates are that the 1 million in the calculation is replaced with 200 000 (200 000 purported to be the number of hours and average person works in a lifetime).

The use of the two rates above has proved to be somewhat problematical as they are open to manipulation and disabling injuries are often “hidden” by returning the injured employee to the workplace so as not to lose a shift and therefore having to register a disabling injury.

The construction industry recently decided to promote the use of a new frequency rate based on the number of compensation injury claims, as these are more difficult to hide or manipulate because the reporting of compensationable injuries is a legal requirement.

The industry is hoping that adoption of this new measurement of injury experience will enable the industry to monitor itself as far as work related injuries are concerned.

2. Compensation Incidence Frequency Rate (CIFR)

2.1 Formula

\[
\text{No of compensation claims} \times 200\,000 \\
\times 220\ \text{person hours} \times \text{No of employees}
\]

2.2 Definitions

- **No of compensation claims:** The number of claims lodged with the Commissioner or COID insurer for the period under review.

- **200 000:** The fixed factor to align the rate with other rates used internationally.

- **Person hours worked Include:** Hourly paid employees Sub-contactors (No of employees X *220 each) Staff (No of employees X *220 hours each)
220 person-hours: The *average number of hours worked by one employee in one month in the construction industry.

Note: * Overtime, absence on leave or sick leave, unrecorded after hours time worked by senior and middle management factored into this average.

No of employees: The actual or average number of employees employed for the period under review.
National Department of Health

Annexure 3

Safety, Health and Environment: Example of risk management report

Proudly prepared by

EMPOWERisk (Pty) Ltd

February 2020
Safety, Health and Environment (SHE): Example of risk management report

Please note that this is an example only and all information is fictitious.

XYZ Construction

SHE risk management report for the period January 2014 to March 2014

1. Introduction

We trust that this quarterly SHE Risk Management report will provide a clear picture of the company’s performance as far as occupational health, safety and environment is concerned.

The first quarter of 2014 generally reflected an improvement in injury experience and indicates a decline in the number of injuries. Although Building was the only division where there was an increase in compensation claims, figures are still well down from the average 2013 figures. A sub-contractor experienced one fatality.

All divisions are eagerly awaiting the final implementation during May 2014 of the new electronic SHE Management system that will provide the tools to implement the SHE programme and make it available to all management and supervisory staff.

2. Incident statistics

2.1 Compensation Incident Frequency Rate (CIFR)

\[
\text{CIFR} = \frac{\text{No of compensation claims} \times 200\,000}{220\text{ person hours} \times \text{No of employees}}
\]

![Graph showing CIFR over time]
2.2  Disabling Injury Incidence Rate (DIIR)

\[
DIIR = \frac{\text{No disabling injuries} \times 200,000}{\text{Person hours worked}}
\]

2.3.  Other major incidents

Three other major incidents were experienced in the period under review:

2.3.1. A major trench collapsed at Job. 00123: XYZ Head Office, Braamfontein: No personnel injured, extensive damage to foundations: 3 days delay.

2.3.2. A concrete dumper ran away when its brakes failed. It smashed into the glass façade of the building on Job 00332: McDonalds, Randburg. The driver jumped off and was not injured. Cost of damage to façade: R45 000.

2.3.3. A storage hut on Job 00567: BP Petrol Station, Swartkops was demolished by fire when the night watchman made a fire inside the storage hut which contained concrete vibrators and leveling machines. Cost of replacing the hut and machines: R30 000.

3.  Risk areas

The following items of concern need priority consideration by management:

3.1.  New employees must undergo pre-employment medical examinations to:
   - protect XYZ from possible claims at a later stage
   - ensure that only capable persons are employed
   - prevent injuries and illness in the workplace
   - enhance XYZ image

3.2.  Vehicle drivers and plant operators must be instructed to inspect their vehicles daily before start-up using the prescribed checklists to ensure that these are safe to operate and in good condition.
4. **Risk assessments**

Three SHE risk assessments were conducted in February and March:

- **Job 00432: Gillooly’s Mall**  Compliance: 56%
- **Job 00786: Cullinan Head Office**  Compliance: 83%
- **Job 00589: Cleveland Station**  Compliance: 76%

5. **Training**

One hundred and forty two employees, representing 7% of employees, attended nine training courses. *Our objective is to train 5.5% of employees on a quarterly basis.*

<table>
<thead>
<tr>
<th>Month</th>
<th>No. of Employees Trained</th>
<th>Course</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>26</td>
<td>Induction</td>
<td>Internal</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>OH&amp;S Reps</td>
<td>Consultant</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Crane Drivers</td>
<td>External</td>
</tr>
<tr>
<td>February</td>
<td>23</td>
<td>Induction</td>
<td>Internal</td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>OH&amp;S Reps</td>
<td>Consultant</td>
</tr>
<tr>
<td>March</td>
<td>43</td>
<td>Induction</td>
<td>Internal</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>OH&amp;S Reps</td>
<td>Consultant</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Bomag Rollers</td>
<td>Supplier</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>First Aiders</td>
<td>St. John’s</td>
</tr>
</tbody>
</table>

6. **Legal matters**

6.1. An inspector of the Department of Labour issued an improvement notice on **Job 00987: Gillooly’s Mall**. The notice requires that all scaffolding comply with the SABS standards for the Erection and Maintenance of Access Scaffolding (SANS 085). This is currently being attended to and the inspector will return on 15 April 2014 to ascertain if the notice has been complied with.

7. **Occupational health matters**

7.1 **HIV Aids**

The proposed clinic will soon be operational and we will then be able to send our employees who have tested positive for HIV/AIDS to the clinic for counseling and eventual treatment when necessary.

The mobile clinic attended to and tested fifty employees on a voluntary basis at 3 sites this month. Eighteen of them tested positive.
7.2 Tuberculosis (TB)

The mobile clinic will be calling at Gillooly’s Mall and Cleveland Station on 15 and 16 April 2014 respectively to screen employees for TB.

7.3 Noise

All suspected noise pollution areas have been identified and tested and the results are awaited. Employees working in areas testing over 85dBA will be issued with suitable hearing protectors.

8. Environmental measures

Inspectors from the Botswana Department of Environment visited Djwaneng and inspected the site and yard. They gave it a “clean bill of health” and advised that we should increase the dust control measures by spraying roads three times per day with water instead of the present twice per day.

9. Achievements and awards

9.1 The client at Djwaneng (Job 00786) awarded the XYZ site first position in the housekeeping competition conducted bi-monthly by the client’s SHE managers. The project manager and his team are to be congratulated for this sterling effort.

9.2 Job 0987: Refurbishment of Pretoria Main Railway Station has just completed 1 million compensation claim free days. This was no easy achievement if we consider the conditions being worked under after the extensive fire that caused major damage.

SHE Risk Manager

2014-03-31

Source: SAFCEC Occupational Health and Safety Committee
Guide to risk assessments

1. Nine steps to effective risk assessments

Step 1: Identifying the current as well as emerging hazard, risks or exposures.
Step 2: Aim to identify major hazards, don’t waste time on the minor and detail except if such hazard has the potential be repeat itself on a frequent basis.
Step 3: Involve as many people as possible in the ongoing risk assessment process especially those at risk.
Step 4: Gather all the information and analyse it.
Step 5: Look at what actually could or has occurred including non-routine operations.
Step 6: Use a systematic approach to ensure all hazards are adequately addressed.
Step 7: Assess the risks identified or the risk has occurred by taking into account the effectiveness of current as well as controls under consideration.
Step 8: Ensure the process is practical, realistic, cost and business effective.
Step 9: Always record the assessment in writing including i.e. assumptions, date and why a particular decision has been made.

2. How serious is it?

<table>
<thead>
<tr>
<th>Probability</th>
<th>Consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Common</td>
<td>1 Fatality or permanent disability.</td>
</tr>
<tr>
<td>B Has Happened</td>
<td>2 Major injury.</td>
</tr>
<tr>
<td>C Could Happen</td>
<td>3 Average Lost Time Injury.</td>
</tr>
<tr>
<td>D Not Likely</td>
<td>4 Minor Injury.</td>
</tr>
<tr>
<td>E Practically impossible</td>
<td>5 Medical Treatment or less.</td>
</tr>
</tbody>
</table>

```
<table>
<thead>
<tr>
<th>Probability</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
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<tr>
<td>4</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
</tr>
</tbody>
</table>
```

Risk rating

- 1 - 3 = Serious
- 4 - 5 = High
- 6 - 7 = Moderate
- 8 - 9 = Acceptable

Action

- Immediate (within 1 week).
- Within 1 month.
- > 4 weeks.
- No action but will consider from time to time.
National Department of Health

Annexure 5

List of risk assessments

Proudly prepared by

EMPOWERisk (Pty) Ltd

February 2020
List of risk assessments

a. Aggregate/Sand Delivery
b. Arc welding
c. Brickwork
d. Bulk mixing plant
e. Compressed gas cylinders-handling
f. Compressors – Air
g. Cutting of pipes
h. Demolition
i. Distribution boards – Electrical
j. Drivers – of vehicles
k. Electrical installation – Maintenance of
l. Excavation work
m. Excavator
n. Exposure to poisonous animals or insects
o. Fire prevention and protection
p. Front end loader
q. Fuel supply
r. Gas welding-cutting operations
s. Hand and spray painting
t. Hand tools
u. Kerb laying
v. Landscaping
w. Laying of pipes
x. Laying of storm water drains
y. Levelling – of materials
z. Loading supervisor
aa. Loading/unloading - of trucks
bb. Machine operator
cc. Making of steel items
dd. Manholes – Laying of precast section
ee. Material delivery
ff. Material handling
gg. Placing concrete
hh. Plastering
ii. Portable ladders
jj. Pressure equipment
kk. Refuelling vehicles/plant
ll. Scaffolding
mm. Site establishment
nn. Temporary works
oo. Termite proofing
pp. Tile stacking
qq. Traffic control
rr. Trenches – Digging of
ss. Use of portable electrical tools
tt. Work in confined spaces
uu. Work in fall risk positions
vv. Working close to existing services
   i.e. electrical, waste water etc
ww. Working close to traffic
xx. Working in inclement weather
yy. Workshops
C3.3: HIV/AIDS AWARENESS SPECIFICATION
SECTION

HIV/AIDS SPECIFICATION

HIV/AIDS REQUIREMENTS

1  SCOPE

This specification contains all requirements applicable to the Contractor for creating HIV/AIDS awareness amongst all of the Workers involved in this project for the duration of the construction period, through the following strategies:

• Raising awareness about HIV/AIDS through education and information on the nature of the disease, how it is transmitted, safe sexual behaviour, attitudes towards people affected and people living with HIV/AIDS, how to live a healthy lifestyle with HIV/AIDS, the importance of voluntary testing and counselling, the diagnosis and treatment of Sexually Transmitted Infections and the closest health Service Providers;

• Informing Workers of their rights with regard to HIV/AIDS in the workplace;

• Providing Workers with access to condoms and other awareness material that will enable them to make informed decisions about sexual practices.

