



Site Specific Construction Health and Safety Specification

CLIENT CONSTRUCTION HEALTH AND SAFETY SPECIFICATION FOR THE LETABA GIYANI CAMPUS IN THE LIMPOPO PROVINCE.

16 September 2022

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1. INTRODUCTION

The Client's Health and Safety Specifications and guidance contained in this document relate to the Health and Safety requirements pertaining to the LETABA GIYANI CAMPUS IN THE LIMPOPO PROVINCE.

Take note of the following specific requirements and statements:

The Principal Contractor must, after award, immediately appoint a competent Construction Manager (as defined in Act 48 of 2000) and as prescribed in OHS Act 85 of 1993 Construction Regulation 8(1). The qualifications, experience and registration details must be included into the Project Health and Safety Plan. This person, in terms of these Client Specifications, is the person accountable to ensure the agreed Project Health and Safety Plan is executed and controlled.

Compliance to the Occupational Health and Safety Act (Act 85 of 1993) and the linked Regulations are not limited to the specifications and definitions contained in this document but, additionally, all new health and safety risks that get identified during the project lifetime must be covered as well.

A comprehensive, documented Health and Safety Plan must be drawn up by the Principal Contractor, as a duty imposed on the Principal Contractor's Construction Manager, which must be based on the results of Health and Safety Risk Assessments conducted by him/her, and the Health and Safety Specifications and Base Risks provided and presented to the Client for approval prior to commencement of work. This plan will transform into the Project Health and Safety File, as and when project Health and Safety Records are added to it.

Monitoring of compliance of Health and Safety on site shall be to the requirements of the OHS Act and Regulations as well as the contents of the Health and Safety Plan(s) of the Principal Contractor and Sub-Contractors and ensuring compliance to these is the duty of the appointed Construction Manager of the Principal Contractor.

2. PURPOSE

The purpose of this specification document is to provide the contractors with any information other than the standard conditions pertaining to construction sites which might affect the health and safety of persons at work and of persons in connection with the use of plant and machinery. It further aims to protect persons other than its employees against any potential hazards to their health and safety arising out of or in connection with the activities of persons at work during the construction work for the project.

To brief the Principal Contractor/Contractor on the significant health and safety requirements and aspects of the project. This shall include the provision of the following information and requirements namely:

- Safety considerations affecting the site of the project and its environment;
- Health and safety aspects of the associated structures and equipment;
- Required submissions on health and safety matters required from the Principal Contractor (and Contractors);
- Principal Contractor's (and Sub - Contractors) health and safety plans.

To serve to ensure that the Principal Contractor (and Contractors) are fully aware of what is expected from them with regards to the Occupational Health and Safety Act, 85 of 1993 and the Regulations including the applicable safety standards, and in particular in terms of Section 8 of the Act.

To inform the Principal Contractor that the Occupational Health and Safety Act, 85 of 1993 in its entirety shall apply to the contract to which this specification document applies. The Construction Regulations promulgated on 7 February 2014 and incorporated into the above Act by Government Notice R 84, published in Government Gazette 37305 shall specifically apply to all persons involved in the construction work pertaining to this project.

3. DEFINITIONS

"Purpose of the Act" –To provide for the health and safety of persons at work and the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work; to establish an advisory council for occupational health and safety; and to provide for matters connected therewith.

"the Act" means the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993);

"Agent" –means a competent person who acts as a representative for a client;

"Client" –means any person for whom construction work is performed;

"Construction manager" means a competent person responsible for the management of the physical construction processes and the coordination, administration and management of resources on a construction site;

"Construction site" means a workplace where construction work is being performed;

"Construction supervisor" means a competent person responsible for supervising construction activities on a construction site;

"Construction work" means any work in connection with -

- a) the construction, erection, alteration, renovation, repair, demolition or dismantling of or addition to a building or any similar structure; or
- b) the construction, erection, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, runway, sewer or water reticulation system; or the moving of earth, clearing of land, the making of excavation, piling, or any similar civil engineering structure or type of work;

"Contractor" –means an employer who performs construction work

"Designer" means-

- a) a competent person who-
 - (i) prepares a design;
 - (ii) checks and approves a design;
 - (iii) arranges for a person at work under his or her control to prepare a design, including an employee of that person where he or she is the employer; or
 - (iv) designs temporary work, including its components;
- b) an architect or engineer contributing to, or having overall responsibility for a design;
- c) a building services engineer designing details for fixed plant;
- d) a surveyor specifying articles or drawing up specifications;
- e) a contractor carrying out design work as part of a design and building project; or an interior designer, shop-fitter or landscape architect;

"Excavation work" means the making of any man-made cavity, trench, pit or depression formed by cutting, digging or scooping;

"Health and Safety File" –means a file, or other record containing the information in writing required by the Construction Regulations;

"Health and Safety Plan" –means a site, activity or project specific documented plan in accordance with the client's health and safety specification;

"Health and Safety Specification" –means a site, activity or project specific document prepared by the client pertaining to all health and safety requirements related to construction work;

"Method Statement" –means a document detailing the key activities to be performed in order to reduce as reasonably as practicable the hazards identified in any risk assessment;

"Principal contractor" means an employer appointed by the client to perform construction work;

"Risk Assessment" –means a program to determine any risk associated with any hazard at a construction site, in order to identify the steps needed to be taken to remove, reduce or control such hazard.

"National Building Regulations" means the National Building Regulations made under the National Building Regulations and Building Standards Act, 1977 (Act No. 103 of 1977), and promulgated by Government Notice No. R. 2378 of 30 July 1990, as amended by Government Notices No's R. 432 of 8 March 1991, R. 919 of 30 July 1999 and R. 547 of 30 May 2008;

4. ORGANIZATIONAL STRUCTURE OF HEALTH AND SAFETY RESPONSIBILITIES

All responsibilities fall under the legal requirement of legal appointment letters – each responsible person must have an appointment letter. The site must commit to establish, implement and maintain a site Organogram. The Organogram must be displayed on site.

ROLE	RESPONSIBILITIES
Client Client Agent	The Client and/or its Agent shall ensure that the Principal Contractor, appointed in terms of Construction Regulation 5(1) (k), implements and maintains the agreed and approved Health and Safety Plan. Failure on the part of the Client or Agent to comply with this requirement will not relieve the Principal Contractor from any duties under the Act and Regulations.
CEO – Principle Contractor	The Chief Executive Officer of the Principal Contractor in terms of Section 16 (1) of the OHS Act to ensure that the Employer (as defined in the Act) complies with the Act. The pro forma Legal Compliance Audit may be used for this purpose by the Principal Contractor or his/her appointed contractor.
Person responsible for Health and Safety Section 16(2)	All OHS Act (85 /1993), Section 16 (2) appointee/s as detailed in their respective appointment forms shall regularly, in writing, report to management on health and safety matters or deviations identified during routine or ad hoc inspections/ audits. All reports shall be made available to the principal Contractor to become part of their site records (Health & Safety File).
Construction Manager or Assistant	The Construction Manager and Assistant Construction Supervisor/s appointed in terms of Construction Regulation 8 shall regularly, in writing, report to their managers on health and safety matters or deviations identified during inspections. All reports shall be made available to the principal Contractor to become part of site records (Health & Safety File).
SHE Representatives	All Health and Safety Representatives (SHE-Reps) shall act and report as per Section 18 of the OHS Act. She Representatives shall inspect and monitor activities on a daily basis and report findings to the Client and Health and Safety manager immediately. These safety representatives have the right to stop any unsafe work or work due to unsafe conditions and report findings and reason immediately to the employer.

Other Appointees	Legal	Further (Specific) Supervision Responsibilities for OH&S Several appointments or designations of responsible and /or competent people in specific areas of construction work are required by the OHS Act and Regulations. The following competent appointments, where applicable, in terms of the Construction Regulations are required to ensure compliance to the Act, Regulations and Safety Standards.
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The appointments *applicable* to the scope of work must be made for the project.

LEGAL APPOINTMENTS AS REQUIRED IN THE CONSTRUCTION REGULATIONS			
Item	Construction Regulation	Appointment	Responsible Person
1.	5(1)(h)	Principal contractor for each phase or project	Client / Agent
2.	6	Designer	Client / Agent
3.	7(1)(c)(v)	Contractor	Principal Contractor
4.	7(2)(c)	Sub-Contractor	Contractor
5.	8(1)	Construction Manager	Principal Contractor
6.	8(2)	Assistant Construction Manager	Principal Contractor
7.	8(5)	Construction Safety Officer	Principal Contractor & Contractor
8.	8(7)	Construction Supervisor	Construction Manager
9.	8(8)	Assistant Construction Supervisor	Principal Contractor & Contractor
10.	9(1)	Person to carry out risk assessment	Principal Contractor & Contractor
11	10(1)(a)	Fall protection officer	Principal Contractor & Contractor
12	11(2)	Competent structure inspector	Owner
13	12(1)	Temporary Works Designer	Principal Contractor & Contractor
14	12(2)	Temporary Works Supervisor	Principal Contractor & Contractor
15	13(1)(a)	Excavation supervisor	Principal Contractor & Contractor
16	13(2)(k)	Explosives expert	Principal Contractor & Contractor
17	14(1)	Supervisor demolition work	Principal Contractor & Contractor
18	14(2) + (3)	Demolition expert	Principal Contractor & Contractor
19	14(11)	Explosives expert	Principal Contractor & Contractor
20	16(1)	Scaffold inspector / Erector	Principal Contractor & Contractor
21	17(1)	Suspended platform supervisor	Principal Contractor & Contractor
22	17(2)(c)	Compliance plan developer	Principal Contractor & Contractor
23	17(8)(c)	Suspended platform expert	Principal Contractor & Contractor
24	17(13)	Outrigger expert	Principal Contractor & Contractor
25	19(8)(a)	Material hoist inspector	Principal Contractor & Contractor

26	18(1)(a)	Rope access supervisor	Principal Contractor	Contractor	8
27	20(1)	Bulk mixing plant supervisor	Principal Contractor	Contractor	8
28	20(2)	Bulk mixing plant operator	Principal Contractor	Contractor	8
29	21(2)(b)	Explosive actuated fastening device inspector	Principal Contractor	Contractor	8
30	21(2) (g) (i)	Explosive actuated fastening device controller	Principal Contractor	Contractor	8
31	22(a)	Tower crane supervisor	Principal Contractor	Contractor	8
32	22(e)	Tower crane operator	Principal Contractor	Contractor	8
33	23(1)(d)(i)	Construction vehicle and mobile plant operator	Principal Contractor	Contractor	8
34	23(1)(k)	Construction vehicle and mobile plant inspector	Principal Contractor	Contractor	8
35	24(d)	Temporary electrical installations inspector	Principal Contractor	Contractor	8
36	24 (e)	Temporary electrical installations controller	Principal Contractor	Contractor	8
37	28 (a)	Stacking and storage supervisor	Principal Contractor	Contractor	8
38	29 (h)	Fire equipment inspector	Principal Contractor	Contractor	8
39	DMR 18(10)(e)	Lifting tackle inspector	Principal Contractor	Contractor	8
40	DMR 18(5)	Lifting machinery inspector	Principal Contractor	Contractor	8
41	DMR 18(11)	Lifting machinery operator	Principal Contractor	Contractor	8
42	24(c)	Temporary electrical installation controller	Principal Contractor	Contractor	8
43	24(d)	Temporary electrical installation inspector	Principal Contractor	Contractor	8
44	OHSA sec. 19(3)	Health & safety committee members nominated & appointed	Principal Contractor	Contractor	8
45	OHSA sec. 17(1)	She representatives)	Principal Contractor	Contractor	8
46	G.A.R. 9(2)	Incident investigator	Principal Contractor	Contractor	8
47	16.2	Executive responsible for the health and safety wellbeing of employees	Principal Contractor	Contractor	8
48	G.S.R 13a(1)	Ladder inspector	Principal Contractor	Contractor	8
49	HCSR 3	Hazardous chemical substance supervisor	Principal Contractor	Contractor	8
Best practice					
50	10(4)(c)(i)	Safety harness inspector	Principal Contractor	Contractor	8
51	E.M.R 10(4)	Portable electrical equipment inspector	Principal Contractor	Contractor	8
52	C.R 29(l)	Emergency evacuation co-ordinator	Principal Contractor	Contractor	8

53	C.R 29(i)	Fire marshal	Principal Contractor	8
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This list may be used as a reference or tool to determine which components of the Act and Regulations would be applicable. This list shall not be assumed to be exclusive or comprehensive.

5. APPLICATIONS AND INTERPRETATION

This document must be read and understood in conjunction with the following technical and legal references, which were referenced but are NOT DUPLICATED herein:

- Environmental Impact Study
- Design Reports
- Technical surveys and investigations
- Occupational Health and Safety Act of 1993 and all Regulations published in terms of the Occupational Health and Safety Act but specifically, the Construction Regulations of 2014.
- SANS codes referred to by the Occupational Health and Safety Act.
- Contract Documents
- Basic Conditions of Employment Act of 1997

6. DUTIES OF THE PRINCIPAL CONTRACTOR

- 6.1 The Principal Contractor shall accept the appointment under the terms and Conditions of Contract.
- 6.2 The Principal Contractor shall submit the notification of construction work in writing to the Department of Labour prior to commencement of work and inform the Client or his Agent accordingly;
- (a) The Principal Contractor shall ensure that he is fully conversant with the requirements of this Specification and all relevant health and safety legislation. This Specification is not intended to supersede the Act nor the Construction Regulations or any part of either. Those sections of the Act and the Construction Regulations which apply to the scope of work to be performed by the Principal Contractor in terms of this contract (entirely or in part) will continue to be legally required of the Principal Contractor to comply with. The Principal Contractor will in no manner or means be absolved from the responsibility to comply with all applicable sections of the Act, the Construction Regulations or any Regulations proclaimed under the Act or which may perceivable be applicable to this contract;
- (b) A principal contractor must further —
- provide and demonstrate to the client a suitable, sufficiently documented and coherent site-specific health and safety plan, based on the client's documented health and safety specifications contemplated in regulation 5(1) (b), which plan must be applied from the date of commencement of and for the duration of the construction work and which must be reviewed and updated by the principal contractor as work progresses;
 - open and keep on site a health and safety file, which must include all documentation required in terms of the Act and these Regulations, which must be made available on request to an inspector, the client, the client's agent or a contractor; and
 - on appointing any other contractor, in order to ensure compliance with the provisions of the Act-
 - (i) provide contractors who are tendering to perform construction work for the principal contractor, with the relevant sections of the health and safety specifications contemplated in regulation 5(1)(b) pertaining to the construction work which has to be performed;
 - (ii) ensure that potential contractors submitting tenders have made sufficient provision for health and safety measures during the construction process;
 - (iii) ensure that no contractor is appointed to perform construction work unless the principal contractor is reasonably satisfied that the contractor that he or she intends to appoint, has the necessary competencies and resources to perform the construction work safely;

- (iv) ensure prior to work commencing on the site that every contractor is registered and in good standing with the compensation fund or with a licensed compensation insurer as contemplated in the Compensation for Occupational Injuries and Diseases Act, 1993;
 - (v) appoint each contractor in writing for the part of the project on the construction site;
 - (vi) take reasonable steps to ensure that each contractor's health and safety plan contemplated in sub regulation (2)(a) is implemented and maintained on the construction site;
 - (vii) ensure that the periodic site audits and document verification are conducted at intervals mutually agreed upon between the principal contractor and any contractor, but at least once every 30 days;
 - (viii) stop any contractor from executing construction work which is not in accordance with the client's health and safety specifications and the principal contractor's health and safety plan for the site or which poses a threat to the health and safety of persons;
 - (ix) where changes are brought about to the design and construction, make available sufficient health and safety information and appropriate resources to the contractor to execute the work safely; and
 - (x) discuss and negotiate with the contractor the contents of the health and safety plan contemplated in sub regulation (2)(a), and must thereafter finally approve that plan for implementation;
- ensure that a copy of his or her health and safety plan contemplated in paragraph (a), as well as the contractor's health and safety plan contemplated in sub regulation (2)(a), is available on request to an employee, an inspector, a contractor, the client or the client's agent;
 - hand over a consolidated health and safety file to the client upon completion of the construction work and must, in addition to the documentation referred to in sub regulation (2)(b), include a record of all drawings, designs, materials used and other similar information concerning the completed structure;
 - in addition to the documentation required in the health and safety file in terms of paragraph (c)(v) and sub regulation (2)(b), include and make available a comprehensive and updated list of all the contractors on site accountable to the principal contractor, the agreements between the parties and the type of work being done; and
 - ensure that all his or her employees have a valid medical certificate of fitness specific to the construction work to be performed and issued by an occupational health practitioner in the form of Annexure 3.

