TRANSNET SOC LTD operating as Transnet Port Terminals

(REGISTRATION NO.1990/000900/30)

NEC3 Engineering and Construction Contract (ECC)

Request for Quotation

for

Tender Number: TPT CT 34/20

Facilities Maintenance and Repairs on an as-and-when required basis for a period of one year for Transnet Port Terminals in the Port of Cape Town

Tender Issue Date: 29 June 2020

Tender Closing Date: on 14th July at 14h00
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<th>Description</th>
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<tr>
<td>B-BBEE</td>
<td>Broad-Based Black Economic Empowerment</td>
</tr>
<tr>
<td>CD</td>
<td>Compact/computer disc</td>
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<tr>
<td>DAC</td>
<td>Divisional Acquisition Council</td>
</tr>
<tr>
<td>EME</td>
<td>Exempted Micro Enterprise</td>
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<tr>
<td>GBC</td>
<td>General Bid Conditions</td>
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<tr>
<td>ID</td>
<td>Identity Document</td>
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<tr>
<td>JV</td>
<td>Joint Venture</td>
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<td>LOI</td>
<td>Letter of Intent</td>
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<tr>
<td>NDA</td>
<td>Non-Disclosure Agreement</td>
</tr>
<tr>
<td>OD</td>
<td>Transnet Operating Division</td>
</tr>
<tr>
<td>PPPFA</td>
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<td>QSE</td>
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<td>RFQ</td>
<td>Request for Quotation</td>
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<tr>
<td>SD</td>
<td>Supplier Development</td>
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<td>SME</td>
<td>Small Medium Enterprise</td>
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<td>SOC</td>
<td>State Owned Company</td>
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<tr>
<td>TAC</td>
<td>Transnet Acquisition Council</td>
</tr>
<tr>
<td>VAT</td>
<td>Value-Added Tax</td>
</tr>
<tr>
<td>ZAR</td>
<td>South African Rand</td>
</tr>
</tbody>
</table>
T1.1 Tender Notice and Invitation to Tender

1. QUOTATION REQUEST

Responses to this RFQ [hereinafter referred to as a Bid or a Quotation] are requested from persons, companies, close corporations or enterprises [hereinafter referred to as an entity, Respondent or Bidder] for the supply of Facilities Maintenance and Repairs on an as and when basis to Transnet.

2. FORMAL BRIEFING

A formal briefing session will not be held but should Respondents have specific queries they should email these to the Transnet employee(s) indicated in paragraph 6 [Communication] below.

3. QUOTATION SUBMISSION

Only those tenderers who satisfy the following eligibility criteria are eligible to submit tenders:

3.1. Submit all mandatory returnables.
3.2. Submits a tendered price in the form of offer and acceptance which is fixed and firm for the duration of the contract.
3.3. Fully comply with all the requirements of the Mandatory Eligibility Criteria returnable Form (T2.2.1)

Quotations in duplicate [1 original and 1 copy] must reach the Secretariat, Divisional Acquisition Council before the closing hour on the date shown below, and must be enclosed in a sealed envelope which must have inscribed on the outside:

RFQ No: TPTCT34/20
Description Works Description Facilities Maintenance and Repairs on an as and when basis for period of 12 months
Closing date and time: 14 July 2020 at 14h00
Closing address [Refer to options in paragraph 4 below]

All envelopes must reflect the return address of the Respondent on the reverse side.

4. DELIVERY INSTRUCTIONS FOR RFQ

4.1. Delivery by hand

If delivered by hand, the envelope is to be deposited in the Transnet tender box which is located at the main entrance and should be addressed as follows:

THE SECRETARIAT
REGIONAL ACQUISITION COUNCIL
TRANSNET PORT TERMINALS
TENDER BOX
PAARDEN EILAND
CAPE TOWN
a) The measurements of the “tender slot” are 305mm wide x 65mm high, and Respondents must please ensure that response documents or files are no larger than the above dimensions. Responses which are too bulky [i.e. more than 65mm thick] must be split into two or more files, and placed in separate envelopes, each such envelope to be addressed as required in paragraph 3 and 4 above.

b) It should also be noted that the above tender box is located at the ground level inside the main office entrance and is accessible to the public 24 hours a day, 7 days a week.

4.2. Dispatch by courier

If dispatched by courier, the envelope must be addressed as follows and delivered to the Office of The Secretariat, Regional Acquisition Council and a signature obtained from that Office:
THE SECRETARIAT
REGIONAL ACQUISITION COUNCIL
TRANSNET PORT TERMINALS
TENDER BOX
PAARDEN EILAND
CAPE TOWN

4.3. Please note that this RFQ closes punctually at 14h00 on Day 14th July 2020.

4.4. If responses are not delivered as stipulated herein, such responses will not be considered and will be treated as "NON-RESPONSIVE" and will be disqualified.

4.5. No email or facsimile responses will be considered, unless otherwise stated herein.

4.6. If responses are not delivered as stipulated herein, such responses will not be considered.

4.7. The responses to this RFQ will be opened as soon as practicable after the expiry of the time advertised for receiving them.

4.8. Transnet shall not, at the opening of responses, disclose to any other company any confidential details pertaining to the Quotations / information received, i.e. pricing, delivery, etc. The names and locations of the Respondents will be divulged to other Respondents upon request.

4.9. Envelopes must not contain documents relating to any RFQ other than that shown on the envelope.

4.10. No slips are to be attached to the response documents. Any additional conditions must be embodied tender returnable T2.15. Subject only to clause T2.11 [Alterations made by the Respondent to Bid Prices or necessary to correct errors made by the Respondent] of the Standard Conditions of Tender, alterations, additions or deletions must not be made by the Respondent to the actual RFQ documents.