2  DEFINITIONS AND ABBREVIATIONS

2.1  Definitions

Service Provider: The natural or juristic person recognised and approved by the Department of Public Works as a specialist in conducting HIV/AIDS awareness programmes.

Service Provider Workshop Plan: A plan outlining the content, process and schedule of the training and education workshops, presented by a Service Provider which has been approved by the Representative/Agent.

Worker: Person in the employ of the Contractor or under the direction or supervision of the Contractor or any of his Sub-contractors, who is on site for a minimum period of 30 days in all.

2.2  Abbreviations

HIV : Human Immunodeficiency Virus.

AIDS : Acquired Immune Deficiency Syndrome.

STI : Sexually Transmitted Infection.

3  BASIC METHOD REQUIREMENT

3.1  The Contractor shall, through a Service Provider, conduct onsite workshops with the Workers.
The Service Provider shall develop and compile a Service Provider Workshop Plan to be presented at the workshops and which will be best suited for this project to achieve the specified objectives with regard to HIV/AIDS awareness.

The Service Provider Workshop Plan shall be based on the following information provided by the Contractor:

- Number of Workers and Sub-contractors on site;
- When new Workers or Sub-contractors will join the construction project;
- Duration of Workers and Sub-contractors on site;
- How the maximum number of Workers can be targeted with workshops;
- How the Contractor prefers workshops to be scheduled, e.g. three hourly sessions per Worker, or one 2.5 hour workshop per Worker;
- Profile of Workers, including educational level, age and gender (if available);
- Preferred time of day or month to conduct workshops;
- A Gantt chart reflecting the construction programme, for scheduling of workshops;
- Suitable venues for workshops.

The Contractor shall submit the Service Provider Workshop Plan for approval within 21 days after the tender acceptance date. After approval by the Representative/Agent, the Contractor shall make available a suitable venue that will be conducive to education and training.

3.2 The Service Provider Workshop Plan shall address, but will not be limited to the following:

3.2.1 The nature of the disease;
3.2.2 How it is transmitted;
3.2.3 Safe sexual behaviour;
3.2.4 Post exposure services such as voluntary counselling and testing (VCT) and nutritional plans for people living with HIV/AIDS;
3.2.5 Attitudes towards other people with HIV/AIDS;
3.2.6 Rights of the Worker in the workplace;
3.2.7 How the Awareness Champion will be equipped prior to commencement of the HIV/AIDS awareness programme with basic HIV/AIDS information and the necessary skills to handle questions regarding the HIV/AIDS awareness programme on site sensitively and confidentially;
3.2.8 How the Service Provider will support the Awareness Champion;
3.2.9 Location and contact numbers of the closest clinics, VCT facilities, counselling services and referral systems;
3.2.10 How the workshops will be presented, including frequency and duration;
3.2.11 How the workshops will fit in with the construction programme;
3.2.12 How the Service Provider will assess the knowledge and attitude levels of attendees to structure workshops accordingly;
3.2.13 How the video will be used;
3.2.14 How the Service Provider will elicit maximum participation from the Workers;
3.2.15 A questions and answers slot (interactive session).

The Service Provider Workshop Plan shall encompass the Specific Learning Outcomes (SLO) as stipulated.
4 HIV/AIDS AWARENESS EDUCATION AND TRAINING

4.1 Workshops

The Contractor shall ensure that all Workers attend the workshops.

The workshops shall adequately deal with all the aspects contained in the Service Provider Workshop Plan. A video of HIV/AIDS in the construction industry, which can be obtained from all Regional Offices of the Department of Public Works, is to be screened to Workers at workshops. In order to enhance the learning experience, groups of not exceeding 25 people shall attend the interactive sessions of the workshops.

4.2 Recommended practice

4.2.1 Workshop Schedule

Presenting information contained in the Service Provider Workshop Plan can be divided in as many workshop sessions as deemed practicable by the Contractor, provided that all Workers are exposed to all aspects of the workshops as outlined in the Service Provider Workshop Plan.

Breaking down the content of information to be presented to Workers into more than one workshop session however, has the added advantage that messages are reinforced over time while providing opportunity between workshop sessions for Workers to reflect and test information. Workers will also have an opportunity to ask questions at a following session.

4.2.2 Service Providers

A database of recommended Service Providers is available from all Regional Offices of the Department of Public Works.

4.2.3 HIV/AIDS Specific Learning Outcomes and Assessment Criteria

Workers shall be exposed to workshops for a minimum duration of two-and-a-half hours. In order to set a minimum standard requirement, the following specific learning outcomes and assessment criteria shall be met.

4.2.3.1 UNIT 1: The nature of HIV/AIDS

After studying and understanding this unit, the Worker will be able to differentiate between HIV and AIDS and comprehend whether or not it is curable. The Worker will also be able to explain how the HI virus operates once a person is infected and identify the symptoms associated with the progression of HIV/AIDS.

Assessment Criteria:
1. Define and describe HIV and AIDS;
2. List and describe the progression of HIV/AIDS.

4.2.3.2 UNIT 2: Transmission of the HI virus

After studying and understanding this unit, the Worker will be able to identify bodily fluids that carry the HI virus. The Worker will be able to recognise how HIV/AIDS is transmitted and how it is not transmitted.
Assessment Criteria:
1. Record in what bodily fluids the HI virus can be found;
2. Describe how HIV/AIDS can be transmitted;
3. Demonstrate the ability to distinguish between how HIV/AIDS is transmitted and misconceptions around transmittance of HIV/AIDS.

4.2.3.3  UNIT 3: HIV/AIDS preventative measures

After studying and understanding this unit, the Worker will comprehend how to act in a way that would minimise the risk of HIV/AIDS infection and to use measures to prevent the HI virus from entering the bloodstream.

Assessment Criteria:
1. Report on how to minimise the risk of HIV/AIDS infection;
2. Report on precautions that can be taken to prevent HIV/AIDS infection;
3. Explain or demonstrate how to use a male and female condom;
4. List the factors that could jeopardize the safety of condoms provided against HIV/AIDS Transmission.

4.2.3.4  UNIT 4: Voluntary HIV/AIDS counselling and testing

After studying and understanding this unit, the Worker will be able to recognise methods of testing for HIV/AIDS infection. The Worker will be able to understand the purpose of voluntary HIV/AIDS testing and pre- and post-test counselling.

Assessment Criteria:
1. Describe methods of testing for HIV/AIDS infection;
2. Report on why voluntary testing is important;
3. Report on why pre- and post-test counselling is important.

4.2.3.5  UNIT 5: Living with HIV/AIDS

After studying and understanding this unit, the Worker will be able to recognise the importance of caring for people living with HIV/AIDS and be able to manage HIV/AIDS.

Assessment Criteria:
1. List and describe ways to manage HIV/AIDS;
2. Describe nutritional needs of people living with HIV/AIDS;
3. Describe ways to embrace a healthy lifestyle as a person living with HIV/AIDS;
4. Explain the need for counselling and support to people living with HIV/AIDS.

4.2.3.6  UNIT 6: Treatment options for people with HIV/AIDS

After studying and understanding this unit, the Worker will be familiar with the various treatments available to HIV/AIDS infected or potentially HIV/AIDS infected people.

Assessment Criteria:
1. Discuss anti-retroviral therapy;
2. List methods of treatment to prevent HIV/AIDS transmission from mother-to-child;
3. Describe the need for treatment of opportunistic diseases for people living with HIV/AIDS;
4. Describe post exposure prophylactics.
4.2.3.7 **UNIT 7: The rights and responsibilities of Workers in the workplace with regard to HIV/AIDS**

After studying and understanding this unit, the Worker will be able to identify the rights and responsibilities of the Worker living with HIV/AIDS in the workplace. The Worker will recognise the importance of accepting colleagues living with HIV/AIDS and treating them in a non-discriminative way.

**Assessment Criteria:**
1. Discuss the rights of a person living with HIV/AIDS in the workplace;
2. Discuss the responsibilities of a person living with HIV/AIDS in the workplace;
3. Report on why acceptance and non-discrimination of colleagues living with HIV/AIDS is important.

4.3 **Displaying of plastic laminated posters and distribution of information booklets**

The Contractor shall obtain a set of four laminated posters conveying different key messages and information booklets. The contractor should include the costs of posters and information booklets in his/her tender price.

The above-mentioned posters and information booklets have been prepared to raise awareness and to share information about HIV/AIDS and STI’s.

Posters or display stands shall be displayed on site as soon as possible, but not later than 14 days after the date of site handover.

Posters shall be displayed in areas highly trafficked by Workers, including toilets, rest areas, the site office and compounds.

The posters on display must always be intact, clear and readable.

Information booklets must be distributed to all Workers as soon as possible, but not later than 14 days after site handover, or as soon as the Worker joins the site.

5 **PROVIDING WORKERS WITH ACCESS TO CONDOMS**

The Contractor shall provide and maintain condom dispensers and make both male and female condoms, complying with the requirements of SABS ISO 4074, available at all times to all Workers at readily accessible points on site, for the duration of the contract. The Contractor may obtain condom dispensers from the Department of Health and condoms may be obtained from the Local Clinic or the Department of Health.

At least one male and one female condom dispenser and a sufficient supply of condoms, all to the approval of the Representative/Agent, shall be made available on site within 14 days of site hand over. Contractors should note that arrangements to obtain condoms from the Department of Health Clinics prior to site handover may be necessary, to ensure that condoms are available within 14 days of site handover.

Condoms shall be made available in areas highly trafficked by Workers, including toilets, the site office and compounds.
6 ENSURING ACCESS TO HIV/AIDS TESTING AND COUNSELLING FACILITIES AND TREATMENT OF SEXUALLY TRANSMITTED INFECTIONS (STI)

The Contractor shall provide Workers with the names of the closest Service Providers that provide HIV/AIDS testing and counselling and Clinics providing Sexually Transmitted Infection (STI) diagnosis and treatment. Information on these Service Providers and Clinics must be displayed on a poster of a size not smaller than A1 in an area highly trafficked by Workers.