6.3 A contractor must prior to performing any construction work-

- (a) provide and demonstrate to the principal contractor a suitable and sufficiently documented health and safety plan, based on the relevant sections of the client's health and safety specification contemplated in regulation 5(1)(b) and provided by the principal contractor in terms of sub regulation (1)(a), which plan must be applied from the date of commencement of and for the duration of the construction work and which must be reviewed and updated by the contractor as work progresses;
- (b) open and keep on site a health and safety file, which must include all documentation required in terms of the Act and these Regulations, and which must be made available on request to an inspector, the client, the client's agent or the principal contractor;
- (c) before appointing another contractor to perform construction work be reasonably satisfied that the contractor that he or she intends to appoint has the necessary competencies and resources to perform the construction work safely;
- (d) co-operate with the principal contractor as far as is necessary to enable each of them to comply with the provisions of the Act; and
- (e) as far as is reasonably practicable, promptly provide the principal contractor with any information which might affect the health and safety of any person at work carrying out construction work on the site, any person who might be affected by the work of such a person at work, or which might justify a review of the health and safety plan.
- (f) Where a contractor appoints another contractor to perform construction work, the duties determined in sub regulation (1)(b) to (g) that apply to the principal contractor apply to the contractor as if he or she were the principal contractor.
- (g) A principal contractor must take reasonable steps to ensure co-operation between all

contractors appointed by the principal contractor to enable each of those contractors to comply with these Regulations.

- (h) No contractor may allow or permit any employee or person to enter any site, unless that employee or person has undergone health and safety induction training pertaining to the hazards prevalent on the site at the time of entry.
- (i) A contractor must ensure that all visitors to a construction site undergo health and safety induction training pertaining to the hazards prevalent on the site and must ensure that such visitors have the necessary personal protective equipment.
- (j) A contractor must at all times keep on his or her construction site records of the health and safety induction training contemplated in sub regulation (6) and such records must be made available on request to an inspector, the client, the client's agent or the principal contractor.
- (k) A contractor must ensure that all his or her employees have a valid medical certificate of fitness specific to the construction work to be performed and issued by an occupational health practitioner in the form of Annexure 3.

7. SITE SPECIFIC INFORMATION

These specifications are applicable to the specific scope of work pertaining to the LETABA GIYANI CAMPUS IN THE LIMPOPO PROVINCE.

7.1 EMPLOYER'S OBJECTIVES

The scope of work entails the construction of additional facilities at LETABA GIYANI CAMPUS IN THE LIMPOPO PROVINCE. The facilities and infrastructure to be constructed consist of a student's Resource Centre, Four Classrooms & Two Computer Labs, and associated engineering services (water and sewer reticulation, roads, and stormwater) with the objective to ensure that the campus is enhanced and optimised for space allocation for intended use, and to ensure that buildings are compliant with all statutory regulations and by-laws.

7.2 SCHEDULE

- 18 months

7.3 LOCATION

The campus is located at 1 Claude Wheatley St, Arbor Park, Tzaneen, 0850.

7.4 TECHNICAL SURVEYS / INVESTIGATIONS

Investigations to be completed as required to ensure structural stability.

7.5 SERVICES

Before any work commences, the Contractor shall contact all private owners or public authorities controlling services so that they may, either protect, move or relocate any service as required, or confirm that all such work has been completed.

All known existing services and those services which require relocation and protection, are shown on the services plans. The Contractor's attention is drawn to the fact that such services information is based on information supplied by others, and the accuracy and completeness of this information has not been confirmed. The Contractor will therefore be required to proceed with extreme caution in order to avoid damage to existing services. Before commencing any work in the vicinity of services, the Contractor shall contact the relevant service authorities for assistance in locating the exact position of the services and where necessary the Contractor shall accurately locate the services by careful hand excavation.

In general, the Engineer may call upon the Contractor to re-excavate trenches previously dug and backfilled by others where in the opinion of the Engineer such work is necessary to ensure the stability of any other works over such trenches. This in no way relieves the Contractor of his responsibilities in terms of the works.

7.6 ACCOMMODATION OF TRAFFIC

The Contractor is to liaise with the Mopani District Municipality (for municipal roads) with regards to any temporary road closures as may be required.

Accommodation of traffic during construction shall be undertaken to the requirements and details provided by the Engineer.

7.7 COORDINATION WITH OTHER CONTRACTORS

Other contractors, who are engaged in the construction of similar works, could be working within the sites of the Contractor. The Contractor will be required to provide all necessary assistance to them, and to liaise with them in respect of their programme in order to avoid any delays to either contract.

7.8 SETTING OUT OF WORKS

Whilst surveys have been carried out of the site, and the designs based on such surveys, it is the responsibility of the Contractor to recheck all the benchmarks and protect the benchmarks from damage at the start of the contract. It is the Contractor's responsibility to set out the Works and any discrepancies in the design or setting out shall be identified and brought to the attention of the Engineer promptly so they can be corrected before any abortive expenditure is incurred.

7.9 OTHER

If at any time after commencement of the project changes are brought about to the design or construction, sufficient health and safety information and appropriate resources are to be made available to the Principal Contractor to execute the work safely. The contractor shall for the duration of the project make available a Registered Construction Health and Safety Officer and SHE Representatives on a daily basis to inspect the workplace.

As stipulated in Construction Regulation 7(1) (c) (ii) all potential contractors submitting tenders must make provision for the cost of health and safety measures during the construction process. When submitting a tender, the Principal Contractor shall therefore, make provision for the cost of Health and Safety measures in terms of their documented Health and Safety Plan and the Clients Health and Safety Baseline Specifications. The cost shall be clearly specified, quantified separate BOQ within the tender document under a section for health and safety.

8. NOTIFICATION TO AUTHORITIES, INTERESTED AND AFFECTED PARTIES

8.1 NOTIFICATION OF CONSTRUCTION WORK:

- As per the requirements of section 4 of the Construction regulations, 2014, a contractor who intends to carry out work other than work contemplated section 3(1) (application for a construction work permit), must at least 7 days before that work is carried out notify the provincial director in writing in a form similar to Annexure 2 if the intended construction work will:
 - a) Include excavation work
 - b) Include working at height where there is a risk of falling
 - c) Include demolition of a structure or
 - d) Include the use of explosives to perform construction work

8.2 NOTIFICATIONS TO LOCAL AUTHORITY

Where required, consult local bylaws for guidance. Generally considered are:

- Noise – application for prior consent;
- Notifications to the Local / Municipal Utilities Suppliers;
- Requests for location of underground services;
- Requests for isolation of overhead or underground services;
- Requests for temporary supplies for site operations.
- Compliance Documentation

Arrangements to be made for the provision on site, or easy access to it, of:

- Statutory documentation (OHS laws and their prescribed controls);
- Company documentation;
- Client standards;
- Copy of the notifiable particulars to be displayed on site;
- Project OHS plans.

8.3 OHS MANAGEMENT ARRANGEMENTS WITH SUBCONTRACTORS

The following matters should be agreed with subcontractors and suppliers and, where appropriate, included in the project OHS plan:

- OHS Policies - Copies of the Contractor's OHS policy together with the name of the OHS Practitioner (s), to be given to every other contractor. Subcontractors to provide Company with copies of their policies and the names of their OHS Practitioner (s), or other competent persons.
- Codes, standards and site rules - Relevant codes of practice, standards and site rules must be communicated as appropriate.
- OHS representation - Requirement for employees' representation to be discussed and appropriate arrangements made.
- Training - Procedures and arrangements for induction training and for trade related competence cards to be agreed.
- Injuries, diseases and dangerous occurrences - Agree procedures for reporting both to the enforcing authority and to site management.
- Welfare and first aid facilities - Arrangements to be agreed and any shared facilities to be confirmed.
- Protective clothing and equipment - Requirement for and provision for appropriate items to be agreed, together with arrangements for storage, inspection and any necessary training
- Safe access and safe places of work - Responsibilities and procedures for dealing with access problems common to all contractors (such as scaffolds, unfenced holes and reversing vehicles) and with inter-contractor disputes on safety matters.
- Fire precautions - Agree provision of appropriate firefighting equipment for work processes, stores, offices and workshops.
- Emergency procedures - Agree any requirements for emergency routes and make contact with emergency services. Ensure arrangements are promulgated and tested.
- Site tidiness - Agree arrangements for the storing of materials and the clearing of waste on a regular basis. Provision should be made for the principal contractor to contra-charge other contractors where these arrangements are not followed.
- Telephones - Arrangements for the early installation of IT and telephone systems are essential for both business and safety reasons. Telephone numbers to be used in the event of emergency should be prominently displayed.
- No Disability Discrimination - Employers and providers of facilities and services may not discriminate against any person because of their disability and to make reasonable adjustments to premises and the way in which goods, facilities and services are provided to match the needs of disabled personnel. This also applies to controllers of construction sites as employers.

9. HEALTH AND SAFETY FILE

The Principal Contractor must, in terms of Construction Regulation 7(2) (b), keep an Occupational Health & Safety File on site at all times that must include all documentation required in terms of the Act and Regulations and must also include a list of all Contractors on site that are accountable to the Principal Contractor and the agreements between the parties and details of work being done. A more detailed list of documents and other legal requirements that must be kept in the Health and Safety File is attached as an addendum to this document.

The Health and Safety File will remain the property of the Client and/or its Agent on its behalf throughout the period of the project and shall be consolidated and handed over to the Client and/or its Agent on its behalf at the time of completion of the project.

10. POLICY

An Occupational Health and safety policy, environmental policy, alcohol and drug abuse policy, HIV and Disciplinary must be developed, signed and approved by the Principal Contractors 16.1 appointee and communicated to all employees.

11. OH&S PERFORMANCE

The Principal Contractor is required to maintain an acceptable disabling incident frequency rate (DIFR) and report monthly on their performance to the Client or its Agent.

12. HEALTH AND SAFETY HAZARD IDENTIFICATION, RISK ASSESSMENT AND CONTROL

Risk assessments must be conducted to minimise project risks.

This Specification prescribes the minimum components required to constitute a substantially common approach to hazard identification, risk assessment and control of these in order to:

- Pro-actively assess the hazards and risks associated with all tasks associated with the project.
- Reduce and where possible eliminate the risks that employees and equipment are exposed to.
- Create hazard awareness amongst the employees performing various tasks.
- Ensure compliance to legislation and other requirements.

12.1 RISK ASSESSMENT METHODOLOGY

Any risk assessment methodology that is accepted in the industry or prescribed by a client may be used but all efforts must be made to ensure that it is covering the specifics in our industry.

The hazard identification and risk assessment process (HIRA) is a team-process. The contractors appointed Risk assessor must establish the relevant HIRA team and ensure that the members are trained to understand and be competent to perform HIRA using the multiplier approach. Though the Health and Safety professional coordinates the activities of the HIRA team, the Project or Line Manager must ensure the assessed and ranked risks are controlled on his project. All Health and Safety hazards and risks must ideally be identified and assessed per project, per process and task step in order to support the Safe Work Instruction and Planned Task Observation requirements. Use as a minimum a 5x5 matrix to rate identified risks.

Below is a typical example of a 5x5 risk matrix. For task specific Safe Work Method Statement and Safe Work Instruction purposes a 3x3 matrix may be used to improve the floor level DSTI effectiveness.

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12.2 MINIMUM REQUIRED RISK ASSESSMENT PROCESSES

The following HIRA processes form part of an integrated risk management program and must be developed for each project:

- **Baseline Risk Assessment:**
 - This must be conducted prior to commencement of work, covering all project specific areas, responsibilities, tasks, scope of work, method statements etc. from the project risk register;
- **Issue Based Risk Assessment:**
 - This must be conducted prior to commencement of any work, covering all specific tasks and activities to be performed. This will include all tasks related to the scope of work, including newly identified tasks.
- **Mini Risk Assessment:**
 - On the spot assessment of an activity before work must be conducted to pro-actively identify possible Hazards and Risks that may impact negatively on the employees' health and safety or harm the environment.
- **Daily Safe Task Instruction:**
 - Informal risk assessments compiled by Frontline Supervisors or Foremen and discussed with employees before commencement of daily tasks.

After any scope change, or specification change, or equipment change, new hazards and associated risk areas need to be evaluated, controlled and communicated to the workforce. Change can be identified in the scope of work, the work environment, personnel selection / job competencies, man job specifications, laws, conventions, plant and equipment et cetera.