7 APPOINTMENT OF AN HIV/AIDS AWARENESS CHAMPION

7.1 Within 14 days of site handover the Contractor shall appoint an Awareness Champion from amongst the Workers, who speaks, reads and writes English, who speaks and understands all the local languages spoken by the Workers and who shall be on site during all stages of the construction period. The Contractor shall ensure that the Awareness Champion has been trained by the Service Provider on basic HIV/AIDS information, the support services available and the necessary skills to handle questions regarding the HIV/AIDS programme in a sensitive and confidential manner.

7.2 The Awareness Champion shall be responsible for:

7.2.1 Liaising with the Service Provider on organising awareness workshops;
7.2.2 Filling condom dispensers and monitoring condom distribution;
7.2.3 Handing out information booklets;
7.2.4 Placing and maintaining posters.

8 MONITORING

The Contractor shall grant to the Representative/Agent reasonable access to the construction site, in order to establish that the Contractor complies with his obligations regarding HIV/AIDS awareness under this contract.

The Contractor must report problems experienced in implementing the HIV/AIDS requirements to the Representative/Agent.

The attached SITE CHECKLIST (SCHEDULE A) shall be completed and submitted at every construction progress inspection to the Representative/Agent.

The attached SERVICE PROVIDER REPORT (SCHEDULE B) shall be completed and submitted on a monthly basis to the Department’s Project Manager, through the Representative/Agent.

The attached CONTRACTOR HIV/AIDS PROGRAMME REPORT (SCHEDULE C), a close out programme report, shall be completed by the Contractor at the end of the contract.
# SCHEDULE A: HIV/AIDS PROGRAMME: SITE CHECKLIST

Date of commencement of construction: _________________________  Name of Departmental Project Manager: ____________________________________

*Please refer to HIV/AIDS Programme activities during the reporting period*

**Tick the block if Contractor satisfactorily complied with specifications**

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Programme implemented within 14 days of site handover

Awareness champion on site

HIV/AIDS awareness service provider report

Male condom dispenser

Sufficient male condoms available

Male condom dispenser in a highly trafficked area

Female condom dispenser

Sufficient female condoms available

Female condom dispenser in a highly trafficked area

All four types of posters displayed

Posters in a good condition

Posters in a highly trafficked area

Posters displayed on local support services: clinic & VCT centre

Support service poster/s in highly trafficked area

Support service poster/s in a good condition
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<td>Female condoms distributed</td>
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Representative/Agent

Date

Contractor

Date
SCHEDULE A

Date of progress inspection: (ccyy/mm/dd)

Reporting period: (ccyy/mm/dd) ________________ to (ccyy/mm/dd) ________________

Deviations from HIV/AIDS awareness programme plan:

Corrective actions:

Representative/Agent

Departmental Project Manager

Date

Date
SCHEDULE B

HIV/AIDS AWARENESS PROGRAMME: SERVICE PROVIDER REPORT

Reporting period: (ccyy/mm/dd) ________________ to (ccyy/mm/dd) ________________

Number of workshops conducted in reporting period: ________________________________

Number of scheduled workshops according to approved workshop plan: ________________

Deviations from workshop plan:

State reasons for deviating from workshop plan:

Corrective actions:

Service Provider

Date

Date

Page 1 of 3
## HIV/AIDS AWARENESS PROGRAMME: WORKSHOP CONTENT ADDRESSED

Fill in the applicable information with regard to each workshop conducted.

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### Content of workshop:

(Mark the content included)

- SLO1
- SLO2
- SLO3
- SLO4
- SLO5
- SLO6
- SLO7

- HIV/AIDS in construction video

Indicate the duration of the workshop in hours

Total number of Workers

Indicate workshop venue
HIV/AIDS AWARENESS PROGRAMME: ATTENDANCE REGISTER

Fill in your name and indicate attendance by ticking the appropriate date

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No  NAMES

SCHEDULE B
SCHEDULE C

CONTRACTOR HIV/AIDS PROGRAMME REPORT

Project name: ____________________________________________________________

Project Location: _________________________________________________________

Contract value of project: R_______________________________________________

Department of Public Works Project Manager: ________________________________

HIV/AIDS Programme duration: (ccyy/mm/dd) ___________________ to (ccyy/mm/dd) _________________

AWARENESS MATERIAL

Describe location of posters displayed during the programme: ________________________________

___________________________________________________________________________

Comments on posters: ________________________________

Indicate total number of booklets distributed: _________________________________

Comments on booklets: ________________________________

___________________________________________________________________________

CONDOMS

Indicate total number of male condoms distributed: _______________________________

Indicate total number of female condoms distributed: _______________________________

Describe where male condom dispenser was placed: _______________________________

Describe where female condom dispenser was placed: _______________________________

HIV/AIDS WORKSHOPS

Indicate the total number of HIV/AIDS workshops conducted: _______________________________

Indicate the duration of workshops: ________________________________

Indicate the total number of Workers that participated in the HIV/AIDS workshops: _______________________________

Indicate the total number of Workers that were exposed to the video on HIV/AIDS in the Construction Industry:

___________________________________________________________________________

Comments on HIV/AIDS workshops on site: ________________________________________

___________________________________________________________________________

SCHEDULE C
GENERAL

Briefly describe programme activities and satisfaction with outcome: ________________________________

______________________________________________________________________________________

______________________________________________________________________________________

______________________________________________________________________________________

______________________________________________________________________________________

______________________________________________________________________________________

Additional comments, suggestions or needs with regard to the HIV/AIDS awareness programmes on site:

______________________________________________________________________________________

______________________________________________________________________________________

______________________________________________________________________________________

______________________________________________________________________________________

______________________________________________________________________________________

Please indicate if your company has a formal HIV/AIDS policy focusing on HIV/AIDS awareness raising and care and support of HIV/AIDS Workers:

<table>
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<th>Yes</th>
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Please indicate if, to your knowledge, you have lost any workers during the duration of the project to HIV/AIDS related sicknesses. One or more of the following might indicate an HIV/AIDS related death:

- Excessive weight loss
- Reactive TB
- Hair loss
- Severe tiredness
- Coughing or chest pain
- Pain when swallowing
- Persistent
- fever
- Diarrhoea
- Vomiting
- Meningitis
- Memory loss
- Pneumonia

Contractor __________________________________________  Date ________________

Departmental Project Manager ______________________________  Date ________________

Schedule C  Page 2 of 2
C3.4: ENVIRONMENTAL MANAGEMENT PLAN
AMENDED EMPR

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
Document version: Amended Final v3
Compiled by: HP Jannasch
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

PROJECT APPLICANT

Applicant: SAKHIWO Health Solutions Limpopo on behalf of Dept of Health & Social Development
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Postal Address: P O Box 395 Wellington 7654

ENVIRONMENTAL ASSESSMENT PRACTITIONER

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Postal Address: P.O. Box 2526, Polokwane, 0700, South Africa
Telephone Number: 083 557 6494 / 015 291 1577
Fax Number: 015 291 1577
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H.P. Jannasch (Pri Sci Nat)
Senior Environmental Scientist – M.Sc. Environmental Management
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<tr>
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<td>SILOAM HOSPITAL Limpopo Department of Health,</td>
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<td>Benny Maganya</td>
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<tr>
<td>Mr Johan Loubser</td>
<td>SAKHIWO Health Solutions</td>
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<td>Steve van Jaarsveld</td>
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<td>LEDET</td>
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1 DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

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

Contact details of EAP:
Physical Address: 120 Marshall Street, Polokwane, 0699
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
Figure 4. View of dangerous goods facility layout plan on the Siloam Hospital Extension site (as per Appendix B2 of BA report)
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 x 7.2 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:

<table>
<thead>
<tr>
<th>Relevant notice</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GN R.985 Activity 10(e) (i) As amended</td>
<td>The development will have facilities for the storage of</td>
</tr>
</tbody>
</table>
27 April 2017

The development and related operation of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres in all areas in Limpopo”

List of different storage containers and volumes at the Siloam Hospital Extension.

<table>
<thead>
<tr>
<th>Design capacity at Ambient Conditions</th>
<th>On-site storage in Bulk Container</th>
<th>On-site storage in G &amp; J size cylinders</th>
<th>On-site storage in bulk containers and cylinders (Total litres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxygen</td>
<td>8 064 000</td>
<td>2x4928L</td>
<td>84x47.2L</td>
</tr>
<tr>
<td>Nitrous Oxide</td>
<td>856 560</td>
<td>95x23.6L</td>
<td>167x23.6L</td>
</tr>
<tr>
<td>Entonox</td>
<td>835 200</td>
<td>167x23.6L</td>
<td>167x23.6L</td>
</tr>
<tr>
<td>LPG Gas</td>
<td>22 000</td>
<td>1x22000L</td>
<td>1x22000L</td>
</tr>
<tr>
<td>Diesel</td>
<td>15 000</td>
<td>1x15000L</td>
<td>1x15000L</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 bowsers on site. Diesel will be stored on the site 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

Enq.: Office of the CEO
Date: 13 December 2019
To: Hein Jaunash

RE: SPILLAGE CONTINGENCY PLAN:

Dangerous goods at Siloam Hospital:

- Diesel – Fluid – Aboveground storage.
- Oxygen Gas - Aboveground storage.
- \text{N}_2\text{O} and Enlonox Gas - Aboveground storage.
- LPG Gas - Aboveground storage.

Contingency Plan with diesel:

- Shut off valves.
- Containment plans and clean-up procedures.
- Spill kits availability and training of personnel.
- Reporting procedures.

Contingency plan with gasses:

- Leak detection system.
- Plans for safety of people and buildings.
- Reporting procedures.