12.3 CONDITIONS TO CONSIDER WHEN CONDUCTING HIRA

The HIRA process shall take the following into account when conducting hazard identification and risk assessments:

- Routine and non-routine activities;
- Activities of all persons having access to the workplace (including contractors and visitors);
- Human behaviour, capabilities and other human factors;
- Identified hazards originating outside the workplace capable of adversely affecting the health and safety of persons under the control of the organization within the workplace;
- Hazards created in the vicinity of the workplace by work-related activities under the control of the organization;
- Infrastructure, equipment and materials at the workplace, whether provided by the organization or others;
- Changes or proposed changes in the organization, its activities, or materials;
- Modifications to the Health and Safety Management system, including temporary changes, and their impacts on operations, processes and activities;
- Any applicable legal obligations relating to risk assessment and implementation of necessary controls;
- The design of work areas, processes, installations, machinery and equipment, operating procedures and work organization, including their adaptation to human capabilities.
- Fire risks
- Emergency scenarios.

12.4 HEALTH RISKS TO BE INCLUDED IN ASSESSMENTS

The following Health Risks must also be considered when doing workplace risk assessments:

- Noise
- Lighting and Vision
- Vibration
- Chemical Stressors
- Biological stressors
- Ergonomics

A baseline survey of all man / machine / workplace interface activities must be performed by a Health and Safety Professional while operators carry out tasks, using appropriate checklists, and it must result in:

- Tasks identified as hazardous are referred for detailed analysis;
- Impacts reported and recommendations are documented;
- A multi-disciplinary team is consulted to compile remedial action plan;
- Tasks that are likely to be a health or safety risk are assessed;
- Workstation/workplace design is considered;
- Situations identified as potential high hazards are referred for expert advice;
- Establishing whether man job specifications exist for all tasks, or their absence.

13. MONITORING AND REVIEW AND MANAGEMENT OF CHANGE

- 13.1 The Principal Contractor is to review the Hazard Identification, Risk Assessments and Standard Work Processes at each Construction Planning and Progress Report meeting as the construction work develops and progresses. Each time changes are made to the designs, plans and construction methods and processes. These items must be reviewed;
- 13.2 The Principal Contractor must provide the Client and/or its Agent on its behalf, other Contractors and all other concerned parties with copies of any changes, alterations or amendments as contemplated in the above paragraph.
- 13.3 The Principal Contractor must provide the Client and/or its Agent on its behalf, other Contractors and all other concerned parties with copies of any changes, alterations or amendments as contemplated in the above paragraph.
- 13.4 The contractor must develop and implement a monitoring and review plan for the risk assessments.
- 13.5 For any changes due to new designs, processes and incidents the SHE specification, baseline risk assessment and SHE plan will be updated.

14. SAFE WORK PROCEDURES / METHOD STATEMENTS

Method statements or written safe work procedures shall be documented for all high-risk activities:

- Design change or scope change/addition
- Change in job or task
- Introduction of new machinery, equipment or substance.

Method statements or written safe work procedures shall identify following:

- Tasks that are to be undertaken
- The hazards and associated risks of the task(s)
- The control measures for the task(s)
- The equipment and substances that are associated with task(s)
- Any training or qualification needed to do the task
- Personal protective equipment to be worn.

15. MEDICAL SCREENING REQUIREMENTS

- 15.1 The Principal Contractor shall ensure that a medical surveillance programme is implemented for all employees.
- 15.2 All medical certificates shall be in the format Annexure 3 as stipulated in the Construction Regulations of 2014.
- 15.3 An initial health evaluation shall be carried out by an occupational health practitioner immediately, before or within 14 days after a person commences employment, which comprises of:
- an evaluation of the employees medical and occupational history;
 - a physical examination;
 - and any other essential examination which in the opinion of the occupational health practitioner

- is desirable in order to enable the practitioner to do a proper evaluation.
- 15.4 Medical surveillance and immunisation shall be done at accredited / by institutions or occupational health personnel, including, but not limited to:
- Audiograms.
 - A cardio-respiratory examination / Lung function test;
 - Chest X-rays
 - Eye/ sight tests.
 - A general physical examination;
 - A review of previous medical history.
 - Glucose levels
 - Blood pressure
- 15.5 An entry medical certificate shall be obtained for all workers prior to commencing with site activities from approved medical institution. Copies of all medical certificates shall be retained in the SHE File prior to site establishment and before an employee is allowed to come onto site.
- 15.6 Specific attention shall be given to the physical and psychological fitness of people who will be required to work in elevated positions and operators of mobile machinery.
- 15.7 An exit medical certificate shall be obtained for all workers at the end of the contract and for all workers who leave the employment of the Contractor before the end of the Project. Copies of all exit medical certificates shall be saved in the SHE file.

16. AUDITING AND INSPECTIONS

- 16.1 PERIODICAL AUDIT BY PRINCIPAL CONTRACTOR/ CLIENT OR ITS AGENT.
The Client and/or its Agent on its behalf will be conducting Periodic Audits at times agreed with the Principal Contractor to comply with Construction Regulation 7(1) (c) (vii) to ensure that the principal Contractor has implemented, is adhering to and is maintaining the agreed and approved OH&S Plan (audits must be done at least once every 30 days).
- 16.2 OTHER AUDITS AND INSPECTIONS BY CLIENT OR AGENT.
The Client or its Agent reserves the right to conduct any ad hoc audits and inspections as it deems necessary.

A representative of the Principal Contractor and the relevant Health and Safety Representative(s) (SHE-Reps) must accompany the Client and/or its Agent on all Audits and Inspections and may conduct their own audit/inspection simultaneously. Each party will, however, take responsibility for the results of his/her own audit/inspection results. The Client or its Agent may request a copy of the Principle Contractor SHE Committee meeting minutes, reflecting possible recommendations made by that committee to the employer for reference purposes.

The Principal contractor must conduct at least monthly audits on their Sub contractors and regular site inspections. All inspections and audits must be available for the client / Agent at any time.

- 16.3 Actions plans must be developed for any findings recorded in the audits or inspections completed.

17. INCIDENT INVESTIGATION AND REPORTING

- 17.1 INCIDENT INVESTIGATION
- The Principal Contractor is responsible to oversee the investigation of all incidents. This will include first aid, medical treatment by a doctor and hospital or clinic cases. (General Administrative Regulation 9).
 - All incidents must be recorded in the Accident/Incident Register. (General Administrative Regulation 9).
 - The Principal Contractor is responsible for the investigation of all incidents as described in Section 24 (1) (b) & (c) of the Act and keeping a record of the results of such investigations including the corrective action to prevent similar incidents in future.
 - The Principal Contractor is responsible for the investigation of all road traffic accidents relating to the construction site and keeping a record of the results of such investigations including the steps taken to prevent similar accidents in future.

- Notwithstanding the requirements of Section 24 of the Act, All incidents shall be investigated and reported on in writing, irrespective of whether such incident gave rise to injury or damage.

17.2 INCIDENT REPORTING

- The Principal Contractor is required to notify the Client or its Agent of all incidents within 24hrs and then follow the Incident management reporting procedures thereafter.
- The Principal Contractor shall 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 (this could be a near miss);
 - 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 Provincial Director of the Department of Labour within seven days and at the same time to the Client or its Agent. Refer in this regard to Section 24 of the Act, Construction Regulation 5(3) & General Administrative Regulation 8.

- The Principal Contractor is required to provide the Client and/or its Agent on its behalf with copies of all statutory reports required in terms of the Act and the Regulations;
- The Principal Contractor is required to provide a.s.a.p. the Client and/or its Agent on its behalf with copies of all internal and external accident/incident investigation reports including the reports contemplated in clause 12.7 (incident investigation), 12.8.2 (Duties and function of the Health and safety Rep), 15 (Duties of the Principal contractor, 16 (Principal contractor specific duties), 17 (Principal Contractor specific duties with regard to hazardous work) below. As soon as the occurrence of any accident/incident of whatever nature comes to the notice of the Principal Contractor, it shall be reported immediately to any of the following:
 - Project Manager / Client / Agent; and
 - Health and Safety Manager.

17.3 Close out

- All incident investigation reports will be closed out once all the recommendations to prevent further incidents have been implemented.
- A copy of the investigation report must be handed to Principal Contractors Safety Officer conducting the investigation.

18. SHE REPRESENTATIVES AND SHE COMMITTEES

18.1 DESIGNATION OF SHE REPRESENTATIVES

- Where the Principal Contractor employs more than 20 persons (including the employees of the Contractors) he has to appoint a minimum of one SHE Representatives, then he must appoint one for every 50 employees or part thereof. (OHS Act85, 1993 - Section 17 and GAR 6; 7.);
- These SHE Representatives shall be designated in writing.

18.2 DUTIES AND FUNCTIONS OF THE H&S REPRESENTATIVES (THIS IS BASED ON THE CONSTRUCTION NORMS AND IS NOT AN EXHAUSTIVE LIST)

- The Principal Contractor must ensure that the designated SHE Representatives conduct a formal weekly inspection of their respective areas of responsibility using a checklist. All findings

must be reported to the Principal Contractor. The reports shall be submitted to the Health and Safety Committee for action. Record shall be kept in the form of minutes;

- SHE Representatives must take part in incident investigations;
- SHE Representatives shall be members of at least one SHE Committee and attend all the SHE Committee meetings.

- 18.3 ESTABLISHMENT OF H&S COMMITTEE(S) – WHERE 2 OR MORE SHE REPS ARE APPOINTED. The Principal Contractor must establish H&S Committees consisting of designated H&S Representatives together with a number of Employers Representatives appointed as per Section 19(3) that are not allowed to exceed the number of H&S Representatives on the committee. The persons nominated by the employer on an H&S Committee must be designated in writing for such period as may be determined by him. The H&S Committee shall co-opt advisory (temporary) members (who are not allowed to vote on issues discussed) and determine the procedures of the meetings including the chairmanship.

Legally, the H&S Committee must meet minimum every 3 months, but it is advised that they meet at least once a month.

19. SITE ESTABLISHMENT

Proper planning by management is an essential part of preparation and budgeting for the safe and efficient running of a construction operation.

19.1 PLANNING

Prior to work starting on site, the pre-construction information should be closely studied by the Contractor and the following seven steps should be covered, ensuring that relevant matters are included in the construction phase plans.

19.2 CONTRACT DOCUMENTS, STANDARDS AND DRAWINGS

Contract documents should be examined to establish any constraints which might affect the site layout or methods of construction, for example:

- location of the site in relation to physical features such as roads, railways, flight paths, water areas, overhead/underground services, industrial or residential buildings;
- environmental matters such as groundwater, noise, dust or fumes;
- the nature of the site in relation to existing buildings and their past and present use, ground contamination, ground water levels, natural underground water sources, old mining activity and the physical boundaries;

19.3 IDENTIFY MATTERS AFFECTING SITE LAYOUT THESE INCLUDE ITEMS SUCH AS:

- Available and suitable access roads for site clearance and construction operations;
- Employee access points; Determine the Plant, Equipment and People Needs

This includes assessing type and capacity of plant and equipment required and the need for adequately trained operators for example:

- Access equipment - general access scaffolds, tower scaffolds, suspended access equipment, mobile work platforms;
- Lifting appliances – cranes, hoists, excavators;
- Lifting gear – slings, shackles, proprietary equipment;
- Site transport and mobile plant - trucks, dumpers, skid steers, tankers;
- Power suppliers - provision of 240V (or 110V) supply and high voltage for plant requirements, compressed air;
- LPG;
- Workshop requirements.

These requirements are specified in all of the Operating Procedures that cover critical tasks. Determine

- Requirements for Temporary Accommodation
- Offices for contractors' and clients' staff;
- Decontamination facilities;
- Employee welfare facilities;
- First aid facilities;
- Laboratory facilities.

19.4 ACCESS FOR PLANT, MATERIALS AND EMERGENCY SERVICES ARRANGED, WHERE POSSIBLE, TO AVOID THE NEED FOR VEHICLES TO REVERSE.

- Fixed plant, e.g. workshops;
- Mobile plant, e.g. concrete trucks, pumps;
- Pre-fabrication areas (where appropriate);
- Temporary accommodation;
- Material storage.

19.5 DETERMINE SITE SECURITY AND PROTECTION NEEDS OF THE PUBLIC

- Site requires fencing and access control.
- Signages where required
- Speed limits for public roads being used.
- Where fencing the whole construction site is impractical e.g. in cross country pipeline/motorway contracts or housing contracts with partial occupancy, specific hazards e.g. deep excavations, must be securely fenced.

20. SITE ACCESS AND PROTECTING THE PUBLIC AND SITE

20.1 SITE SECURITY

- All people who are on site will wear access cards, visitor cards or have personalised letters approving their presence.
- No firearms or other dangerous weapons are allowed on construction sites.
- No people under the influence of alcohol or behaviour altering substances are allowed on construction sites.

20.2 SITE BOUNDARY

Information obtained from the pre-construction information and pre-contract situational assessment will enable decisions to be made on the site layout. It is important to remember that decisions relating to the site layout and its boundaries are important in protecting the safety of the public, especially children, as well as the safety of the workforce.

At all sites where it is reasonably practicable to do so, a fence should be erected enclosing all construction activities.

As part of the planning process thought should also be given to the possibility of materials or equipment falling onto persons outside the site boundaries.

- The possibility of plant, parts of plant, or loads extending beyond the site boundary and potentially hitting people or vehicles also needs to be considered;
- Lifting operations over public areas should be avoided as far as is possible.

At some sites it may prove impracticable to erect perimeter fencing. Each case should be judged on its merits, but obvious examples would include new housing estates which are partly occupied or open for viewing. In such cases, precautions should be taken to minimize the risk to children or others who may enter the site. This should include:

- Filling, covering or guarding the edges of excavations and openings;
- Immobilizing of vehicles and plant;
- Stacking of materials in such a way as to prevent their easy displacement. In particular,

- manhole rings must be stored flat so that they cannot roll;
- Isolation of electrical and gas supplies;
- Removal of access to elevated areas.

20.3 SITE LAYOUT

In addition to considerations of the site boundary, there are a range of other factors to be considered in deciding upon the site layout. Details will vary according to the operations to be undertaken, but the following points will provide a guide.

20.4 SAFE ACCESS

Safe access and good visibility for plant and vehicles entering and leaving the site must be ensured. Where possible, pedestrians should be excluded from vehicle access ways. Trained Banksmen should be used on busy highways near public footpaths and elsewhere if reversing is necessary. One-way systems or other means of controlling site transport and avoiding the need to reverse, should be set out. The conditions of both vehicle and pedestrian routes must be maintained in good order. Suitable warning signs must be posted. Employees will not be allowed to be transported in construction vehicles unless the vehicle is fit for carrying passengers.

20.5 STORAGE AREAS

Location of stores and storage areas will be determined by the availability of space, the nature of the materials and any statutory requirements, e.g. in relation to highly flammable materials or explosives. Consideration must be given to suitable off-loading areas and lifting equipment.

Positioning Lifting Appliances

Positioning of cranes, hoists and other lifting appliances will be determined by physical features on the site (e.g. overhead lines), the building under construction and environmental constraints (e.g. trees, other buildings or airspace restrictions).

20.6 TEMPORARY ACCOMMODATION AND SERVICES

- Access to all temporary accommodation – offices, welfare facilities, compounds and workshops should include segregated routes for pedestrians.
- The special problems of stacked accommodation – fire precautions, escape routes, rubbish build up – must be considered.
- The positioning and marking of temporary services should be carefully undertaken and recorded so as to avoid the possibility of accidental damage.
- Adequate space must be allowed for lighting towers and for scaffolding and other support work.
- Areas for waste segregation and appropriate skips should be allocated.
- Consideration should be given to car parking arrangements, either on or off site.

21. PROJECT/SITE SPECIFIC REQUIREMENTS

The following is a list of specific activities and considerations that have been identified for the project and site and for which Risk Assessments, Standard Working Procedures (SWP), management and control measures and Method Statements (where necessary) have to be developed by the Principal Contractor to ensure legal compliance to legislation as well training and development where required.

Description of the site and scope of works (CR5 (1) (b); Scope of works;

The Principal Contractor must display a site lay-out drawing to indicate at least the following (Not exclusive):

- PC site office, access and egress arrangements inclusive of delivery arrangements,
- Emergency assembly points.

Other

- Construction Permit to work
- Project title sheet;
- A depiction of total people on site daily;

- A list of Sub-contractors active on site with contact details;
- Plant and material listings;
- Emergency contact numbers;
- SHE files to note where all drawings, plans and permits are stored for all the disciplines involved in the construction phase of the project;
- Chemical inventory with MSDS references;
- First aid box and first aid arrangements;
- Fire extinguisher(s);
- Employee shaded eating area;
- Communication board.

Task Activities undertaken in the execution of the above-mentioned work packages, must be addressed in the safety plan of the contractor.

Further activities requiring OSH management systems and controls:

- Installation and Maintenance of Temporary Construction Electrical Supply, Lighting and Equipment;
- Access control
- Public safety
- Traffic management and accommodation
- Adjacent properties and surrounding building exposures;
- Boundaries and Access control/Public Liability Exposures;
- Protection against dehydration and heat exhaustion;
- Protection from the elements;
- Protection from Overhead Power Lines;
- As discovered from any inspections and audits conducted by the Client and /or its agent on its behalf or by the Principal Contractor or any other Contractor on site; As discovered from any accident/incident investigation.

The following are requirements not limited to the below have been identified in the scope of works that will require a management system and controls developed, implemented and maintained by the Principal Contractor and will form the basis of the auditing program. This program must be developed in conjunction with the Clients and Principal contractors baseline risk assessment.

- Administrative and Legal Requirements;
- Education, Training & Promotion;
- Public Safety and Emergency Preparedness;
- Personal Protective Equipment;
- Housekeeping;
- Construction vehicles and mobile plan
- Fire precautions
- Ladders;
- Electrical Safeguarding;
- Emergency Procedures /Fire Prevention and Protection;
- Excavations
- Tools;
- Driven machinery;
- Transport and Materials Handling;
- Site Plant and Machinery;
- Stacking and Storage Site/ Yards/ Site Workshops Specifics;
- Health and Hygiene; and
- Facilities.

22. EMERGENCY PREPAREDNESS

A site emergency plan must be established, implemented and maintained. The relevant emergency response team must be trained and appointed. See appointment letters.

Potential emergency scenarios must be identified and assessed, and emergency equipment or procedures must be supplied in relation to the risks. Scenarios must be risk based and can include the following base emergency scenarios:

- Medical evacuation risks;
- Fire risk
- Political instability risks;
- High-jacking and abduction risks;
- Theft and burglary risks;
- Terrorist risks;
- Remote operations risk.
- Flooding risk
- Riots

Emergency drills must be conducted monthly.

Records from the emergency drills must be retained. The emergency equipment must be visible.

23. TRAINING AND COMMUNICATION

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. A training matrix must be developed and scheduled for all training required for the project.

23.1 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 work on site.

23.2 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.

23.3 OTHER TRAINING

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.

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

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)].

23.4 COMMUNICATION

A risk communication plan must be developed. This must include the platform to communicate all Health and safety risks. This can include emails, DSTI's, training, communication of SOP's and risk assessments, face to face meetings, notices and signages, toolbox talks, SHE rep meetings, community liaison, formal training etc. All communications must be recorded and saved.

23.5 SHE TRAINING

- All employees in jobs requiring training in terms of the Occupational Health and Safety Act (Act no 85 of 1993) and any other applicable legislative requirements are to be in possession of valid proof of training.
- Other occupational health, safety and environmental training requirements of the Occupational Health and Safety Act (Act no 85 of 1993) and Construction Regulations can include:
 - General induction;
 - Site and job specific induction, including visitors;
 - Occupational health and safety representatives;
 - Training of the legal and nominated appointees;
 - Operators and drivers of construction vehicles and mobile plant;
 - Basic fire prevention and protection;
 - Basic first aid;
 - Storekeeping methods and safe stacking;
 - Emergency planning and coordination
 - Incident investigation
 - Risk Assessment
 - Planned job observations (supervisors)
 - All operators, drivers and users of construction vehicles, mobile plant and other equipment are to be in possession of valid proof of training and, where applicable, valid licenses.

24. OHS CONTROLS IN SITE WORKSHOPS

Employers must assess specific risks and hazards, give proper information and training, cater for the prospect of high and low temperatures which may affect safety and ensure adequate lighting and ventilation. All workshop machinery and equipment must be:

- Registered on an inventory;
- Stable and suitable for the task;
- Properly and safely maintained;
- Inspected and records made;
- Properly guarded;
- Protected by proper controls;
- Adequately marked with symbols, colour codes, et cetera.

Some equipment used in workshops are intrinsically dangerous and need some controls to ensure adequate levels of safety exist. In addition, several workshop processes are inherently hazardous and also need controls. The following sections give general standards in terms of the more common occurrences. For many of these equipment types separate Operating Procedures must be developed and they will be controlled as prescribed through the QMS, and these should be referenced.

24.1 Tyre Maintenance

Cautionary notes should be displayed wherever wheel removal or tire inflation takes place.

The lubricant which is used to ease the fitting or removal of tires can produce an explosive gas when it mixes with the air in the tire. When heat is added to this the mixture may explode. For this reason, heat must never be applied to a wheel on which a tire is fitted.

24.2 Unstable Plant or Machinery

When any person is required to work near or under any piece of plant or machinery, adequate supports must be provided to ensure that the plant or machinery will not fall. Under no circumstances may persons be allowed to work under plant or machinery which is supported solely by jacks. This malpractice has resulted in many fatal accidents when the jacks have failed.

24.3 Vehicle Servicing Ramps and Pits

Vehicle servicing ramps must be specifically designed and constructed to take the weight of the largest vehicle they are intended to carry. The maximum weight restriction should be clearly marked on each ramp. The channels in which vehicle wheels will run should have up stands around each edge and they should be provided with wheel stops about one meter away from the end remote from the access point.

Vehicle servicing pits should also be specifically designed and constructed for the purpose they are intended to serve. The potential risk of the sides of a pit collapsing under the weight of a vehicle must obviously be taken into consideration, but other points to be borne in mind are as follows:

- Suitable access in the form of steps or ladders must be provided at each end of the pit;
- The pit must be covered or surrounded by a fence when there is no vehicle over it;
- If vehicles with petrol engines are to be placed over pits, then the lighting and other electrical equipment used in the pits must be of flameproof construction;
- If flameproof equipment is not to be provided in the pit, then a notice banning petrol engine vehicles from the pit must be prominently displayed.

24.4 Welding, Cutting and the Use of LPG

The hazards and precautions associated with welding and flame cutting are dealt with in Operating procedures for the specific tasks.

24.5 Battery Charging

When batteries are being charged, they give off hydrogen which is an explosive gas. Battery charging should therefore take place in a room, or area, which is well ventilated and free from all sources of ignition.

- Where natural or general ventilation is inadequate, forced ventilation should be provided;
- A sign saying "No Smoking – No Naked Lights" should be displayed at the entrance to the battery charging area;
- Electrical equipment used in the area should be intrinsically safe or flameproof. The connections between batteries and supply should be securely clamped, and cables so arranged to prevent accidental shorting;
- Battery vent covers should be removed prior to charging;
- Topping up, with distilled, or de-ionized water, must be done before the battery is connected to the charging unit: cells must never be overfilled;
- The charging unit must be in the "off" position before any connection or disconnection of leads;
- Manufacturers' charging rates must be strictly adhered to. If the batteries exceed the maximum permissible temperature during charging, the charging must be stopped and the temperature allowed to fall before the charge is resumed;
- Batteries must be kept clean and dry and a clear space of 40 to 50mm kept between batteries on charge;
- The risk of electrocution is a hazard which is present when battery charging is taking place. It is important, when handling batteries, that hands are dry, as dry skin has a higher resistance to electricity than wet skin.

Note: The electrolyte consists of a mixture of sulphuric acid and water, which should not be allowed to come into contact with clothing or flesh.

- The wearing of suitable goggles, gloves and aprons is recommended;
- Signs should be displayed, warning "If splashed with acid, wash off immediately and seek medical attention";
- Eye washing facilities should be provided near to battery charging operations;
- Only materials used in connection with battery charging should be kept in the area, which should be maintained clean and dry;
- The area and the charging operation should be under the control of a competent person;
- Suitable fire extinguishers, dry powder or CO₂, should be provided.

24.6 Electricity

This is a serious hazard and only registered installation contractors may be used where electrical connections and reconnections are made

- 24.7 **Lifting Appliances and Lifting Gear**
Lifting appliances such as pulley blocks and cranes and lifting gear such as chain slings, rope slings, rings, hooks, shackles, swivels and eye bolts are normally subject to legal requirements. As a rule, try and find out what these controls are in the specific country, or, in the absence of these, apply the standards suggested by the manufacturer or that of your own country.
- 24.8 **Noise**
Every effort should be made to reduce the noise at source. Only if all methods have failed to reduce the noise to an acceptable level (i.e. below 85 dB(A) average over an 8-hour working shift) should ear defenders be considered. These should be regarded as the last line of defence, and should be suitable for the job and for the person who has to wear them.

Note: Noise level assessment should be made by competent persons such as Occupational Hygienists.

25. EXCAVATING AND TRENCHING

- 25.1 **Pre-excavation**
Planning for trenching and excavation work must as a minimum take the following into consideration:
- Location of existing services (gas, water, electricity, fibre optic cables, etc.) adjacent to or crossing the line of the trench. Mark all underground services before any excavation work commences by:
 - using service plan to locate and mark underground services; and
 - using locators to trace any services where there are no obvious signs of these services.
 - Traffic diversions
 - Hard surfaces or obstructions to be broken out
 - Limitations on plant (access, rights of way, headroom, overhead cables, bearing capacity of ground, noise restrictions)
 - Possibility of flooding by surface run-off or water from broken mains
 - Presence of standing or running water
 - Suitable means of draining discharged water
 - Condition and stability of adjacent structures
 - Surcharge loads
 - Vibrations
 - Working area and room for placement of spoil and materials
 - Evidence of previous excavations in the area
 - Evidence of possible hazardous contamination
- Ensure that all employees involved in the digging know about safe digging practices and how to deal with damage to cables and pipes:
- Excavation by powered equipment is prohibited closer than 1.2 metres to any underground cable; do not remove tiles covering electric cables without prior approval.
 - Make sure that there is an emergency plan to deal with damage to cables and pipes and a system for notifying the service owner.
- 25.2 **Assessment of ground conditions**
Prior to any excavation taking place, the ground conditions must be assessed. This can be achieved through boreholes, trial pits or information from previous or current work in the area. If none of the above is possible the ground conditions can only be examined when excavation commences. This examination must be carried out by a competent person using the initial excavation as a trial pit.
- 25.3 **Excavation depth less than 1.25 metres**
A risk assessment must be carried out to determine if a risk to employees exists, and if so, the method and type of protection to be provided. It should address, but not be limited to, the following:
- Water table - Is it above or below the trench bottom?
 - De-watering - is dewatering required, and if so will it affect the stability of the trench?
 - Adjacent buildings or roads - are adjacent buildings, roads or services liable to damage?

- Ground conditions - has the type of ground been examined to determine its structure, i.e. clay, sand, silt, rock, fill or previously excavated ground?
- If any doubt exists as to the self-supporting ability of the ground it must be benched, battered or shored.

25.4 Excavation depth 1.25 metres or greater

Trenches 1.25 metres deep or greater require a protective system, unless the excavation is made entirely in stable rock. Trenching or excavation work shall not be commenced until the ground has been examined by a competent person to determine the protection required. Protection must be erected and maintained where having regard to the nature of the soil and the slope of the side of the trench or excavation, a fall or dislodgment of earth or other material is likely to occur from a height of 1.25 metres or more so as to bury or trap a person.

The competent person must then provide a statement in writing - detailing the findings of the examination, type(s) of ground encountered, the calculations used in deciding the method of protection required. Trenches of six meters (6m) deep or greater require that the protective system be designed by a registered professional engineer or be based on tabulated data prepared and/or approved by a registered professional engineer.

25.5 Biological hazards

Risk assessments should consider the past site history to identify any possible contamination. Due consideration should be given to all waste material accumulations found during excavation for any possible biological hazards, such as bacteria or fungi.

25.6 Chemical hazards

Soil testing must be conducted for presence of possible hazardous contaminants, where the risk assessments deems contamination possible. Gas testing should be carried out if in doubt of any possible gas release, such as methane, sulphur dioxide, etc. Appropriate respiratory equipment should be provided to the personnel.

25.7 Protective Systems

Undisturbed soil stays in place because opposing horizontal and vertical forces are evenly balanced. When you create an excavation, you remove the soil that provides horizontal support. Soil will eventually move downward into the excavation. The longer the face (a side of the excavation) remains unsupported, the more likely it is to cave in.

Type of soil structure is an important factor and the safe angle of repose of the soil must be determined before starting the excavation; some soils are more stable than others. The type of soil is one of the factors that determine the chance that an excavation will cave in. There are three basic soil types that you may encounter:

- Type A – very stable. Clay is an example.
- Type B – less stable than type A soil. Crushed rock, silt, and soils that contain an equal mixture of sand and silt are examples.
- Type C – less stable than type B soil. Gravel and sand are examples.
- Type D — Type D soil will flow very easily and must be supported and contained to be excavated to any significant depth. Examples are swamplands with high moisture content, quicksand and clays with high moisture content.

Soil has additional qualities that affect its stability. These include granularity, saturation, cohesiveness, and unconfined compressive strength.

Note: What might appear to be a safe soil structure, can change dramatically with changes in the weather.

Cave-ins pose the greatest risk and are much more likely than other excavation-related incidents to result in employee fatalities. One cubic metre of soil can weigh as much as a car. An unprotected trench is an early grave. DO NOT enter an unprotected trench.