Monitoring:

- 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.
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

Private Bag X1 432, Makhado, 0920
Tel (015) 973 0004/5/6, 015 973 1447/8, 015 973 1977, 015 973 1892/4/9
Fax (015) 973 0607

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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.”
## PLANNING & DESIGN PHASE

Impact Management Outcome: Minimise impact to the environment by adhering to planning and design principles and relevant legislation

<table>
<thead>
<tr>
<th>Impact Management actions (mitigation measures)</th>
<th>Implementation</th>
<th>Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Responsible person</td>
<td>Method of implementation</td>
</tr>
<tr>
<td>Planning and design phase.</td>
<td>Developer</td>
<td>Draw up register</td>
</tr>
<tr>
<td>An incident/non-compliance register must be drawn up and kept up to date. These documents must be available to DEA on request.</td>
<td>Developer</td>
<td>Application at municipality</td>
</tr>
<tr>
<td>The layout and design of the proposed dangerous goods installation must adhere to all requirements of the Makhado Local Municipality.</td>
<td>Developer</td>
<td>Appointment</td>
</tr>
<tr>
<td>An Environmental Control Officer (ECO) must be appointed for the construction phase.</td>
<td>Developer</td>
<td>Training of contractor prior to construction</td>
</tr>
<tr>
<td>All the aspects pertained within the EMPR must be explained to the contractor.</td>
<td>Developer</td>
<td>Applications at different authorities</td>
</tr>
<tr>
<td>Environmental training for all staff and contractors must be implemented.</td>
<td>Developer</td>
<td>Training of contractor/ staff prior to construction</td>
</tr>
<tr>
<td>All authorizations required for the development of the site must be obtained prior to the project commencing.</td>
<td>Developer</td>
<td>Applications at different authorities</td>
</tr>
</tbody>
</table>

ACES Limpopo (Pty) Ltd
### 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

<table>
<thead>
<tr>
<th>Impact Management actions (mitigation measures)</th>
<th>Implementation</th>
<th>Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Responsible person</td>
<td>Method of implementation</td>
</tr>
<tr>
<td><strong>Earthworks-dust formation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction areas must be dampened to prevent excessive dust formation when applicable during earthworks</td>
<td>Contractor</td>
<td>Water spray</td>
</tr>
<tr>
<td>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;</td>
<td>Contractor</td>
<td>Follow construction plan</td>
</tr>
<tr>
<td><strong>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)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicles used on or entering the construction site must be in good working order/well serviced to reduce excessive smoke or fumes during operation.</td>
<td>Contractor</td>
<td>Service vehicles</td>
</tr>
<tr>
<td>Construction areas must be dampened to minimise dust generation when applicable during movement of vehicles and machinery</td>
<td>Contractor</td>
<td>Water spray</td>
</tr>
<tr>
<td>Speed of construction vehicles should be kept as low as possible to reduce the generation of dust.</td>
<td>Contractor</td>
<td>Set of Rules Speed humps</td>
</tr>
<tr>
<td><strong>Burning of waste (domestic/building rubble)-Smoke</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td>Contractor</td>
<td>Supply waste containers Remove weekly</td>
</tr>
<tr>
<td>Cooking must be done on gas stoves and not on open fires</td>
<td>Contractor</td>
<td>Awareness training</td>
</tr>
</tbody>
</table>
### NOISE - CONSTRUCTION PHASE

**Impact Management outcome:** Minimise impact to the environment and people through the control/mitigation of noise impacts at source.

<table>
<thead>
<tr>
<th>Impact Management actions (mitigation measures)</th>
<th>Implementation</th>
<th>Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Responsibility</strong></td>
<td><strong>Method of implementation</strong></td>
<td><strong>Timeframe:</strong></td>
</tr>
<tr>
<td>Contractor</td>
<td>Vehicle maintenance</td>
<td>Continuous</td>
</tr>
</tbody>
</table>

**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.
- Construction machinery must be fitted with noise mufflers and be in good working order.
- Speed of construction vehicles should be kept as low as possible to reduce the generation of noise.
- All employees must be given the necessary ear protection gear where applicable.
- Construction should only take place during the hours between sunrise and sunset on weekdays and Saturdays.

| Contractor | Set of Rules | Prior to and during construction | Contractor/ECO | Daily checking |
| Contractor | Physical handout | Always | Contractor/ECO | Daily Checking |
| 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.

<table>
<thead>
<tr>
<th>Impact Management actions (mitigation measures)</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Responsibility</strong></td>
<td><strong>Method of implementation</strong></td>
<td><strong>Timeframe:</strong></td>
</tr>
<tr>
<td>Contractor</td>
<td>Site instruction Work according to layout plan</td>
<td>During construction phase</td>
</tr>
</tbody>
</table>

**Site clearance**

- Restrict clearance of construction site to the proposed footprint area to limit impacts on ground water and surface water.

| Contractor | Placement | Once off | Contractor/ECO | Continuous | Visual check |
| Contractor | Pump into tanker | Weekly | Contractor | Weekly | Disposal Records |

**Sanitation seepage**

- Chemical toilets must be placed on level ground.
- These toilets must be emptied/cleaned on a weekly basis by an approved contractor.
- Daily inspection for any damages to the toilets must be done to ensure that.

| Contractor | Visual Inspection | Daily | ECO | Daily | Records |
### 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

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<tr>
<th>Impact Management actions (mitigation measures)</th>
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</thead>
<tbody>
<tr>
<td><strong>no spillages take place.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Chemical toilets and the temporary sanitation system may not be placed within 100m from any watercourse</strong></td>
<td>Contractor/Developer</td>
<td>Placement Visual Inspection</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Spillage of fuel and lubricants from construction vehicles and machinery</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Machinery to be checked, serviced and maintained according to a schedule to prevent oil and fuel leaks.</strong></td>
<td>Contractor</td>
</tr>
<tr>
<td><strong>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.</strong></td>
<td>Contractor</td>
</tr>
<tr>
<td><strong>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.</strong></td>
<td>Contractor</td>
</tr>
<tr>
<td><strong>Any spills must be treated and removed by a qualified contractor. All spills must be cleaned up immediately. Large spillages must be reported and cleaned by a spills response team.</strong></td>
<td>Contractor</td>
</tr>
<tr>
<td><strong>Stationary construction equipment &amp; 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</strong></td>
<td>Contractor</td>
</tr>
<tr>
<td><strong>The vehicle maintenance yard and construction storage area should be placed at least 100m away from watercourses.</strong></td>
<td>Contractor</td>
</tr>
<tr>
<td><strong>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</strong></td>
<td>Contractor</td>
</tr>
<tr>
<td><strong>Temporary diesel storage must not exceed 30 000 litres at construction</strong></td>
<td>Contractor</td>
</tr>
</tbody>
</table>
### GROUNDWATER AND SURFACE WATER - CONSTRUCTION PHASE

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</thead>
<tbody>
<tr>
<td></td>
<td>Responsible person</td>
<td>Method of implementation</td>
</tr>
<tr>
<td>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.</td>
<td>Contractor</td>
<td>Utilise drip pans</td>
</tr>
<tr>
<td>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.</td>
<td>Contractor</td>
<td>Appoint contractor to dispose of waste</td>
</tr>
<tr>
<td>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.</td>
<td>Contractor</td>
<td>Use areas where water resources are protected</td>
</tr>
</tbody>
</table>

### Solid and domestic waste removal

<table>
<thead>
<tr>
<th>Solid and domestic waste removal</th>
<th>Contractor</th>
<th>Continuous implementation</th>
<th>Weekly removal</th>
<th>Contractor/ECO</th>
<th>Daily checking Weekly removal</th>
<th>Records</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
<td>Contractor</td>
<td>Continuous implementation</td>
<td>Weekly removal</td>
<td>Contractor/ECO</td>
<td>Daily checking Weekly removal</td>
<td>Records</td>
</tr>
<tr>
<td>Building rubble must be neatly stockpiled to the side of the site and then removed to a licensed disposal site on a weekly basis.</td>
<td>Contractor</td>
<td>Continuous implementation</td>
<td>Weekly removal</td>
<td>Contractor/ECO</td>
<td>Daily checking Weekly removal</td>
<td>Records</td>
</tr>
<tr>
<td>Rubble must not be allowed to be stockpiled for extensive periods before being removed.</td>
<td>Contractor</td>
<td></td>
<td>Contractor/ECO</td>
<td>Daily checking Weekly removal</td>
<td>Records</td>
<td></td>
</tr>
</tbody>
</table>

### Handling use of dangerous substances

<table>
<thead>
<tr>
<th>Handling use of dangerous substances</th>
<th>Contractor</th>
<th>Store correctly</th>
<th>When applicable</th>
<th>Contractor/ECO</th>
<th>When applicable</th>
<th>Records</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
<td>Contractor</td>
<td>Clean up when required</td>
<td>When applicable</td>
<td>Contractor/ECO</td>
<td>When applicable</td>
<td>Records</td>
</tr>
<tr>
<td>Large spillages must be reported and cleaned by a spills response team.</td>
<td>Contractor</td>
<td>Appoint contractor to dispose of waste</td>
<td>When applicable</td>
<td>Contractor/ECO</td>
<td>When applicable</td>
<td>Records</td>
</tr>
<tr>
<td>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</td>
<td>Contractor</td>
<td>Appoint contractor to dispose of waste</td>
<td>When applicable</td>
<td>Contractor/ECO</td>
<td>When applicable</td>
<td>Records</td>
</tr>
</tbody>
</table>
**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

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<tr>
<th>Impact Management actions (mitigation measures)</th>
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<th>Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
<td>Contractor</td>
<td>Construct such bunded areas on site</td>
</tr>
<tr>
<td>All dangerous chemicals that will be used on site must have Material Safety Data Sheets (MSDS available on site).</td>
<td>Contractor</td>
<td>Acquire MSDS’s</td>
</tr>
<tr>
<td>The contractor must ensure that diesel and other liquid fuel, oil is stored in appropriate storage tanks or in bowsers.</td>
<td>Contractor</td>
<td>Supply and erect surface tanks &lt;30 000 litre total storage</td>
</tr>
<tr>
<td>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).</td>
<td>Contractor</td>
<td>Construct bunding for tanks</td>
</tr>
<tr>
<td>The floor of the bund must be sloped, draining to an oil/water separator</td>
<td>Contractor</td>
<td>Construction of bundings as per plan</td>
</tr>
<tr>
<td>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.</td>
<td>Contractor</td>
<td>Supply drip trays and sheeting</td>
</tr>
<tr>
<td>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.</td>
<td>Contractor</td>
<td>Supply drip trays and sheeting</td>
</tr>
<tr>
<td>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.</td>
<td>Contractor</td>
<td>Supply spill kits</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th></th>
<th>Implementation</th>
<th>Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Contractor</td>
<td>Mix correctly</td>
</tr>
</tbody>
</table>

AGES Limpopo (Pty) Ltd
# 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

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<tr>
<th>Impact Management actions (mitigation measures)</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Regular clean-up programs must be put into effect through-out the premises to limit the impact of littering caused by construction activities.</td>
<td>Contractor</td>
<td>Team to clean up</td>
</tr>
</tbody>
</table>

| 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 |

**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 sheets |
### 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