There are different types of protective systems:

- Sloping and benching provide protection by removing material from the face of an excavation at an angle to its floor.
- Shoring requires installing aluminium hydraulic or other types of supports to prevent soil movement and cave-ins.
- Shielding protects employees by using trench boxes or other types of supports to prevent soil cave-ins.

Designing a protective system can be complex because many factors must be considered: soil classification, depth of cut, water content of soil, changes caused by weather or climate, proximity to previously backfilled excavations, surcharge loads (e.g., spoil, other materials to be used in the trench) and other operations in the vicinity.

25.8 Sloping and benching

In general, the flatter the sloping or benching angle, the greater the protection. Benches are cuts in the slope that give it a stair-step appearance. There are two types of benches: simple and multiple.

Rain, vibration, and pressure from heavy equipment can make soil unstable and increase the risk of a cave-in. Sloped or benched excavations that show signs of cracks, bulges, or clumps of soil that fall away from the faces are dangerous and must be inspected by a competent person. You must immediately get out of the excavation and stay away until the competent person determines it is safe to enter.

25.9 Shoring

Shoring and shielding systems can prevent cave-ins in excavations with or without sloped or benched faces; it requires installing aluminium hydraulic or other types of supports to prevent soil movement. The safest way to install and remove them is from outside the excavation.

Vertical shores are called uprights. They're easy to install, relatively inexpensive, and often used in stable soil or in shallow excavations that have parallel faces. Vertical shores must be sized for the excavation's dimensions and soil type. Horizontal shores are called walers. Walers are often used when unstable soil makes sloping or benching impractical and when sheeting is necessary to prevent soil from sliding into the excavation.

If shoring is to be used, it must be designed by a competent person. Shoring involving major temporary works (e.g. sheet piling/dewatering) should be designed by an experienced designer with suitable professional indemnity insurance provisions.

The shoring or support system must be installed without delay as the excavation progresses. Operatives installing the system must be given clear instructions preferably recorded as drawings or sketches. The shoring must extend at least 300mm above the edge of the excavation, or a fender board of the same height provided.

25.10 Shielding

Shields provide employees a safe work area by using trench boxes or other types of supports to protect them from collapsing soil. Shields don't prevent cave-ins but "shield" employees if a face does collapse. They are usually placed in the excavation by heavy equipment.

25.11 Access and Egress

Whether protected by sloping, boxes, or shoring, trenches must be provided with ladders so that employees can enter and exit safely. Ladders must:

- be placed within the area protected by the shoring or trench box;
- be securely tied off at the top;
- extend above the shoring or box by at least 1 metre; and
- be inspected regularly for damage.

Ladders should be placed as close as possible to the area where personnel are working and never more than 7.5 metres away. Where gangways or walkways are required for access across a trench or

excavation and where a person could fall more than 2 metres, the gangway or walkway must be provided with toe-boards and guard rails and be a minimum of 600mm wide.

25.12 Barricading

Every part of the trench or excavation where there is a likelihood of a person falling 1 metre or more must be provided with barricades or guardrails as soon as possible after excavation. Barricades or guardrails can be removed to allow access or movement of plant, or materials. Once access is no longer required, the barricades or guardrails must be re-instated. Whenever barriers are set back from the edge of a trench, all access to the excavation should be confined to the proper pathways and no materials should be stacked in the space between the barrier and the trench edge.

Where vehicles can pass close to a trench, heavy loads can endanger the trench. Traffic barriers must be provided to keep vehicle traffic from encroaching too close to the trench edge. Barriers or stop blocks are also necessary to stop cranes, dumpers tip trucks, etc. manoeuvring too close to the edge of the trench and endangering its stability. Timber baulks are effective against small wheeled machines but taller barriers are required for larger pieces of plant.

25.13 Ventilation

Hazardous atmospheres can occur in excavations near landfills, sites contaminated by leaking gas lines or storage tanks, in sewers, and in other confined spaces. Should there be a likelihood risk of toxic gases being present any trench or excavation, the atmosphere must be tested prior to entry to ensure the oxygen content is not less than 19% and not greater than 23%. The atmosphere must also be checked if necessary for the presence of explosive gases. Where mechanical ventilation equipment is required to establish and maintain a safe environment the equipment must be monitored regularly and have the controls, including any remote power supply identified and tagged to prevent any unauthorised and/or accidental interference.

Regular tests on the atmosphere must be conducted throughout the duration of the work.

25.14 Fumes, gases and water

Where excavations are considered as confined spaces:

- Make sure that employees wear the appropriate PPE and have the right equipment.
- Make sure that petrol or diesel driven equipment is not used in, or near the edge of, an excavation unless the fumes can be ducted away or the area can be adequately ventilated.
- Remove ground water at the bottoms of all trenches and excavations and maintain this while work is in progress.

If a gas pipe is damaged, arrangements must be put into immediate effect to:

- ban smoking and naked flames;
- if necessary carry out evacuations; and
- erect suitable signs to warn everybody of the danger.

Water makes soil unstable. You can't enter an excavation when water has built up unless you are protected from the unstable soil.

25.15 Lighting

During the hours of darkness, the edges of an excavation must be illuminated, especially when it is adjacent to a public thoroughfare. Battery operated flashing lights placed at intervals are usually sufficient.

In deeper excavations or during winter, lighting may be necessary to allow work to proceed in a safe manner. Lighting must be guarded and installed to prevent damage. The lighting must be placed so that the level of illumination at the working area is adequate and access ways and working areas are free of glare and deep shadow.

25.16 Equipment and material placement

Equipment, excavated material or other matter must not be placed within 1.5 metres of the edge of a trench or where there is a likelihood of a collapse of the edge of a trench.

25.17 Backfill and compaction

- A competent person must supervise the installation, alteration, or removal of excavation support.
- Make sure that employees removing shoring after completion of work are not left in the bottom of the excavation; remove shoring in a manner to prevent cave-in on employees.
- Backfill consists of the placement of specified backfill material, in layers of 15 cm, in the excavations; use soil materials for backfill that is free of clay clods, rock or gravel larger than 6 cm. Debris waste, frozen materials and other deleterious matter of any dimension must be removed.
- Backfill excavations as promptly as the work permits, but not until completion of the following:
 - approval of construction below finish grade;
 - inspection, testing, approval, and recording location of underground utilities;
 - removal of concrete formwork; and
 - removal of rubbish and debris;
- Perform the compaction of soil materials for backfills by using the specified compaction equipment that is suitable for the soil material being compacted and for use in the location of the work area.
- Control soil compaction for compliance with the percentage of maximum density for the area classification, where applicable.

25.18 Materials falling into excavations

Make sure that the edges of the excavation are protected against falling materials by:

- providing toe boards where necessary; and
- storing excavated ground and building materials well away from the side of any excavation.

25.19 People and vehicles falling into excavation

Take the necessary steps to prevent people and vehicles falling into excavations:

- Provide barricades, handrails, signals or other appropriate warning devices to protect employee from any hazardous operation or excavation.
- Cover open trenches, excavations, etc. when handrails or barricades do not provide adequate protection.
- Keep vehicles away from excavation, where possible.
- Use stop blocks to prevent vehicles from over-running where they have to tip materials into excavations.
- Provide extra support to the sides of excavation where needed.
- Provide walkways, ramps, or bridges with standard guardrails at all excavations and trenches where employees are required or permitted to cross over. Make the crossing structure of tightly secured and uniformly sized planking or other material
- Mark grade lines, ropes, chains, and other tripping hazards sufficiently to be clearly visible in the day or night.

25.20 Cave-in rescue

It is natural to try to rescue casualties caught or buried by a cave-in but care must be taken to prevent injury and death to rescuers, whether from a further cave-in or other hazards. The following procedures may be suitable, depending on conditions.

- To get down to the casualty, use a tarpaulin, fencing, plywood, or similar material that can cover the ground and will ride up over any further cave-in.
- Sometimes a further cave-in can be prevented by placing a backhoe bucket against the suspected area or excavating it.
- Rescue employees should enter the trench with ropes and wear rescue harnesses, if possible.
- To prevent further injury, remove the casualty by stretcher whenever possible. Tarps or ladders can be used as a makeshift stretcher.
- Stabilise the casualty.

25.21 People struck by plant

Keep employees separate from moving plant as far as is reasonably practical. Make sure that plant operators are competent to prevent employees being struck by machinery.

25.22 Undermining nearby structures

Make sure that the excavations do not affect the foundations of nearby buildings or the footings of scaffolding. Provide temporary support to the nearby structures where necessary.

25.23 Underground services

Mark all underground services before any excavation work commences by:

- using service plans to locate and mark underground services; and
- using locators to trace any services where there are no obvious signs of these services.

Make sure that all employees involved in the digging know about safe digging practices and emergency plan to deal with damage to cables and pipes:

- Excavation by powered equipment is prohibited closer than 1.2 metres to any underground cable. Do not remove tiles covering electric cables without prior approval.
- Make sure that there is an emergency plan to deal with damage to cables and pipes and a system for notifying the service owner.

Employees may not work in excavations where water is accumulating, unless adequate precautions are taken to protect them against the hazards posed by water accumulation. If water accumulation is controlled or prevented by water removal equipment, a competent person will monitor the removal activities to ensure proper operation.

25.24 Inspections

A competent person must inspect trenches daily, and as conditions change, before employee entry and as needed throughout the shift to ensure elimination of excavation hazards. Changing conditions include, for example, after every rainfall or hail fall, as soil conditions change or after any accidental fall of rock, earth or any other material. Stop work if the inspection shows it is not safe to continue.

Note: A competent person is an individual who is capable of identifying existing and predictable hazards or working conditions that are hazardous, unsanitary, or dangerous to employees, soil types and protective systems required, and who is authorised to take prompt corrective measures to eliminate these hazards and conditions.

26. WORKING OUTDOORS

Employees working outdoors are exposed to many types of hazards that depend on their type of work, geographic region, season, and duration of time they are outside. Outdoor employees should be trained about their workplace hazards, including hazard identification and recommendations for preventing and controlling their exposures.

26.1 Physical Hazards

Physical hazards to outdoor employees may include extreme heat, extreme cold, and sun exposure. Extreme heat can cause heat stroke, heat cramps, heat exhaustion, heat rash, and other problems. Extreme cold can cause hypothermia, frostbite, and other problems. Precaution and controls must be taken for these stresses. Assess the lightning risks as well and take precautionary action.

26.2 Biological Hazards

Biological hazards include vector-borne diseases, venomous wildlife, snakes and insects, and poisonous plants. Biological risk must be assessed in the risk and required controls implemented.

27. HOUSEKEEPING

The Principal Contractor to ensure that:

- Housekeeping is continuously implemented and maintained;
- Materials and equipment are properly stored Scrap, waste and debris is removed regularly;
- Materials placed for use are placed safely and not allowed to accumulate or cause obstruction to the free flow of pedestrians and vehicular traffic;
- Where practicable, construction sites are fenced off to prevent entry of unauthorised persons;

- Every workplace is kept clean, orderly and free of tools, materials and the like that are not required for the work being done;
- As far as is practicable, walkways are kept in good state of repair, skid-free and free of obstruction, waste and materials; preventing slips, trips and falls.
- All opening to be barricaded.

Include housekeeping tasks in the roles and responsibilities of relevant employees; and

Include housekeeping inspections and checks in the roles and responsibilities of Supervisors/Line Managers.

28. STACKING AND STORAGE

The Principal Contractor must ensure that:

- A competent person is appointed in writing to supervise all stacking and storage on a construction site;
- The appointed person is to have the required training;
- Adequate storage areas are provided and demarcated;
- The storage areas are kept neat and under control;
- The base of any stack is level and capable of sustaining the weight exerted on it by the stack;
- The items in the lower layers can support the weight exerted by the top layers;
- Cartons and other containers that may become unstable due to wet conditions are kept dry;
- Pallets and containers are in good condition and no material is allowed to spill out;
- 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 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 off the stack and no items may overhang;
- The articles that make up a single tier are consistently of the same size, shape and mass;
- Structures for supporting stacks are structurally sound and able to support the mass of the stack;
- No articles are removed from the bottom of the stack first but from the top tier first;
- Stacks that are in danger of collapsing must be broken down and restacked;
- Stability of stacks are not threatened by vehicles or other moving plant and machinery;
- Stacks are built in a header and stretcher fashion and that corners are securely bonded;
- Stacks are stepped back at least half the depth of a single container at least every fifth tier; and
- Laydown area is allocated for Contractor-supplied items.
- At all times, the Contractor shall be responsible for the safe and adequate storage of all materials and equipment on site which he is to install, whether they are supplied by himself or others.
- The safe handling, unloading and loading of material receipts and dispatches at site or storage areas shall be the Contractors' responsibility.
- The Contractor shall provide a suitable and adequate lock-up store for the storage of items of equipment and material, which would be damaged or pilfered if stored in the open.
- The Principal Contractor shall provide all facilities required for weatherproofing, dust proofing etc.
- The Contractor is responsible for the proper storage and maintenance of all equipment until issue of the Certificate of Practical Completion.
- Safe access ways shall be maintained between all stored items.

29. WASTE MANAGEMENT AND DISPOSAL

Waste is disposed of in the appropriate bin(s) as soon as it is generated to ensure that no waste builds up in the workplace or in workplace facilities provided to the workforce. Waste with sharp and/or protruding edges are collected and disposed of in hard containers and not in plastic bags. An adequate number of suitable waste bins, for each type of waste generated, are provided at appropriate points throughout the workplace. Waste is disposed of at regular intervals during the working day to prevent waste build-up that would require extra effort to clean at a later stage. Waste is cleaned and disposed of in accordance with waste management provisions. Appropriate PPE is worn at all times when collecting waste and waste is never collected with bare hands.

30. WORKPLACE MAINTENANCE

The workplace, including workplace facilities, plant, equipment, machinery and tools are maintained to ensure that all aspects of the workplace in general remain in a state of good repair. Regular inspections are conducted on all aspects of the workplace, with the aim of establishing:

- The overall state of the workplace;
- The level of conformance to the provisions governing the state of the workplace; and
- Aspects of the workplace in need of repair and maintenance.

Maintenance is not only reactive. A preventive maintenance programme ensures that no aspect of the workplace deteriorates to a state where costly reactive maintenance, or replacement, is required. The preventive maintenance programme not only identifies the preventive maintenance that is required, but also takes the workload of machinery and equipment into account in scheduling preventive maintenance.

By doing this, preventive maintenance is scheduled to take place before anything can fail, which, in turn, prevents an incident and possibly injury, loss, damage or harm from occurring. Any aspect of the workplace in need of maintenance and repair is reported to the responsible person who ensures that the necessary maintenance and repair is carried out as soon as possible.