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<tbody>
<tr>
<td></td>
<td>Responsible person</td>
<td>Method of implementation</td>
</tr>
<tr>
<td>to effectively catch and drain surface water.</td>
<td>Contractor</td>
<td>Construction according to plans</td>
</tr>
<tr>
<td>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.</td>
<td>Contractor</td>
<td>Construction according to plans</td>
</tr>
<tr>
<td>Contaminated water from paved areas must flow through an oil/water separator and the oily substances must be reclaimed and recycled.</td>
<td>Contractor</td>
<td>Construction according to plans</td>
</tr>
</tbody>
</table>

### WATER SUPPLY MANAGEMENT - CONSTRUCTION PHASE

**Impact Management outcome:** Implement responsible water usage

<table>
<thead>
<tr>
<th>Impact Management actions (mitigation measures)</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Construction process; Dust suppression measures; Domestic use &amp; sanitation</td>
<td>Responsible person</td>
<td>Method of implementation</td>
</tr>
<tr>
<td>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.</td>
<td>Contractor</td>
<td>Keep water use records</td>
</tr>
<tr>
<td>Construction workers must be educated on the importance and ways to use water sparingly.</td>
<td>Contractor</td>
<td>Weekly training</td>
</tr>
<tr>
<td>Low-flow taps or tap aerators and dual-flush toilets could be installed to reduce water consumption.</td>
<td>Contractor</td>
<td>Construction according to plans</td>
</tr>
</tbody>
</table>
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

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<tr>
<td></td>
<td>Responsible person</td>
<td>Method of implementation</td>
</tr>
<tr>
<td>Site clearance</td>
<td>Contractor</td>
<td>Site instruction Work according to layout plan</td>
</tr>
<tr>
<td>Operation of construction vehicles and machinery</td>
<td>Contractor</td>
<td>Maintenance</td>
</tr>
<tr>
<td>Any oil/fuel spills must be treated and removed by a qualified contractor.</td>
<td>Contractor</td>
<td>Appoint contractor to dispose of waste</td>
</tr>
<tr>
<td>Spill trays must be used during refuelling of vehicles on site.</td>
<td>Contractor</td>
<td>Utilise drip pans</td>
</tr>
<tr>
<td>Spillages from temporary sanitation facilities (chemical toilets)</td>
<td>Contractor</td>
<td>Pump into tanker</td>
</tr>
<tr>
<td>These toilets must be emptied on a weekly basis by an approved contractor and proof of dumping at a sewerage works must be provided.</td>
<td>Contractor</td>
<td>Placement</td>
</tr>
<tr>
<td>Chemical toilets (if used) must be placed on level ground and not within 100m from any stream.</td>
<td>Contractor</td>
<td>Clean up program</td>
</tr>
<tr>
<td>Trenching for cables, storage tank foundations, sewage and water infrastructure</td>
<td>Contractor</td>
<td>Inspection program</td>
</tr>
<tr>
<td>Ensure that no solid or liquid waste, including building rubble end up in trenches. All backfilling to be with original and clean material only.</td>
<td>Contractor</td>
<td>Fine for transgressors</td>
</tr>
</tbody>
</table>

AGES Limpopo (Pty) Ltd
## 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

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<td><strong>Responsibility</strong></td>
<td><strong>Method of implementation</strong></td>
<td><strong>Timeframe: implementation</strong></td>
</tr>
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<td><strong>Implementation</strong></td>
<td><strong>Monitoring</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Responsible person</strong></td>
<td><strong>Evidence</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Contractor/Developer</strong></td>
<td><strong>Signed off inspection sheet.</strong></td>
<td></td>
</tr>
</tbody>
</table>

### 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
- Contractor/Developer: During construction phase
- Contractor/ECO: During installation process

### 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
- Contractor/Developer: During construction phase
- Contractor/ECO: During installation process

### 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
- Contractor/ECO: During construction phase

### 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
- Contractor/ECO: Daily

### 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
- Contractor/ECO: Daily

### No contaminants (soaps, detergents, lime, glues, paints, cement or fuels) may be disposed of on the site.
- Contractor: Fine for transgressors
- Contractor/ECO: Daily

### 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
- Contractor/ECO: Daily checking

- Unpaved, bare areas to be re-vegetated or paved as soon as practicable to limit erosion.
- Contractor: Construction according to plans
- Contractor/ECO: Daily checking

- An efficient storm water drainage system must be installed around the diesel
- Contractor: Construction
- Contractor/ECO: Daily checking

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**AGES Limpopo (Pty) Ltd**

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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

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<td>tanks to effectively catch and drain surface water.</td>
<td>Contractor</td>
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<td>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.</td>
<td>Contractor</td>
<td>Construction according to plans</td>
</tr>
<tr>
<td>Contaminated water from paved areas must flow through an oil/water separator and the oily substances must be reclaimed and recycled.</td>
<td>Contractor</td>
<td>Construction according to plans</td>
</tr>
<tr>
<td>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;</td>
<td>Contractor</td>
<td>Site instruction</td>
</tr>
<tr>
<td>Topsoil stockpiles must not exceed 2 m in height;</td>
<td>Contractor</td>
<td>Site instruction</td>
</tr>
<tr>
<td>Where possible, sandbags (or similar) must be placed at the bases of the stockpiled material in order to prevent erosion of the material.</td>
<td>Contractor</td>
<td>Site instruction</td>
</tr>
<tr>
<td>Repair all erosion damage as soon as possible after a rain storm to allow for sufficient rehabilitation growth.</td>
<td>Contractor</td>
<td>Physical repair</td>
</tr>
<tr>
<td>Solid and dangerous waste accumulation on/in soil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td>Contractor</td>
<td>Continuous implementation of actions</td>
</tr>
<tr>
<td>Dangerous waste must be disposed of at a registered waste disposal site.</td>
<td>Contractor</td>
<td>Appoint contractor to dispose of waste</td>
</tr>
<tr>
<td>Building rubble must be stockpiled and then removed to a licensed disposal site on a weekly basis.</td>
<td>Contractor</td>
<td>Continuous implementation</td>
</tr>
<tr>
<td>No contaminants (soaps, detergents, lime, glues, paints, cement, or fuels are</td>
<td>Contractor</td>
<td>Fine for</td>
</tr>
</tbody>
</table>
**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

<table>
<thead>
<tr>
<th>Impact Management actions (mitigation measures)</th>
<th>Implementation</th>
<th>Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>to be discharged on site.</td>
<td>Contractor</td>
<td>Responsible person</td>
</tr>
<tr>
<td>Contaminated soil must be rehabilitated using appropriate and applicable methods or removed to a suitable waste disposal facility.</td>
<td>Contractor</td>
<td>Clean up when required. Appoint contractor to dispose of waste</td>
</tr>
<tr>
<td>Daily clean-up -programmes should be put into effect throughout the premises to limit the impact of littering caused by construction activities.</td>
<td>Contractor</td>
<td>Team to clean up</td>
</tr>
</tbody>
</table>

**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 |
### 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

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<tbody>
<tr>
<td></td>
<td>Responsible person</td>
<td>Method of implementation</td>
</tr>
<tr>
<td>appropriate storage tanks or in bowsers;</td>
<td>Contractor</td>
<td>construction bunding for tanks</td>
</tr>
<tr>
<td>The tanks/ bowsers 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/ bowsers (110% statutory requirement plus an allowance for rainfall);</td>
<td>Contractor</td>
<td>construction bunding as per plan</td>
</tr>
<tr>
<td>The floor of the bund must be sloped, draining to an oil separator;</td>
<td>Contractor</td>
<td>construction of bundings as per plan</td>
</tr>
<tr>
<td>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;</td>
<td>Contractor</td>
<td>supply drip trays and sheeting</td>
</tr>
<tr>
<td>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;</td>
<td>Contractor</td>
<td>supply drip trays and sheeting</td>
</tr>
<tr>
<td>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;</td>
<td>Contractor</td>
<td>supply spill kits</td>
</tr>
</tbody>
</table>

### ECOLOGY - CONSTRUCTION PHASE

**Impact Management outcome:** Minimise and control impact to the ecological aspects during construction.

<table>
<thead>
<tr>
<th>Impact Management actions (mitigation measures)</th>
<th>Implementation</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Site clearance-loss of protected plants/other vegetation</td>
<td>Responsible person</td>
<td>Method of implementation</td>
</tr>
<tr>
<td>If any protected tree (<em>Sclerocarya birrea</em> - marula) has to be removed the</td>
<td>Contractor</td>
<td>apply for permit</td>
</tr>
</tbody>
</table>

AGES Limpopo (Pty) Ltd
## ECOLOGY - CONSTRUCTION PHASE

Impact Management outcome: Minimise and control impact to the ecological aspects during construction.

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</tr>
</thead>
<tbody>
<tr>
<td>Necessary permits to do so must be obtained from DAFF prior to the removal of the trees.</td>
<td>Contractor</td>
<td>Responsible person</td>
</tr>
<tr>
<td>Killing, snaring or collection of animals</td>
<td>Contractor</td>
<td>Fine for transgressors</td>
</tr>
<tr>
<td>Inappropriate use of herbicides and pesticides</td>
<td>Contractor</td>
<td>Appoint specialist</td>
</tr>
<tr>
<td>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.</td>
<td>Contractor</td>
<td>Apply according to label.</td>
</tr>
<tr>
<td>A daily register must be kept of all relevant details of herbicide usage;</td>
<td>Contractor</td>
<td>Draw up register</td>
</tr>
<tr>
<td>Accidental fires</td>
<td>Contractor</td>
<td>Weekly training session</td>
</tr>
<tr>
<td>Fires are not allowed in the construction camp and extra care should be taken to prevent veldt fires from occurring.</td>
<td>Contractor</td>
<td>Construction rules</td>
</tr>
<tr>
<td>Handling of solid waste</td>
<td>Contractor</td>
<td>Site instruction</td>
</tr>
</tbody>
</table>

**AGES Limpopo (Pty) Ltd**
**ECOLOGY - CONSTRUCTION PHASE**

Impact Management outcome: Minimise and control impact to the ecological aspects during construction.