31. SAFETY SIGNS AND NOTICES

It is required by law to post certain safety signs and notices, especially in areas where there is a risk that has not been avoided or controlled by any other means. Not doing so obviously would constitute a legal transgression that could have serious repercussions for the organisation. It is therefore essential to identify, provide and maintain legally required safety signs and notices to avoid legal non-compliances. Safety signs and notices may commonly be required by law:

- whenever there is a risk that has not been avoided or controlled by other means;
- where traffic needs to be directed within a workplace;
- wherever there are dangerous substances or pipework that carry the substances;
- to identify stores or areas where dangerous substances are held; and
- to identify emergency and fire exits and fire safety equipment.

It is also important to identify, provide and maintain those safety signs and notices that are not required by law, but that are required to control and reduce identified hazards and risks. The most commonly required and used safety signs and notices include, but are not limited to:

- Emergency escape route
- Personal protective equipment (PPE) that must be worn
- Toxic material
- Flammable material
- Fire equipment
- General danger
- No smoking
- First aid point
- Explosion risk.
- Excavation
- Traffic signals

32. BARRICADING AND DEMARCATION

Barricading means the creation of a barrier or obstacle with any object or structure to control or prevent access to an area that is potentially hazardous, or to force traffic in a desired direction. Demarcation means the setting, marking and clear separation of two areas with boundaries.

Barricading and demarcation are usually temporary measures, specifically intended at separating people from hazards and hazardous work activities by preventing or controlling access to hazards/high-risk work areas. Both barricading and demarcation can be applied in any hazardous condition to reduce the risk to people's

health and safety.

Hazards and hazardous work activities must be barricaded and demarcated by means of coloured plastic "danger tape" with the appropriate message printed on it. Danger tape is generally used to convey the following two messages:

Caution – barricading an area where specific potential hazards exist, using standard yellow tape with the word "CAUTION" in black letters. People can enter this area when –

- they are aware of the specific hazard(s),
- have taken the necessary precautions to avoid the hazard, and
- are required to enter the barricade in order to perform work.

Persons entering this area should remain in the area no longer than absolutely necessary. The caution barricade must be removed when the hazardous situation has been eliminated.

Danger – barricading an area using the standard red tape with the word "DANGER" in black letters. This is used to warn employees of imminent danger and that special precautions are necessary. The red tape with the word "DANGER" in black letters is used for hazards that are dangerous immediately. Nobody may enter those areas except those authorised to and assisting with the elimination/ mitigation/control of the hazard itself. The danger barricade must be removed as soon as the imminent danger has been abated.

Access to barricaded areas must be limited to authorised personnel that are trained and understand the potential hazards indicated by yellow (caution) barricades and have been given authorisation to enter when a red (danger) barricade is present.

It may however in some cases be necessary to barricade and demarcate certain areas and activities more solidly. Solid barricading and demarcation can be used in such cases and, although still temporary, solid barricades could provide a more secure barricade/demarcation of a hazardous area or activity. The purpose of a solid barricade is to provide a physical barrier capable of performing the same function as a permanent guardrail. Some considerations to keep in mind when using solid barricades include:

- Appropriate signs and notices must be affixed to solid barricades;
- Barricade tape could be used to highlight the existence of the barricaded area;
- Solid barricades must be erected by a competent person;
- Solid barricades have to be able to withstand significant sideward and downward impacts on the top rail;
- Freestanding barricades must be secured to prevent them from falling/being pushed over by an impact;
- Solid barricades must have solid top and middle rails of appropriate material such as steel tubing;
- Solid barricades must be designed and constructed in accordance with guardrail requirements and specifications;
- Barricades installed across roadways that will remain in place during hours of darkness must be fitted with flashing lights to identify the barricade/traffic obstruction.

33. PERSONAL PROTECTIVE EQUIPMENT (PPE)

The Principal Contractor is required to continuously identify the hazards in the workplace and deal with them. He must either remove them or, where impracticable take steps to protect workers and make it possible for them to work safely and without risk to health under the hazardous conditions.

The Principal Contractor will establish a Personal Protective Equipment Policy and a Personal Protective Equipment study will be conducted to determine the types of Personal Protective Equipment (PPE) to be supplied related to the hazards and risks emanating from the tasks.

Cognisance shall be given to the gender of individuals required to wear PPE; size required by the employee and size issued.

In terms of hazard control, personal protective equipment (PPE) is considered a method of last resort and should not be used as a substitute for other reasonable measures which would result in the control of a hazard. Personal protective equipment is the last line of defence a person has against a hazard that may be

encountered on the job. The proper use of this equipment may reduce or eliminate the extent of harm or injury and therefore its importance must not be under-estimated. It is critical that the appropriate personal protective equipment for the situation is used, and that:

- its limitations are fully understood;
- it is properly fitted for the individual;
- the person using the personal protective equipment is trained in its use, care and maintenance; and
- it is regarded by the person using it as normal attire for working in that environment or with the particular hazard.

33.1 Conduct PPE Needs Analysis

Perform a hazard assessment of the workplace to determine if hazards are present, or are likely to be present, which necessitate the use of PPE.

33.2 Select PPE

PPE selection is based on the requirements identified during the PPE needs analysis. After identifying the required PPE items, select the correct items that would be able to effectively control the hazards and prevent the contact under consideration. It is critical that the appropriate PPE for the situation is used and that its limitations are fully understood.

All PPE is not made the same - it must be ensured that the selected PPE –

- is appropriate for the risk(s) involved and the conditions at the place where exposure may arise;
- takes ergonomic considerations into account, be capable of being fitted to (and used by) that employee, where applicable;
- so far as is practicable, prevent or adequately control the risk of exposure without increasing the overall risk;
- is designed and manufactured to an approved standard - signifying that the PPE satisfies certain basic safety requirements and in some cases will have been tested and certified by an independent body.

Employees should be consulted in the proposed selection of PPE to ascertain whether or not it is suitable; the selection of types and styles of PPE in conjunction with the H&S Appointee and should have an informed choice wherever possible.

33.3 Purchase PPE

PPE items must only be purchased from suppliers who will ensure that only approved PPE is provided and will include the following services:

- Advice on PPE;
- Information relating to any test results;
- Advice on personal fitting, use, cleaning, maintenance and storage of PPE;
- A range of sizes (where appropriate);
- Information on the availability and need for replacement parts;
- Demonstration of the PPE; and
- Immediate replacement of any defective PPE.

When the required PPE has been purchased, each item of PPE is fit to the individual to whom it will be issued on an individual basis. Fitting is done by qualified personnel. At the time of fitting each employee is shown how to properly wear and maintain their PPE. Where more than one sort of PPE has to be used simultaneously, each must be compatible with the other and full effectiveness must be maintained, without one item of PPE compromising another item's effectiveness in the process.

NOTE:

If a PPE device is unnecessarily heavy or poorly fitted it is unlikely that it will be worn. Note also that if a PPE device is unattractive or uncomfortable, or there is no allowance for workers to choose among models, compliance is likely to be poor. Use every opportunity to provide flexibility in the choice of PPE as long as it meets required standards.

33.4 Issue PPE

Each employee's PPE is issued with their PPE once it has been properly fitted. The PPE items issued to each employee is captured on a PPE issue register (form provided). At the time of the PPE being issued, it must be ensured each employee is also properly trained in the proper use and maintenance of their individual PPE items. PPE is not shared among employees as this could pose a significant health and hygiene risk.

33.5 PPE Care and Maintenance

All PPE shall be regularly cleaned and maintained to ensure that the PPE provides the level of protection it is designed for. It is the responsibility of the user to safeguard and take care of the issued PPE. Damaged or defective PPE should not be worn for any purpose. Employees are to regularly inspect their PPE and order replacements, as required -

- due to normal wear and tear;
- should any specific damage occur which compromises the effectiveness of the clothing or equipment (e.g. contamination);
- if any item is lost; or
- where an item has a specific use-by-date, it should be replaced prior to that date.

34. EARTHMOVING EQUIPMENT

The Clients Representative will inspect construction vehicles and mobile plant prior to being allowed on a project site. Suppliers of hired vehicles, plant and equipment will be required to comply with this specification as well as the Occupational Health and Safety Act (Act no. 85 of 1993) and Regulations Construction vehicles and mobile plant to be:

- Of acceptable design and construction;
- Maintained in good working order;
- Used in accordance with their design and intention for which they were designed;
- Operated and/or driven by trained, competent and authorised operators/drivers.
- No unauthorised persons are to be allowed to drive construction vehicles and mobile plant;
- Provided with safe and suitable means of access;
- Fitted with adequate signalling devices to make movement safe including reversing;
- Provided with roll-over protection (where applicable);
- Inspected daily before start-up by the driver, operator and/or user and the findings recorded in a register/logbook;
- Fitted with two head and two taillights that are in good working condition and must be used whilst operating under poor visibility conditions;
- When used for transporting persons must have seats firmly secured and sufficient for the number of persons being transported

Operators are often faced with large blind spots as a direct result of the size and shape of most pieces of earthmoving equipment. This increases the risk of running over or colliding with people, materials and other pieces of equipment/property quite drastically. To counter this problem, spotters/banksman/signallers must be provided to direct the operators of earthmoving equipment and prevent people from coming in the way of the equipment. Another effective way of combating this issue is effective barricading and demarcation. The most effective controls must be identified in the risk assessment process.

34.1 Pre-use Activities

Operators should ensure all covers and guards are in place and secure and carry out a documented pre-use inspection prior to operation of any piece of earthmoving equipment - by using and completing the prescribed pre-operating checks - before placing the equipment in service. Check for proper operations of all controls and protective devices while moving slowly in an open or designated area:

- Left and right steering.
- All brakes.
- Engine governor control level.
- Other devices such as lights, backup alarms and horns.

Any equipment with a defect, that could affect safe operation in any manner, must be removed from service. The defective equipment must be tagged in accordance with company practices, and the defect/s reported to the supervisor.

34.2 Operator Approval

Operator Approval Authorization for operators for the use of equipment shall be given in writing only after the following minimum requirements and documentation have been verified and shall as a minimum include the following:

- Operator's Certificate (accredited training organisation); Operators Licence appropriate to the nature of the Mobile equipment;
- Operator's knowledge tested and familiar with the controls for the vehicle;
- Public driver's permit where required;
- Medical fitness certificate.

34.3 Site preparations

Before any earth moving operation is commenced, site personnel should carry out site preparations for safe operation of the earthmoving machinery. The following safety measures should be observed:

- provision of temporary fencing and warnings at edges of embankments, excavations and pits against risks of roll over;
- provision of goal posts and warning signs in the vicinity of overhead power lines;
- arrangement of site traffic controls;
- provision of adequate site access roads; and provision of safety system for other site vehicles such as provision of flashing lights or flags for smaller vehicles in large earth moving site.

34.4 Operations

During the operation of the machine, the following precautions should be adopted by the operator:

- Walk around the machine once more just prior to mounting it. Check for people and objects that might be in the way.
- Complete the prestart checklist
- Report any non-compliances to the supervisor
- When operating a machine, always stay in the operator's station and fasten the seat belt if so provided. Never mount or dismount a machine unless it is stationary. If the machine is equipped with a cabin, ensure that the cabin door is securely closed.
- Operators should not allow other personnel to ride on equipment while the equipment is in motion, except for training purposes, and then only when a seat is provided. No one should be allowed to climb onto equipment in motion.
- Always operate the machine slowly until fully familiarised with its control.
- Where earthmoving equipment is operated on a public road, it is to be operated in accordance with the Traffic Regulations.
- When working on slopes, avoid side-hill travel whenever possible. The danger of sliding and tipping during side-hill travel is always present, regardless of how heavy or stable your machine may appear to be.
- Always fasten the seat belt if your machine is equipped with a roll over protection structure.
- Avoid operating the machine too close to an overhang, deep ditch or hole and be alert to potential caving edges, falling rocks and slides, rough terrain, obstacles and overhead lines. When operating any earthmoving equipment, employers must provide a safe system of work to manage the significant risks of operating near overhead electrical assets.
- In case of restriction of the view of the operator, do not operate the machine unless a banksman is available for giving signal for safe operation.
- Under wet or rainy conditions when the ground became too slippery for the machine, stop the earth moving operation.
- Never operate the machine in any place of inadequate lighting. Adequate lighting should be arranged in confined areas and during operation at night-time.
- Never swing a load over a vehicle cab.
- Never leave the machine while the engine is running, and ignition key is on the machine.

- Never use the machine for any purposes other than it is designed for. No item of earthmoving equipment or plant shall be used as a crane, or to lift people, unless it has a certificate of registration as such.
- Operators should ensure that all employees are standing clear before pushing over trees, bulldozing rocks and rolling logs. During clearing operation, operators should take care to keep tree trunks rolling parallel to each other, especially when stacking cleared trees. Small green trees 8-15mm in diameter can bend and then spring loose with great force. This force can cause injury to operators or nearby ground workers.

It is critically important that earthmoving equipment operators consider the following aspects related to the individual pieces of equipment while operating them:

- Front-end loaders
 - a level area must be created when work is required on a steep grade;
 - if the above is not possible, the machine must be operated slowly;
 - downhill movements of the boom must be restricted and minimised as much as possible; and
 - turns must be taken slowly and in a wide arc when travelling on a steep slope.
- Excavators, backhoes and TLBs
 - during the excavation of trenches, material must be placed as far as possible (minimum 600 mm) away from the trench, where it is not likely to subside back into the trench or jeopardise the stability of the trench wall;
 - during excavation activities, the ground beneath the machine must be not undercut;
 - jerky slewing movements and sudden braking must be avoided to keep the machine stable and to minimise the possibility of overloading machine components;
 - earthmoving machines with quick-hitch implements must not be operated under any circumstances without the safety pin locked in position;
 - when ascending/descending an incline, the bucket must be placed in a safe position to counterbalance the machine; and
 - buckets must not be to be slewed over/above personnel under any circumstances.
- Dozers and graders
 - dozers/graders must not be operated in unsafe locations adjacent to edges of banks, ditches, cuts or fills or near overhanging material where vibration and/or the weight of the dozer/grader may cause the edge to give way or overhanging material to fall;
 - travelling across a slope must be avoided wherever possible. If not possible, the operator must take extreme caution to prevent a rollover. If the machine starts to slide sideways when working across a slope, the operator must turn the dozer/grader downhill and drop the blade carefully; and
 - dozer/grader blades must be kept close to the ground to maintain balance when the machine is travelling around site, and in particular when travelling up a slope.
- Skid-steer loaders
 - safety devices to lock bucket arms must be in the raised position and used where necessary; and
 - protective cabin screens must be used.