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</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
<td>Contractor</td>
<td>Team to clean up</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>Impact Management actions (mitigation measures)</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Responsible person</td>
<td>Method of implementation</td>
</tr>
<tr>
<td><strong>Lights - nuisance</strong></td>
<td>Contractor</td>
<td>Correct installation</td>
</tr>
<tr>
<td>Care must be taken that only the most important and necessary lighting is used at night at the construction site.</td>
<td>Contractor</td>
<td>Removal program</td>
</tr>
<tr>
<td><strong>Littering (domestic waste and building rubble)</strong></td>
<td>Contractor</td>
<td>Provide different bins</td>
</tr>
<tr>
<td>All domestic waste and building rubble must be removed to a permitted waste facility site on a weekly basis.</td>
<td>Contractor</td>
<td>Dispose of on weekly basis</td>
</tr>
<tr>
<td>Waste must be sorted and recycled as far as practicably possible.</td>
<td>Contractor</td>
<td>Provide bins on site</td>
</tr>
<tr>
<td>Domestic waste must not remain on site for more than one week.</td>
<td>Contractor</td>
<td>Checking Fine to transgressors</td>
</tr>
<tr>
<td>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.</td>
<td>Contractor</td>
<td>Checking Fine to transgressors</td>
</tr>
<tr>
<td>No solid waste may be buried in any excavations on site.</td>
<td>Contractor</td>
<td>Checking Fine to transgressors</td>
</tr>
<tr>
<td>No waste may be burned on site.</td>
<td>Contractor</td>
<td>Checking Fine to transgressors</td>
</tr>
<tr>
<td><strong>Presence of construction vehicles and machinery</strong></td>
<td>Contractor</td>
<td>Provide procedure</td>
</tr>
<tr>
<td>Construction equipment must be organised neatly on site.</td>
<td>Contractor</td>
<td>Provide procedure</td>
</tr>
<tr>
<td>Equipment not in use should be removed from site.</td>
<td>Contractor</td>
<td>Provide procedure</td>
</tr>
</tbody>
</table>

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### HERITAGE RESOURCES - CONSTRUCTION PHASE

**Impact Management outcome:** Prevent/minimise negative impacts on heritage resources

<table>
<thead>
<tr>
<th>Impact Management actions (mitigation measures)</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Responsible person</strong></td>
<td><strong>Method of implementation</strong></td>
<td><strong>Timeframe: implementation</strong></td>
</tr>
<tr>
<td>Earthworks and excavations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Immediately halt construction activities and call in an archaeologist should anything of heritage value be discovered.</td>
<td>Contractor</td>
<td>Stop all construction Call Archaeologist</td>
</tr>
</tbody>
</table>

### 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.

<table>
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<tr>
<th>Impact Management actions (mitigation measures)</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Responsible person</strong></td>
<td><strong>Method of implementation</strong></td>
<td><strong>Timeframe: implementation</strong></td>
</tr>
<tr>
<td><strong>Construction activities - safety of employees</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td>Contractor</td>
<td>Apply conditions of the Act</td>
</tr>
<tr>
<td>A security officer may be employed to protect the property from theft.</td>
<td>Contractor</td>
<td>Appoint officer</td>
</tr>
<tr>
<td>A first aid kit must be available at the site office.</td>
<td>Contractor</td>
<td>First Aid kit available</td>
</tr>
<tr>
<td>All personnel must be informed of emergency procedures and contact numbers must be displayed prominently.</td>
<td>Contractor</td>
<td>Training talks</td>
</tr>
<tr>
<td>Personal Protective Equipment (PPE) and safety gear must be provided to all site personnel (e.g. hard hats, safety boots, masks etc.).</td>
<td>Contractor</td>
<td>Supply PPE</td>
</tr>
<tr>
<td>Open trenches or excavations must be marked with danger tape.</td>
<td>Contractor</td>
<td>Mark all dangerous areas While trenches are open</td>
</tr>
</tbody>
</table>
## 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.

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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Responsible person</td>
<td>Method of implementation</td>
</tr>
<tr>
<td>Accidental fires</td>
<td>Contractor</td>
<td>Training on Emergency plan during training talks</td>
</tr>
<tr>
<td>No solid waste or vegetation may be burned on the premises or surrounding areas.</td>
<td>Contractor</td>
<td>Fine to transgressors</td>
</tr>
<tr>
<td>All employees must be properly trained in the use of firefighting equipment and the emergency procedures in case of a fire.</td>
<td>Contractor</td>
<td>Training cession</td>
</tr>
<tr>
<td>Firefighting equipment must be available and must be serviced and inspected regularly to ensure that it is in proper working order and easily accessible.</td>
<td>Contractor</td>
<td>Check according to program</td>
</tr>
<tr>
<td><strong>Construction activities - socio-economic impact</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local labour must be used wherever possible during the construction phase.</td>
<td>Contractor</td>
<td>Appoint local people</td>
</tr>
<tr>
<td>Where viable, the work must be executed in a labour intensive manner to create as many jobs possible.</td>
<td>Contractor</td>
<td>According to construction program</td>
</tr>
<tr>
<td><strong>Unhygienic working conditions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupational Health and Safety standards must be implemented.</td>
<td>Contractor</td>
<td>Implement standards</td>
</tr>
<tr>
<td>Workplaces must be kept clean to ensure hygienic working conditions</td>
<td>Contractor</td>
<td>Implement health standards</td>
</tr>
<tr>
<td><strong>Security Issues</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A security officer may be employed to protect the property from theft.</td>
<td>Contractor</td>
<td></td>
</tr>
<tr>
<td>All personnel must be informed of emergency procedures and emergency contact numbers must be displayed prominently.</td>
<td>Contractor</td>
<td>Training sessions</td>
</tr>
<tr>
<td>Proper access control (I.D. cards) should be enforced to ensure that no</td>
<td>Contractor</td>
<td>Supply and control</td>
</tr>
</tbody>
</table>
### 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.

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<th>Impact Management actions (mitigation measures)</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Unauthorised persons enter the site.</td>
<td>Responsible person</td>
<td>Method of implementation</td>
</tr>
<tr>
<td>contractor</td>
<td>issuing of cards site</td>
<td>representative</td>
</tr>
</tbody>
</table>

**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

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<thead>
<tr>
<th>Impact Management actions (mitigation measures)</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Fumes/vapours emanating from fuel tanks and LPG/Oxygen installation as well as N2O and Entonox cylinders</td>
<td>Responsible person</td>
<td>Method of implementation</td>
</tr>
</tbody>
</table>
| 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 condition.                           | Management  
  - Test according to a Operating phase | Management  
  - Checking | Records of |
# AIR QUALITY - OPERATIONAL PHASE

**Impact Management outcome:** Minimise impact to the environment through the control of impacts on air quality

<table>
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<tr>
<th>Impact Management actions (mitigation measures)</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Responsible person</td>
<td>Method of implementation</td>
</tr>
<tr>
<td>working order.</td>
<td>Management</td>
<td>Training plan</td>
</tr>
<tr>
<td>Train all employees properly in the use of firefighting equipment and the emergency procedures in case of a fire or other emergency situation</td>
<td>Management</td>
<td>Compile emergency plan and train people</td>
</tr>
<tr>
<td>Get an emergency plan in place to combat any uncontrolled fires.</td>
<td>Management</td>
<td>Meeting with Fire department</td>
</tr>
<tr>
<td>Align the emergency response plan with the nearest local fire Department.</td>
<td>Management</td>
<td>Clean-up sessions</td>
</tr>
</tbody>
</table>

## 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

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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Responsible person</td>
<td>Method of implementation</td>
</tr>
<tr>
<td>Storm water over unsurfaced sections of the site– surface containing oils and other lubricants – can reach streams</td>
<td>Management</td>
<td>Clean-up sessions</td>
</tr>
<tr>
<td>Keep premises clean and prevent contaminated run-off entering the storm water system.</td>
<td>Management</td>
<td>Control storm water</td>
</tr>
<tr>
<td>Inspect the fuel dispensing area to check that storm water from run-off or roof gutters is not entering the tank area.</td>
<td>Management</td>
<td>Cover area with</td>
</tr>
<tr>
<td>Protect all areas susceptible to erosion and ensure that there is no undue soil</td>
<td>Management</td>
<td></td>
</tr>
</tbody>
</table>

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### 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

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<thead>
<tr>
<th>Impact Management actions (mitigation measures)</th>
<th>Implementation</th>
<th>Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>erosion resultant from activities within and adjacent to the site.</strong></td>
<td>Responsible person: Paving</td>
<td>Timeframe: operation</td>
</tr>
<tr>
<td>Repair all erosion damage as soon as possible to allow for sufficient rehabilitation.</td>
<td>Management: Construction</td>
<td>Within a month</td>
</tr>
<tr>
<td>Do not allow surface water or storm water to become concentrated.</td>
<td>Management: Control storm water as sheet flow</td>
<td>In rainy season</td>
</tr>
<tr>
<td>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.</td>
<td>Management: Oil/water separator must be cleaned</td>
<td>Monthly</td>
</tr>
</tbody>
</table>

#### 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 (e.g., 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 | When applicable/ necessary | Management: Monthly checking of separator. | Disposal 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

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Responsible person</td>
<td>Method of implementation</td>
</tr>
<tr>
<td>Fuel spillage while filling tanks &amp; leaks from tanks</td>
<td>Management</td>
<td>Apply to any “new” installations</td>
</tr>
<tr>
<td></td>
<td>Daily stock reconciliation must be done to ensure early detection of fuel leaks. Updated records must be kept on site.</td>
<td>Management</td>
</tr>
<tr>
<td></td>
<td>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.</td>
<td>Management</td>
</tr>
<tr>
<td></td>
<td>Take care that pipe couplings are “spill –tight” and that the pipes are empty before being released from the tanks.</td>
<td>Management</td>
</tr>
<tr>
<td></td>
<td>Ensure that all fuel lines and fuel dispensers are leak-proof.</td>
<td>Management</td>
</tr>
<tr>
<td></td>
<td>Make a list of emergency numbers including that of the spill response team visible at the dangerous goods storage areas at all times.</td>
<td>Management</td>
</tr>
<tr>
<td></td>
<td>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.</td>
<td>Management</td>
</tr>
<tr>
<td></td>
<td>Diesel storage tanks must be installed in a bunding large enough to contain at least 110% of the largest tank volume.</td>
<td>Management</td>
</tr>
</tbody>
</table>
### 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

<table>
<thead>
<tr>
<th>Impact Management actions (mitigation measures)</th>
<th>Implementation</th>
<th>Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cover diesel tank storage area with a roof cover if possible to keep rain water out of the bunded area.</strong></td>
<td>Management</td>
<td>Build a roof</td>
</tr>
<tr>
<td><strong>Fuel spillage while dispensing fuel from tanks</strong></td>
<td>Management</td>
<td>Call in specialist to remove and dispose of substances</td>
</tr>
<tr>
<td><strong>Polluted areas must be cleaned up regularly with bio-digesters to digest the oils and fuels and to keep the soil clean.</strong></td>
<td>Management</td>
<td>Clean according to operation procedure</td>
</tr>
<tr>
<td><strong>A Spill kit and sawdust must be available on site should emergencies occur.</strong></td>
<td>Management</td>
<td>Keep spill kit at hand</td>
</tr>
<tr>
<td><strong>Washing of paved areas (apron) – surface containing oils and other lubricants which can enter storm water systems and reach streams</strong></td>
<td>Management</td>
<td>Done during construction</td>
</tr>
<tr>
<td><strong>Paved areas around pumps must be washed regularly to clean the paving from spilled fuel and oil.</strong></td>
<td>Management</td>
<td>Weekly washing of paved areas</td>
</tr>
<tr>
<td><strong>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.</strong></td>
<td>Management</td>
<td>Oil/water separator must be cleaned according to operating procedures</td>
</tr>
<tr>
<td><strong>Only biodegradable, detergents and chemicals must be used for cleaning purposes.</strong></td>
<td>Management</td>
<td>Operating procedure</td>
</tr>
<tr>
<td><strong>Develop a spillage contingency plan</strong></td>
<td>Management</td>
<td>Prior to operation</td>
</tr>
</tbody>
</table>
## WATER SUPPLY MANAGEMENT - OPERATIONAL PHASE

**Impact Management outcome:** Undertake responsible water usage at the Dangerous goods installation

<table>
<thead>
<tr>
<th>Impact Management actions (mitigation measures)</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Responsible</strong></td>
<td><strong>Method of</strong></td>
<td><strong>Timeframe:</strong></td>
</tr>
<tr>
<td><strong>person</strong></td>
<td><strong>implementation</strong></td>
<td><strong>implementation</strong></td>
</tr>
<tr>
<td><strong>Potable water use Cleaning of diesel bunding area</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use high pressure sprayers to reduce water use.</td>
<td>Management</td>
<td>Operating procedure</td>
</tr>
<tr>
<td>Ensure that pipes, taps and toilet systems are not leaking.</td>
<td>Management</td>
<td>Regular maintenance schedule</td>
</tr>
<tr>
<td>Staff must be educated to use water sparingly.</td>
<td>Management</td>
<td>Weekly training sessions</td>
</tr>
</tbody>
</table>

## 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

<table>
<thead>
<tr>
<th>Impact Management actions (mitigation measures)</th>
<th>Implementation</th>
<th>Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Responsible</strong></td>
<td><strong>Method of</strong></td>
<td><strong>Timeframe:</strong></td>
</tr>
<tr>
<td><strong>person</strong></td>
<td><strong>implementation</strong></td>
<td><strong>implementation</strong></td>
</tr>
<tr>
<td><strong>Spillage/leakages of fuel from fuel storage tanks</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td>Management</td>
<td>Call specialists to do testing</td>
</tr>
<tr>
<td>Tanks must not be filled beyond their safe filling level.</td>
<td>Management</td>
<td>Senior pump attendants to oversee filling operations</td>
</tr>
<tr>
<td>Take care that pipe couplings are “spill –tight” and that the pipes are empty before being released from the tanks.</td>
<td>Management</td>
<td>Follow operating procedure</td>
</tr>
<tr>
<td>Any polluted areas must be cleaned and rehabilitated as soon as possible after any pollution incident.</td>
<td>Management</td>
<td>According to operating</td>
</tr>
</tbody>
</table>
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

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Responsible person</td>
<td>Method of implementation</td>
</tr>
<tr>
<td>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.</td>
<td>Management</td>
<td>According to legal thresholds Soil analysis must be done</td>
</tr>
<tr>
<td>Make a list of emergency numbers including that of the spill response team visible at the dangerous goods storage areas at all times.</td>
<td>Management</td>
<td>Put list up at conspicuous places at dangerous goods storage areas.</td>
</tr>
</tbody>
</table>

Spillage of fuel on apron or in bunding (surface containing oils and other lubricants which can reach exposed/ unpaved sections – infiltration into soil)

<table>
<thead>
<tr>
<th></th>
<th>Implementation</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Responsible person</td>
<td>Method of implementation</td>
</tr>
<tr>
<td>Oil/water separators must be cleaned regularly by an approved contractor.</td>
<td>Management</td>
<td>According to operating procedures</td>
</tr>
<tr>
<td>An impermeable layer must be put under the paving to prevent pollution from leaching deep into the soil.</td>
<td>Management</td>
<td>Construction according to a plan</td>
</tr>
<tr>
<td>Oil/water separators must be constructed downstream of polluted areas to intercept oily waters.</td>
<td>Management</td>
<td>Construct separator</td>
</tr>
<tr>
<td>Polluted areas must be cleaned up monthly with bio-digesters to digest the oils and fuels and to keep the soil clean.</td>
<td>Management</td>
<td>According to operating procedures</td>
</tr>
<tr>
<td>A spill kit must be kept at the filling station for emergencies.</td>
<td>Management</td>
<td>Keep spill kit at hand</td>
</tr>
<tr>
<td>Contaminated spoil must be remediated after an incident to the satisfaction of the DWS.</td>
<td>Management</td>
<td>Take soil samples of polluted soil</td>
</tr>
</tbody>
</table>

AGES Limpopo (Pty) Ltd
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

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<tbody>
<tr>
<td>Responsible person</td>
<td>Method of implementation</td>
<td>Timeframe: implementation</td>
</tr>
</tbody>
</table>

**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

<table>
<thead>
<tr>
<th>Management</th>
<th>Built according to required standards. Apply to new installations</th>
<th>Continuous</th>
<th>Management</th>
<th>Once off</th>
<th>Records</th>
</tr>
</thead>
</table>

- Daily stock reconciliation must be done to ensure early detection of fuel leaks. Updated records must be kept on site.

<table>
<thead>
<tr>
<th>Management</th>
<th>According to operating procedures</th>
<th>Daily</th>
<th>Management</th>
<th>Daily</th>
<th>Fuel records</th>
</tr>
</thead>
</table>

- 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.

<table>
<thead>
<tr>
<th>Management</th>
<th>Call specialists to do testing</th>
<th>According to applicable regulations</th>
<th>Management</th>
<th>Testing according to applicable regulations</th>
<th>Records</th>
</tr>
</thead>
</table>

- Take care that pipe couplings are “spill-tight” and that the pipes are empty before it is released from the tanks.

<table>
<thead>
<tr>
<th>Management</th>
<th>Follow operating procedure</th>
<th>When filling tanks</th>
<th>Management</th>
<th>When receiving stock</th>
<th>Visual check</th>
</tr>
</thead>
</table>

- Care should be taken that all fuel lines and fuel dispensers are leak-proof.

<table>
<thead>
<tr>
<th>Management</th>
<th>Continuous</th>
<th>Management</th>
<th>Daily</th>
<th>Visual check</th>
</tr>
</thead>
</table>

- Make a list of emergency numbers including that of the spill response team visible at the dangerous goods storage areas at all times.

<table>
<thead>
<tr>
<th>Management</th>
<th>Put list up at conspicuous places at dangerous goods storage areas</th>
<th>Continuous</th>
<th>Management</th>
<th>Daily</th>
<th>Inspection log sheet</th>
</tr>
</thead>
</table>

- Ensure that the Fuel tanker service contractor regularly checks the flanges, caps and seals to ensure that these components are not leaking or damaged.

<table>
<thead>
<tr>
<th>Management</th>
<th>Enforce correct operating procedure</th>
<th>When receiving stock</th>
<th>Management</th>
<th>When receiving stock</th>
<th>Visual check</th>
</tr>
</thead>
</table>

**Spillages during dispensing from tanks**

- Spillages must be cleaned up by an operator licensed to do so.

<table>
<thead>
<tr>
<th>Management</th>
<th>Call in specialist to remove and dispose of</th>
<th>When required</th>
<th>Management</th>
<th>When required</th>
<th>Incident log sheet</th>
</tr>
</thead>
</table>
### 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

<table>
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<tr>
<th>Impact Management actions (mitigation measures)</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Responsible person</td>
<td>Method of implementation</td>
<td>Timeframe: implementation</td>
</tr>
<tr>
<td>A Spill kit and sawdust must be available should emergencies occur.</td>
<td>Management</td>
<td>Keep spill kit at hand</td>
</tr>
<tr>
<td>Care should be taken that all fuel lines and fuel dispensers are leak-proof.</td>
<td>Management</td>
<td>Continuous</td>
</tr>
</tbody>
</table>

### ECOLOGY - OPERATIONAL PHASE

**Impact Management outcome:** Minimise and control impacts to the ecology.

<table>
<thead>
<tr>
<th>Impact Management actions (mitigation measures)</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Responsible person</td>
<td>Method of implementation</td>
<td>Timeframe: implementation</td>
</tr>
</tbody>
</table>

#### 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 | 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 | 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 | Biannually | When lights need to be changed | Inspection log sheet. |
| Fires on site-burning of waste | Management | Site rules | Operational phase | Management | Continuous | Inspection/Incident log sheet |
| No waste may be burned or fires made on site. | Management | Install according to | Install in | Management | Checking | |

**AGES Limpopo (Pty) Ltd**
### ECOLOGY - OPERATIONAL PHASE

Impact Management outcome: Minimise and control impacts to the ecology.

<table>
<thead>
<tr>
<th>Impact Management actions (mitigation measures)</th>
<th>Implementation</th>
<th>Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Responsible person</td>
<td>Method of implementation</td>
</tr>
<tr>
<td>Minimise and control impacts to the ecology.</td>
<td>Safety standards</td>
<td>Construction phase</td>
</tr>
</tbody>
</table>

### VISUAL - OPERATIONAL PHASE

Impact Management outcome: Prevent unnecessary negative visual impact by ensuring that visual impacts are mitigated.

<table>
<thead>
<tr>
<th>Impact Management actions (mitigation measures)</th>
<th>Implementation</th>
<th>Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Responsible person</td>
<td>Method of implementation</td>
</tr>
<tr>
<td>Change in appearance of area – completed installation</td>
<td>Management Clean-up program</td>
<td>Continuous</td>
</tr>
<tr>
<td>Filling station area must be kept neat at all times.</td>
<td>Management Install according to site plans</td>
<td>Continuously</td>
</tr>
<tr>
<td>Restrict lighting to the minimum of what is needed for operation.</td>
<td>Management Install according to site plans</td>
<td>Continuously</td>
</tr>
<tr>
<td>Install light fixtures that provide precisely directed illumination to reduce light “spillage” beyond the immediate surrounds of the project site.</td>
<td>Management Install according to site plans</td>
<td>Continuously</td>
</tr>
</tbody>
</table>

### HERITAGE - OPERATIONAL PHASE

Impact Management outcome: Prevent unnecessary negative impact to heritage resources by protecting and reporting heritage resources found on site.