34.5 Parking

Having finished the earth moving operation, the machine should be stationed in a place off the work area or access road. The following points should be noted:

- Avoid parking near edges of slopes and excavations.
- Park on level ground, with the parking brake firmly applied and blocked by suitable wedges, where appropriate. For wheeled machines, the wheels should be chocked by suitable wedges and never chock the wheels with rocks.
- Lower the attachments or working tools to the ground.
- Remove the ignition key and hand it back to the supervisor or site personnel for safe custody.

34.6 Maintenance

Routine / preventative maintenance is to be carried out on all earthmoving equipment, by the manufacturer, supplier or other qualified person, as per manufacturers' instructions. The machine should be repaired by competent mechanic and service engineer and only genuine spare parts should be used.

All safety features and warning devices on earthmoving equipment are to be maintained and tested regularly by a competent person. During earthmoving equipment maintenance activities, or the fitting of attachments to machines, precautions such as the following are to be ensured as relevant:

- sound placement of machine;
- locking of brakes;
- stopping of engine; and
- appropriate tags are to be positioned in conspicuous locations to prevent the use of the earthmoving equipment, (i.e. 'Danger' or 'Out of Service' tags). The individual that positions the tags during maintenance activities is to be the only person to remove them once that person has ensured that the earthmoving equipment is ready for safe operation.

Logbooks are to be kept with all earthmoving equipment (or other designated area), and are to be maintained by the operator(s) or another designated competent person. These logbooks are to contain details of all maintenance and repairs undertaken on a particular machine.

35. LOCK-OUT AND TAG-OUT

The unexpected and uncontrolled energising, start-up or release of stored energy during the servicing or maintenance (e.g. inspection, repair, adjustment, cleaning) of machinery and equipment can lead to serious injuries and needs to be avoided as far as possible. Most of the injuries (and even fatalities) are electrocutions, but employees are sometimes crushed, have amputations or other injuries.

Typical sources of hazardous energy that need to be controlled include the following:

- electricity;
- fluid pressure, i.e. hydraulic systems;
- air pressure, i.e. pneumatic systems;
- kinetic energy, i.e. energy of a moving object or materials (moving object may be powered or coasting);
- potential energy, i.e. energy stored in an object with the potential for release due to its position;
- pressurised liquids and gases (including steam and chemicals); and
- heat, radiant, and laser sources.

The unexpected and uncontrolled energising or start-up of machinery and equipment or the release of stored energy is prevented by isolating the energy source(s) of the machinery/equipment being worked on. It is however not enough to merely isolate the energy sources. Energy isolation switches/valves/etc. must be prevented from being operated inadvertently by personnel not aware that they have been isolated or turned off intentionally. Energy isolation devices are prevented from being operated inadvertently by locking and tagging them out.

Lock-out/tag-out is accomplished by placing a lock-out and/or a tag-out device on a switch, valve, breaker, etc. to prevent reactivation of the equipment and to warn that servicing or maintenance activities are in progress.

Equipment is considered "locked out" when the flow of hazardous energy has been blocked and operation of the equipment is prevented until the lock-out device is removed; and "tagged out" when a warning tag is placed on the equipment warning others that the equipment is being serviced and must not be operated. These safety measures should be used together to provide the maximum level of protection for those performing the service.

36. STOCKPILES

- Ensure safe working procedures are in place for stockpiling. The operators are required to be trained on the stockpile safe work procedure and the task risk assessment.
- Certain weather conditions (heavy rain, frost, snow, etc.) may affect the stability of stockpiles. The employer should ensure that all employees are made aware of how current weather conditions could affect the stability of stockpiles.
- Drivers of all vehicles must obey and follow all traffic procedures in the stockpile area.
- All stockpiles should be located in designated areas according to the site plan.
- Pads for stockpiles should be prepared on level ground (Fig. 2). Pads may be constructed of compacted earth, asphalt-paving or concrete according to the type and amount of material to be stored. Pads should be constructed to provide maximum drainage of rainwater.
- Stockpiles should be situated to provide safe loading operations with access to all sides of conical piles and the full face of horizontal piles. Stockpiles should be maintained to prevent any flow of material onto roadways.
- Material dropped or spilled onto roadway surfaces should be removed immediately.
- The maximum height of any stockpile should not exceed a specified height to be determined by a geotechnical assessment as performed by a qualified professional engineer.
- Pads for stockpiles should be prepared on level ground (Fig. 2). Pads may be constructed of compacted earth, asphalt-paving or concrete according to the type and amount of material to be stored. Pads should be constructed to provide maximum drainage of rainwater.
- Stockpiles should be situated to provide safe loading operations with access to all sides of conical piles and the full face of horizontal piles. Stockpiles should be maintained to prevent any flow of material onto roadways.
- Material dropped or spilled onto roadway surfaces should be removed immediately.
- The maximum height of any stockpile should not exceed a specified height to be determined by a geotechnical assessment as performed by a qualified professional engineer.
- No person is permitted to enter, on foot or in a vehicle, the loading area adjacent to the working face of a stockpile. Only the loader operator, who will remain in the cab of the machine at all times, may work in this area.
- All mobile equipment shall be provided with an installed communication system. All operators shall be trained in the use of the company's communication system and communication protocol. Refer to the company's policy and procedures for site communications.

37. OUTLINED SUMMARY DATA, REFERENCES AND INFORMATION ON CERTAIN AND/OR SPECIFIC OBLIGATORY REQUIREMENTS TO ENSURE COMPLIANCE FOR THIS PROJECT

Please referenced legislation for full requirements.

37.1 ADMINISTRATIVE & LEGAL REQUIREMENTS

OHS Act Section/ Regulation	Subject	Requirements
Construction Regulations 3 & 4	Application for construction work permit Notice of carrying out Construction work	Department of Labour must be notified by the client and by the contractor. Copy of Notice available on Site. Work permit to be displayed at the entrance if required.
General Admin Regulations 4	Copy of OH&S Act (Act 85 of 1993)	Updated copy of Act & Regulations available on site. Readily available for perusal by employees.

COID Act Section 80	Registration with Compensation Insurer	Written proof of registration/Letter of good standing available on Site
Construction Regulations 5(1)	SHE Specification and Program	SHE Spec received from Client and/or its Agent SHE Program developed and updated.
Section 8(2)(d) of the OHS Act and Regulations 5(1) & 7 of the Construction.	Hazard Identification & Risk Assessment	Identifications of hazards/Recorded Risk Assessment and – Plan drawn up/Updated Risk Assessment Plan available on Site Employees/Contractors informed/trained
Section 16(2)	Assigned duties (Managers)	Responsibility of complying with the OH&S Act assigned to other person/s by CEO.
Construction Regulations 8(1)	Designation of Person Responsible on Site	Competent person appointed in writing as Construction Manager with job description
Construction Regulations 8(2)	Designation of Assistant for above	Competent person appointed in writing as Assistant Construction Manager with job description
Section 17 & 18 General Administrative Regulations 6 & 7	Designation of SHE Representatives	More than 20 employees - one H&S Representative, one additional H&S Rep. for each 50 employees or part thereof. Designation in writing, period and area of responsibility specified in terms of GAR 6 & 7 Meaningful H&S Rep. reports. Reports actioned by Management.
Section 19 & 20 General Administrative Regulations 5	Health & Safety Committee/s	SHE Committee/s established. All SHE Reps shall be members of SHE Committees Additional members are appointed in writing. Meetings held monthly, Minutes kept. Actioned by Management.
Section 37(1) & (2)	Agreement with Mandatories/ Contractors	Written agreement with Contractors List of Contractors displayed. Proof of Registration with Compensation Insurer/Letter of Good Standing (COID) Construction Manager designated Written arrangements regarding SHE Reps and Committee (OHSA Section 17,18) Written arrangements for First Aid (COID)

Section 24 & General Admin. Regulation 8, Construction Regulations 5(3) & COID Act Sect.38, 39 & 41	Reporting of Incidents (Dept. of Labour)	Incident Reporting Procedure displayed. All incidents in terms of Sect. 24 reported to the Provincial Director, Department of Labour, within 3 days. (Annexure 1?)(WCL 1 or 2) and to the Client and/or its Agent on its behalf Cases of Occupational Disease Reported Copies of Reports available on Site Record of First Aid injuries kept
General Admin. Regulations 9	Investigation and Recording of Incidents	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 H&S Committee meeting Action taken by Site Management.
Construction Regulations 13	Excavations	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 Inspected: <ul style="list-style-type: none"> - before every shift - after any blasting - after an unexpected fall of ground - after any substantial damage to the shoring - after rain. Inspections register kept
		Method statement developed where explosives will be/ are used
Construction Regulations 15	Tunnelling	No people permitted to enter a tunnel if which has a height dimension of less than 800 millimetres
Construction Regulations 24/Electrical Machinery Regulations 9 & 10/ Electrical Installation Regulations	Inspection & Maintenance of Electrical Installation & 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: <ul style="list-style-type: none"> - Electrical Installation & equipment inspected after installation, after alterations and quarterly. Inspection Registers kept Portable electric tools, electric lights and extension leads must be uniquely identified/numbered. Weekly visual inspection by User/Issuer/Storeman. - Register kept.

Construction Regulations 25	Use of temporary storage of flammable liquids on construction site	Flammable liquids must be stored in a way that it does not cause a fire or explosion hazard, and that the workplace is well ventilated. Suitable notices to be posted.
Construction Regulations 27	Housekeeping	Suitable housekeeping measures must be implemented to reduce the risk of injuries and damage to the structures, machinery, etc. Debris must be removed with a chute from a high place. Construction area must be fenced off.
Construction Regulations 28/ General Safety Regulations 8(1)(a)	Designation of Stacking & Storage Supervisor.	Competent Person/s with specific knowledge and experience designated to supervise all Stacking & Storage Written Proof of Competence of above appointee available on Site
Construction Regulations 29/ Environmental Regulations 9	Designation of a Person to Co-ordinate Emergency Planning and Fire Protection	Person/s with specific knowledge and experience designated to co-ordinate emergency contingency planning and execution and fire prevention measures Emergency Evacuation Plan developed: - Drilled/Practiced - Plan & Records of Drills/Practices available on-Site Fire Risk Assessment carried out All Fire Extinguishing Equipment identified and on register. Inspected weekly. And inspection register kept. Serviced annually
Construction Regulations 30	Employees Facilities	The contractor must provide and maintain in hygienic condition facilities for employees that include: - Showers (1 for every 15 employees) - Sanitary facilities for each sex (1 for every 30 employees) - Changing facilities for each sex Sheltered eating areas
General Safety Regulations 3	First Aid	Every workplace provided with sufficient number of First Aid boxes. (Required where 5 persons or more are employed) First Aid freely available Equipment as per the list in the OH&S Act. One qualified First Aider appointed for every 50 employees. (Required where more than 10 persons are employed) List of First Aid Officials and Certificates Name of person/s in charge of First Aid box/es displayed. Location of First Aid box/es clearly indicated. Signs instructing employees to report all Injuries/illness including first aid injuries

General Safety Regulations 2	Personal Safety Equipment (PPE)	PPE Risk Assessment carried out Items of PPE prescribed/use enforced Records of Issue kept Undertaking by Employee to use/wear PPE. PPE remains property of Employer, and is not to be removed from the premises GSR 2(4) Provide training on the use of PPE.
General Safety Regulations 9	Inspection & Use of Welding/Flame Cutting Equipment	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 All new vessels checked for leaks, leaking vessels NOT taken into stock but returned to supplier immediately Equipment identified/numbered and entered into a register Equipment inspected weekly. Inspection Register kept Separate, purpose made storage available for full and empty vessels
Hazardous Chemical Substances (HCS) Regulations Construction Regulations 25	Control of Storage & Usage of HCS and Flammables	Competent Person/s with specific knowledge and experience designated to Control the Storage & Usage of HCS (including Flammables) Written Proof of Competence of above appointee available on Site Risk Assessment carried out Register of HCS kept/used on Site Separate, purpose made storage available for full and empty containers
Construction Regulations 23	Construction Vehicles and Earth Moving Equipment	Operators/Drivers appointed to: - Carry out a daily inspection prior to use - Drive the vehicle/plant that he/she is competent to operate/drive Written Proof of Competence of above appointee available on Site. Record of Daily inspections kept
General Safety Regulations 13A	Inspection of Ladders	Competent person appointed in writing to inspect Ladders. Ladders inspected at arrival on site and weekly thereafter. Inspections register kept. Application of the types of ladders (wooden, aluminium etc.) regulated by training and inspections and noted in register
General Safety Regulations 13B	Ramps	Competent person appointed in writing to Supervise the erection & inspection of Ramps. Inspection register kept. Daily inspected and noted in register

37.2 EDUCATION & TRAINING





Subject	Requirement
Company OH&S Policy Section 7(1)	Policy signed by CEO and published/Circulated to Employees Policy displayed on Employee Notice Boards Management and employees committed.
Company/Site SHE Rules (Section 13(a))	Rules published Rules displayed on Employee Notice Boards Rules issued and employees effectively informed or trained: written proof Follow-up to ensure employees understand/adhere to the policy and rules.
Induction & Task Safety Training (Section 13(a))	All new employees receive SHE Induction Training. Training includes Task Safety Instructions. Employees acknowledge receipt of training. Follow-up to ensure employees understand/adhere to instructions
General SHE Training (Section 13(a))	All current employees receive specified SHE training: written proof Operators of Plant and Equipment receive specified training Follow-up to ensure employees understand/adhere to instructions.



37.3 PUBLIC SAFETY, SECURITY MEASURES & EMERGENCY PREPAREDNESS

Subject	Requirement
Notices & Signs	Notices & Signs at entrances / along perimeters indicating "No Unauthorized Entry" . Notices & Signs at entrance instructing visitors and non - employees what to do, where to go and where to report on entering the site/yard with directional signs. e.g. "Visitors to report to Office" Notices & Signs posted to warn of overhead work and other hazardous activities. e.g. General Warning Signs Signage inspections must be completed and signs that are in poor quality must be replace.
Site Safeguarding	Nets, Canopies, Platforms, Fences etc. to protect members of the public passing / entering the site.
Security Measures	Access control measures/register in operation Security patrols after hours, weekends etc. Sufficient light required. After hours work to be approved by site management. Guard has access to telephone/ mobile/other means of emergency communication

Emergency Preparedness	Emergency contact numbers displayed and made available to Security & Guard Emergency Evacuation instructions posted up on all notice boards (including employees' notice boards) Emergency contingency plan available on site/in yard Doors open outwards/unobstructed Emergency alarm audible all over (including in toilets)
Emergency Drill and Evacuation	Adequate No. of employees trained to use Fire Fighting Equipment. Emergency Evacuation Plan available, displayed and practiced.