<table>
<thead>
<tr>
<th>Impact Management actions (mitigation measures)</th>
<th>Implementation</th>
<th>Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Responsible person</td>
<td>Method of implementation</td>
</tr>
<tr>
<td>Prevent unnecessary negative impact to heritage resources by protecting and reporting heritage resources found on site.</td>
<td>Management</td>
<td>Install according to site plans</td>
</tr>
<tr>
<td>Maintain heritage resources on site.</td>
<td>Management</td>
<td>Install according to site plans</td>
</tr>
</tbody>
</table>
**HERITAGE - OPERATIONAL PHASE**

Impact Management outcome: Prevent unnecessary negative impact to heritage resources by protecting and reporting heritage resources found on site.

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<tr>
<th>Impact Management actions (mitigation measures)</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Responsible person</td>
<td>Method of implementation</td>
</tr>
<tr>
<td><strong>Discovery of heritage resources on site</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anything of archaeological value that is unearthed must be recorded.</td>
<td>Management</td>
<td>Record any findings</td>
</tr>
<tr>
<td>The archaeologist or SAHRA must be notified whenever anything of importance is discovered</td>
<td>Management</td>
<td>Stop any operation around discovery Notification of Archaeologist</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>Impact Management actions (mitigation measures)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Responsible person</td>
<td>Method of implementation</td>
</tr>
<tr>
<td><strong>Security at the dangerous goods installation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Security measures on site must be regularly updated. Staff must be properly trained and a security manager should undertake daily inspections.</td>
<td>Management</td>
<td>Appoint security company</td>
</tr>
<tr>
<td><strong>Job creation (local labour) - socio-economic impact</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local labour should be employed wherever possible during the operation of the facility to provide temporary and permanent job opportunities for local people.</td>
<td>Management</td>
<td>Appoint local people</td>
</tr>
<tr>
<td><strong>Increased traffic to and from the site</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strictly control traffic speeds of delivery vehicles with dangerous goods on site</td>
<td>Management</td>
<td>Security appointed on site</td>
</tr>
</tbody>
</table>
**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.

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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Responsible person</td>
<td>Method of implementation</td>
</tr>
<tr>
<td>Construct speed humps on the hospital site to keep speeds of traffic down.</td>
<td>Management</td>
<td>Construction according to site plan</td>
</tr>
</tbody>
</table>

**Petroleum products – Risk of flames/fires**

<table>
<thead>
<tr>
<th>Impact Management actions (mitigation measures)</th>
<th>Implementation</th>
<th>Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Responsible person</td>
<td>Method of implementation</td>
</tr>
<tr>
<td>No solid waste or vegetation may be burned on the premises or surrounding areas.</td>
<td>Management</td>
<td>Checking fines to transgressors</td>
</tr>
<tr>
<td>Operational fire hydrants and fire extinguishers must be available and easily accessible.</td>
<td>Management</td>
<td>Checking</td>
</tr>
<tr>
<td>Trucks must be grounded properly to prevent static electricity discharges while filling the tanks.</td>
<td>Management</td>
<td>Checking</td>
</tr>
<tr>
<td>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.</td>
<td>Management</td>
<td>Checking</td>
</tr>
<tr>
<td>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.</td>
<td>Management</td>
<td>Checking</td>
</tr>
<tr>
<td>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</td>
<td>Management</td>
<td>Put up signs</td>
</tr>
<tr>
<td>Firefighting equipment must be available at the filler points.</td>
<td>Management</td>
<td>Checking</td>
</tr>
<tr>
<td>Firefighting equipment must be checked regularly to ensure it is in proper working order.</td>
<td>Management</td>
<td>Checking and testing</td>
</tr>
<tr>
<td>All employees must be properly trained in the use of firefighting equipment and the emergency procedures in case of a fire.</td>
<td>Management</td>
<td>Training program</td>
</tr>
</tbody>
</table>

AGES Limpopo (Pty) Ltd
### 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.

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</tr>
</thead>
<tbody>
<tr>
<td><strong>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.</strong></td>
<td>Management</td>
<td>Maintenance by specialist</td>
</tr>
<tr>
<td><strong>An emergency response plan that is aligned with the local Fire Department must be in place.</strong></td>
<td>Management</td>
<td>Emergency response plan exercises</td>
</tr>
<tr>
<td><strong>Train all personnel to handle any emergency situation that could arise from the transport and transfer of fuel at sites.</strong></td>
<td>Safety manager</td>
<td>Training program</td>
</tr>
<tr>
<td><strong>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.</strong></td>
<td>Safety manager</td>
<td>Make it part of operational Program</td>
</tr>
<tr>
<td><strong>The storage locations for these gasses must be well ventilated to successfully dilute any gaseous release in case of accidental releases inside these areas.</strong></td>
<td>Safety manager</td>
<td>Correct construction according to site plans</td>
</tr>
<tr>
<td><strong>Adhere to the Municipality’s guidelines, principles and policies.</strong></td>
<td>Management</td>
<td>Checking</td>
</tr>
</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>Impact Management actions (mitigation measures)</th>
<th>Implementation</th>
<th>Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unhygienic conditions prevailing at the ablution facility</strong></td>
<td>Management</td>
<td>Appoint health and safety Officer</td>
</tr>
</tbody>
</table>

**AGES Limpopo (Pty) Ltd**
### 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.

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<tr>
<th>Impact Management actions (mitigation measures)</th>
<th>Implementation</th>
<th>Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Responsible person</td>
<td>Method of implementation</td>
</tr>
<tr>
<td>Petroleum products on site - influence on health</td>
<td>on site</td>
<td></td>
</tr>
</tbody>
</table>

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.
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 ASSESSMENT 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

SANS 10087-3:2015
Edition 5

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

WARNING
This document references other documents normatively.
APPENDIX 2

SANS 10131:2004
Edition 1

SOUTH AFRICAN NATIONAL STANDARD

Above-ground storage tanks for petroleum products
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:

<table>
<thead>
<tr>
<th>SERVICE PROVIDER</th>
<th>TELEPHONE NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Police</td>
<td></td>
</tr>
<tr>
<td>Hospital</td>
<td></td>
</tr>
<tr>
<td>Fire Department</td>
<td></td>
</tr>
<tr>
<td>Site Manager</td>
<td></td>
</tr>
<tr>
<td>Fuel Supply Company Customer Line</td>
<td></td>
</tr>
<tr>
<td>Fuel Supply Company Representative</td>
<td></td>
</tr>
<tr>
<td>Armed Response</td>
<td></td>
</tr>
<tr>
<td>ATM Helpline</td>
<td></td>
</tr>
</tbody>
</table>

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: ______

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PART C4: SITE INFORMATION
C4.1: SITE INFORMATION

<table>
<thead>
<tr>
<th>Project Name:</th>
<th>NEW SILOAM DISTRICT HOSPITAL PHASE 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tender No:</td>
<td>NDOHF 12/2019-2020</td>
</tr>
</tbody>
</table>

C4 Site Information

Location

THE SITE IS AT :
Portion 1 of the farm Siloam No. 199 – MT
Siloam Village
Makhado
22°54’03.01”S
30°11’37.03”E

SITE INFORMATION

ADJACENT BUILDINGS AND SERVICES

Prospective bidders must acquaint themselves with the positions and areas of buildings being renovated or newly constructed on site and must take cognisance of the functional buildings and services adjacent to these areas.

Bidders attention is drawn to the following specific requirements:

- Dust control
- Noise control – works executed after 5pm – 8am weekdays, works over weekends and public holidays shall be agreed with the Principal Agent prior commencement.
- All construction workers shall be contained to the designated portion of the existing site as defined by the Principal Agent
Drawings referred to in Bill of Quantities:

042-005; 042-010; 042-025; 042-026; 044-001; 045-600 – 603; 045-605 – 608,045-609; 045-
610 – 612; 045-616 – 619; 045-624 – 626; 045-410; 045-501; 045-504 – 505; A-043-001 – 003;
A-043-004; A-045-001 – 004; A-045-006 – 007; A-045-008/A – 008/B; A-045-009 – 013; A-045-
201 – 206; A-045-208 – 211; A-045-213 – A-045-217; A-060-001 – 004; A-070 -001 – 004; B-
045-001 – 007; B-045-201-207; B-060-001 – 002; B-070-001 – 002; C-045-001 – 003; C-045-
201 – 205; C-060 – 001 – 002; C-070-001 – 002; D-045-001 – 002; D-045-201 – 203, D-060 –
001, D-070-001 – 002; E-045-001 – 002; E-045-201 – 203; E-060-001; E-070-001 – 002; F-045-
001 – 002; F-045-201 – 203; F-060-001; F-070-001;G-045-001;G-045-201; G-045-202; G-060-
001; G-070-001;H-045-001; H-045-201 – 202; H-060-001 – 002; H-070-001 – 002; J-045-001 –
M-070-101; M-070-102; N-042-002 – 003; N-045-001 – 002; N-060-001;N-070-001; Q-045-001
– 003; Q-045-201 – 204; Q-060-001; Q-070-001;Q-010-004; U-045-001; U-045-201; U-060-001;
U-010-003; U-045-001; U-045-201; W-045-001 – 002, W-060-001; W-010-002;
D008.
Contract Drawings:

00-018; A-010-001; A-020-001; A-020-003; A-030-001; B-010-001; B-020-001; B-030-001; C-010-001; C-020-001; C-030-001; D-010-001; D-020-001; D-030-001; E-010-001; E-020-001; E-030-001; F-010-001; F-020-001; F-030-001; G-010-001; G-020-001; G-030-001; H-010-001; H-020-001; H-030-001; H-030-001; H-030-002; J-010-101; J-020-001; J-030-001; K-010-101; K-020-101; K-030-101; L-010-101; L-020-101; L-030-101; M-010-101; M-020-101; M-030-101; N-010-001; N-020-001; N-030-001; Q-010-001; Q-020-001; Q-020-002; Q-030-001; U-010-001; U-020-001; U-030-001; V-010-101; V-020-101; V-030-101; W-010-001; W-020-001; W-030-001; K-010-001; Y-010-001; Y-020-001; Y-020-001