37.4 PERSONAL PROTECTIVE EQUIPMENT

Subject	Requirement
PPE needs analysis	Need for PPE identified and prescribed in writing. PPE remain property of Employer, not to be removed from premises GSR 2(4)
Head Protection 	All persons on site wearing Hardhats including Contractors and Visitors (where prescribed)
Foot Protection 	All employees on site wearing Safety Footwear including Gumboots for concrete / wet work and non-slip shoes for roof work. Visitors to wear same upon request or where prescribed
Eye and Face Protection	Eye and Face (also Hand and Body) Protection (Goggles, Face Shields, Welding Helmets etc.) used when operating the following:
	<ul style="list-style-type: none"> - Jack/ Kango Hammers - Angle / Bench Grinders - Electric Drills (Overhead work into concrete / cement / bricks) - Explosive Powered tools - Concrete Vibrators / Pokers - Hammers & Chisels - Cutting / Welding Torches - Cutting Tools and Equipment - Guillotines and Benders - Shears - Sanders and Sanding Machines - CO2 and Arc Welding Equipment - Skill / Bench Saws - Spray Painting Equipment etc.
Hearing Protection 	Hearing Protectors (Muffs, Plugs etc.) used when operating the following: <ul style="list-style-type: none"> - Jack / Kango Hammers - Explosive Powered Tools Wood/Aluminium Working Machines e.g. saws, planers, routers

<p>Hand Protection</p> 	<p>Protective Gloves worn by employees handling / using:</p> <ul style="list-style-type: none"> - Cement / Bricks / Steel / Chemicals - Welding Equipment - Hammers & Chisels Jack / Kango Hammers etc.
<p>Respiratory Protection</p> 	<p>Suitable/efficient prescribed Respirators worn correctly by employees handling / using:</p> <ul style="list-style-type: none"> - Dry cement - Dusty areas - Hazardous chemicals - Angle Grinders Spray Painting etc.
<p>Fall Prevention Equipment</p>	<p>Suitable Safety harnesses / Fall Arrest Equipment correctly used by persons working on / in unguarded, elevated positions e.g.:</p> <ul style="list-style-type: none"> - Scaffolding - Riggers - Lift shafts - Edge work - Ring beam edges etc. <p>Other methods of fall prevention applied e.g. catch nets</p>
<p>Protective Clothing</p>	<p>All jobs requiring protective clothing (Overalls, Rain Wear, Welding Aprons etc.) Identified and clothing worn. Disposable overalls when Asbestos is handled.</p>
<p>PPE Issue & Control</p>	<p>Identified Equipment issued free of charge. All PPE maintained in good condition. (Regular checks). Workers instructed in the proper use & maintenance of PPE. Commitment obtained from wearer accepting conditions and to wear the PPE. Record of PPE issued kept on H&S File. PPE remain property of Employer, not to be removed from premises GSR 2(4)</p>




37.5 HOUSEKEEPING

Subject	Requirement
Scrap Removal System	All items of Scrap/Unusable Off-cuts/Rubble and redundant material removed from working areas on a regular basis. (Daily) Scrap/Waste removal from heights by chute/hoist/crane. Nothing thrown/swept over sides. Scrap disposed of in designated containers/areas Removal from site/yard on a regular basis.
Stacking & Storage (See Section 1 for Designation & Register)	Stacking: <ul style="list-style-type: none"> - Stable, on firm level surface/base. - Prevent leaning/collapsing - Irregular shapes bonded - Not exceeding 3x the base - Stacks accessible - Removal from top only. Storage: - Adequate storage areas provided. - Functional – e.g. demarcated storage areas/racks/bins etc. - Special areas identified and demarcated e.g. flammable gas, cement etc. - Neat, safe, stable and square. Store/storage areas clear of superfluous material. <ul style="list-style-type: none"> - Storage behind sheds etc. neat/under control. Storage areas free from weeds, litter etc.
Waste Control/Reclamation	Re-usable off-cuts and other re-usable material removed daily and kept to a minimum in the work areas. All re-usable materials neatly stacked/stored in designated areas. (Nails removed/bent over in re-usable timber). Issue of hardware/nails/screws/cartridges etc. controlled and return of unused items monitored.
Contractors (Housekeeping)	Contractors required to comply with Housekeeping requirements.

37.6 LADDERS

Subject	Requirement
Physical Condition / Use & Storage	<ul style="list-style-type: none"> - Stepladders - hinges/stays/braces/stiles in order. - Extension ladders - ropes/rungs/stiles/safety latch/hook in order. - Extension / Straight ladders secured or tied at the bottom / top. - No joined ladders used - Wooden ladders are never painted except with varnish - Aluminium ladders NOT to be used with electrical work - All ladders stored on hooks / racks and not on ground. - Ladders protrude 900 mm above landings / platforms / roof. Fixed ladders higher than 5 m have cages/Fall arrest system

37.7 EMERGENCY AND FIRE PREVENTION AND PROTECTION

<p>Fire Extinguishing Equipment</p> 	<p>Fire Risks Identified and on record <u>The correct and adequate Fire Extinguishing Equipment available for:</u></p> <ul style="list-style-type: none"> - Offices - General Stores - Flammable Store - Fuel Storage Tank/s and catchment well - Gas Welding / Cutting operations - Where flammable substances are being used / applied. - * Equipment Easily Accessible
<p>Maintenance</p>	<p>Fire equipment checked minimum monthly, serviced yearly</p>
<p>Location & Signs</p>	<p><u>Fire Extinguishing Equipment:</u></p> <ul style="list-style-type: none"> - Clearly visible - Unobstructed - Signs posted including “No Smoking” / “No Naked Lights” where required. (Flammable store, Gas store, Fuel tanks etc.)
<p>Storage Issue & Control of Flammables (incl. Gas cylinders)</p> 	<p>Storage Area provided for flammables with suitable doors, ventilation, bund etc.</p> <ul style="list-style-type: none"> - Flammable store neat / tidy and no Class A combustibles. Decanting of flammable substances carried out in ignition free and adequately ventilated area. Container bonding principles applied - Only sufficient quantities issued for one task or one day's usage - Separate, special gas cylinder store/storage area. - Gas Cylinders stored / used / transported upright and secured in trolley/cradle/structure and ventilated. - Types of Gas Cylinders clearly identified as well as the storage area and stored separately. - Full cylinders stored separately from empty cylinders. - All valves, gauges, connections, threads of all vessels to be checked regularly for leaks. - Leaking acetylene vessels to be returned to the supplier IMMEDIATELY.
<p>Storage, Issue & Control of Hazardous Chemical Substances (HCS)</p> 	<ul style="list-style-type: none"> - HCS storage principles applied: products segregated - Only approved, non-expired HCS to be used - Only the prescribed PPE shall be used as the minimum protection - Provision made for leakage/spillage containment and ventilation - Emergency showers/eye wash facilities provided - HCS under lock & key controlled by designated person - Decanted/issued in containers as prescribed with information/warning labels - Disposal of unwanted HCS by accredited disposal agent - No dumping or disposal of any HCS on or inside the storage area or anywhere else on the project site - All vessels or containers to be regularly checked for leaks

37.8 EXCAVATIONS

Subject	Requirement
Excavations deeper than 1.5m. Based on the risk assessment.	<ul style="list-style-type: none"> - Shored / braced to prevent caving / falling in. - Provided with an access ladder. - Excavations guarded/barricaded/lighted after dark in public areas - Soil dumped at least 1 m away from edge of excavation - On sloping ground soil dumped on lower side of excavation - All excavations are subject to daily inspections by appointed competent person.

37.9 TOOLS

Subject	Requirement
Hand Tools	<p><u>Shovels / Spades / Picks:</u></p> <ul style="list-style-type: none"> - Handles free from cracks and splinters - Handles fit securely - Working end sharp and true <p><u>Hammers:</u></p> <ul style="list-style-type: none"> - Good quality handles, no pipe or reinforcing steel handles. - Handles free from cracks and splinters - Handles fit securely <p><u>Chisels:</u></p> <ul style="list-style-type: none"> - No mushroomed heads / heads chamfered - Not hardened - Cutting edge sharp and square <p><u>Saws:</u></p> <ul style="list-style-type: none"> - Teeth sharp and set correctly <p>* Correct saw used for the job</p>
Explosive Powered Tools.	<ul style="list-style-type: none"> - Only used by trained / authorized personnel. - Prescribed warning signs placed / displayed where tool is in use. - Work area must be properly isolated/demarcated during use of tool. - Inspected at least monthly by competent person and results recorded. - Issue and return recorded including cartridges / nails and unused cartridges / nails / empty shells recorded. <p>Cleaned daily after use.</p>

37.10 TRANSPORT & MATERIALS HANDLING EQUIPMENT

Subject	Requirement
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Site Vehicles	<ul style="list-style-type: none"> - All Site Vehicles, Dumpers, Bobcats, Loaders etc.; checked daily before use by driver / operator. - Inventory of vehicles used/operated on site - Inspection by means of a checklist / results recorded. - No persons riding on equipment not designed or designated for passengers. - Site speed limit posted, enforced and not exceeded. - Drivers / Operators trained / licensed and carrying proof. <p>No unauthorized persons allowed to drive / operate equipment.</p>
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37.11 SITE PLANT AND MACHINERY

Subject	Requirement
Gas Welding / Flame Cutting Equipment	<ul style="list-style-type: none"> - Only authorized/trained persons use the equipment. - Torches and gauges in good condition. - Flashback arrestors fitted at cylinders and gauges. - Hoses in good condition/correct type/all connections with clamps. - Cylinders stored, used and transported in upright position, secured in trolley / cradle / to structure. - All cylinders regularly checked for leaks, leaking cylinders returned immediately. <p>Fire prevention/control methods must be applied.</p>

37.12 PLANT & STORAGE YARDS/SITE WORKSHOPS SPECIFICS

Subject	Requirement
Section 8(2)(1) General Machinery Regulation 2(1): Supervision of the Use & Maintenance of Machinery	<ul style="list-style-type: none"> - Person/s with specific knowledge and experience designated in writing to supervise the Use & Maintenance of Machinery. - Critical items of Machinery identified/numbered/placed on register/inventory. - Inspection/maintenance schedules for abovementioned. - Inspections/maintenance carried out to above schedules. <p>Results recorded.</p>
General Machinery Regulation 9(2): Notices re. Operation of Machinery	Schedule D Notice posted in Work areas.
Pressure Equipment Regulation 13(1)(b): Supervision of the Use & Maintenance of Vessels under Pressure or Pressure Equipment	<ul style="list-style-type: none"> - Person/s with specific knowledge and experience designated in writing to supervise the Use & Maintenance of Pressure Equipment. - Pressure Equipment identified/numbered/placed on register/Manufacturers plate intact. - Inspection/maintenance carried out according to schedule. <p>Results recorded/Test certificates available.</p>
Lock-out Procedure	Lock-out procedure in operation

Ergonomics	<ul style="list-style-type: none"> - Ergonomics survey conducted – results on record. <p>Survey results applied.</p>
Demarcation & Colour Coding	<ul style="list-style-type: none"> - Demarcation principles applied - All services, pipes, electrical installation, stop-start controls, emergency controls etc. colour coded to own published or SABS standard <p>Employees trained to identify colour coding</p>
Portable & Bench Grinders	<ul style="list-style-type: none"> - Area around grinder clear/trip/slip free - Bench grinders mounted securely/grinder generally in good condition/No excessive vibration - On/Off switch/button clearly demarcated/accessible - Adequate guards in place - Tool rest – secure/square/max. 2 mm gap, perpendicular to drive shaft - Stone/disk - correct type and size/mounted correctly/dressed <p>Use of Eye protection enforced</p>
Battery Storage & Charging	<ul style="list-style-type: none"> - Adequately ventilated, ignition free room/area/no smoking sign/s - Batteries placed on rubber/wooden surface - Emergency shower/eye wash provided - No acid storage in area <p>Prescribed methods in place and adhered to when charging batteries</p>

37.13 WORKPLACE ENVIRONMENT, HEALTH AND HYGIENE

Subject	Requirement
Noise	<p>Tasks identified where noise levels exceeds 85 dB at any one time. All reasonable steps taken to reduce noise levels at the source.</p> <p>Hearing protection used where noise levels could not be reduced to below 85 dB.</p>
Heat Stress	<p>Measures in place to prevent heat exhaustion in heat stress problem areas</p> <p>e.g. steel decks, when the WBGT index reaches 30. (See Environmental Regulation 4)</p> <p>Cold drinking water readily available at all times.</p>
Ablutions	<p>Sufficient hygiene facilities provided - 1 toilet per 30 employees (National Building Regulations prescribe chemical toilets for Construction sites)</p> <ul style="list-style-type: none"> - Toilet paper available. - Sufficient showers provided. - Facilities for washing hands provided. - Soap/cleaning agent available for washing hands. - Means of drying hands available. - Lock-up changing facilities / area provided. <p>Ablution facilities kept hygienic and clean.</p>

Eating / Cooking Facilities	Adequate storage facilities provided. Weather protected eating area provided, separate from changing area. Refuse bins with lids provided. Facilities kept clean and hygienic.
Pollution of Environment	Measures in place to minimize dust generation. Accumulation or littering of empty cement pockets, plastic wrapping / bags, packing materials etc. prevented. Spillage / discarding of oil, chemicals and diesel in into stormwater and other drains or into existing or newly dug holes/cavities on site expressly prohibited.
Hazardous Chemical Substances	All substances identified and list available e.g. acids, flammables, poisons etc. Material Safety Data Sheets (MSDS) indicating hazardous properties and emergency procedures in case of incident on file and readily available. Substances stored safely. Expiry dates meticulously checked where applicable.

38. GENERAL

The project under control of the Principal Contractor shall be subject to periodic health and safety audits that will be conducted by the client at intervals agreed upon between the Principal Contractor and the client, provided such intervals will not exceed periods of one month. The Principal Contractor is to ensure that he/she and all persons under his control on the construction site shall adhere to the above specifications, as non-conformance will lead to the client taking action as directed by Construction Regulation 5.1(q). The Principal Contractor should note that he/she shall be held liable for any anomalies including costs and resulting deficiencies due to delays caused by non-conformance and/or non-compliance to the above Health and Safety Specifications and the Health and Safety Plan based on these specifications.

39. MANDATORY LISTS AND RECORDS TO BE KEPT

The following are lists of several records that are to be kept in terms of the Construction Regulations. The lists are:

- List of appointments;
- List of record keeping responsibilities; and
- Inspection checklist.

These lists and documents are to be used as a point of reference to determine which components of the Act would be applicable to a particular site or task or project.

40. ACCEPTANCE

Confirmation and Acceptance	Project Responsibility	Signature	Date
I _____ confirm that I have read and understood the Health and Safety Specifications as set out above.	HSE Support		
I _____ confirm that I have read and understood and confirm my intention to comply with all the legal requirements.	Principal Contractor		
I _____ confirm my acceptance and understanding of the assigned responsibilities and duties involved.	Project Manager		