5. BROAD-BASED BLACK ECONOMIC EMPOWERMENT AND SOCIO-ECONOMIC OBLIGATIONS

Transnet fully endorses and supports the Government’s Broad-Based Black Economic Empowerment Programme and it is strongly of the opinion that all South African business enterprises have an equal obligation to redress the imbalances of the past.
Transnet would therefore prefer to do business with enterprises who share these same values and who are prepared to contribute to meaningful B-BBEE initiatives [including, but not limited to subcontracting and Joint Ventures] as part of their tendered responses. All procurement transactions will be evaluated accordingly.

5.1. B-BBEE Scorecard and Rating

As prescribed in terms of the Preferential Procurement Policy Framework Act (PPPFA), Act 5 of 2000 and its Regulations, Respondents are to note that the following preference point systems are applicable to all bids:

- **Functionality is included at a pre-qualification stage with a prescribed percentage threshold of 80**

- Quotations will be evaluated on price which will be allocated 80 or 90 points and preference which will be allocated 20 or 10 points, dependent on the value of the Works.

- The 80/20 preference point system applies where the acquisition of the Works will be less than R50 000 000.00,

- If the 80/20 preference point system is stipulated and all Bids received not exceed R50 000 000.00, the RFQ will be cancelled.

- The 90/10 preference point system applies where acquisition of the Works will exceed R50 000 000.00,

- If the 90/10 preference point system is stipulated and all Bids received are equal to or below R50 000 000.00, the RFQ will be cancelled.

The 80/20 preference point system is applicable to this RFQ.

When Transnet invites prospective suppliers to submit Quotations for its various expenditure programmes, it requires Respondents to have their B-BBEE status verified in compliance with the Codes of Good Practice issued in terms of the Broad Based Black Economic Empowerment Act No. 53 of 2003.

The Department of Trade and Industry recently revised the Codes of Good Practice on 11 October 2013 [Government Gazette No. 36928]. The Revised Codes will replace the Black Economic Empowerment Codes of Good Practice issued on 9 February 2007. The Revised Codes provide for a one year transitional period starting 11 October 2013. During the transitional period, companies may elect to be measured in terms of the Revised Codes or the 2007 version of the Codes. After the first year of the implementation of the Revised Codes, B-BBEE compliance will be measured in terms of the Revised Codes without any discretion. Companies which are governed by Sector-specific Codes will be measured in terms of those Sector Codes.
As such, Transnet will accept B-BBEE certificates issued based on the Revised Codes. Transnet will also continue to accept B-BBEE certificates issued in terms of the 2007 version of the Codes provided it was issued before 10 October 2014. Thereafter, Transnet will only accept B-BBEE certificates issued based on the Revised Codes.

Respondents are required to complete Section 14 [the B-BBEE Preference Point Claim Form] and submit it together with proof of their B-BBEE Status as stipulated in the Claim Form in order to obtain preference points for their B-BBEE status.

**N.B.** Failure to submit a valid original B-BBEE certificate or a certified copy thereof at the Closing Date of this RFQ, will result in a score of zero being allocated for B-BBEE.

### 5.2. B-BBEE Joint Ventures, Consortiums and/or Subcontractors

Respondents who would wish to respond to this RFP as a Joint Venture [JV] or consortium with B-BBEE entities, must state their intention to do so in their RFP submission. Such Respondents must also submit a signed JV or consortium agreement between the parties clearly stating the percentage [%] split of business and the associated responsibilities of each party. If such a JV or consortium agreement is unavailable, the partners must submit confirmation in writing of their intention to enter into a JV or consortium agreement should they be awarded business by Transnet through this RFP process. This written confirmation must clearly indicate the percentage [%] split of business and the responsibilities of each party. In such cases, award of business will only take place once a signed copy of a JV or consortium agreement is submitted to Transnet.

Respondents are to note the requirements for B-BBEE compliance of JVs or consortiums as required by Section 14 [the B-BBEE Preference Point Claim Form] and submit it together with proof of their B-BBEE Status as stipulated in the Claim Form in order to obtain preference points for their B-BBEE status.

**Note:** Failure to submit a valid and original B-BBEE certificate for the JV or a certified copy thereof at the Closing Date of this RFQ will result in a score of zero being allocated for B-BBEE.

Transnet fully endorses Government’s transformation and empowerment objectives and when contemplating subcontracting Respondents are requested to give preference to companies which are Black Owned, Black Women Owned, Black Youth Owned, owned by Black People with Disabilities, EMEs and QSEs including any companies designated as B-BBEE Facilitators.

If contemplating subcontracting, please note that a Respondent will not be awarded points for B-BBEE if it is indicated in its Proposal that such Respondent intends subcontracting more than 25% [twenty-five percent] of the value of the contract to an entity/entities that do not
qualify for at least the same points that the Respondent qualifies for, unless the intended subcontractor is an EME with the capability to execute the contract.

A person awarded a contract may not subcontract more than 25% [twenty-five percent] of the value of the contract to any other enterprise that does not have an equal or higher B-BBEE status level than the person concerned, unless the contract is subcontracted to an EME that has the capability and ability to execute the subcontract.

In terms of Section 14 of this RFP [the B-BBEE Preference Point Claim Form] Respondents are required to indicate the percentage of the contract that will be sub-contracted as well as the B-BBEE status of the sub-contractor/s.

5.3. B-BBEE Registration

In addition to the Verification Certificate, Transnet recommends that Respondents register their B-BBEE compliance and supporting documentation on the Department of Trade and Industry’s [DTI] National B-BBEE IT Portal and Opportunities Network and provide Transnet with proof of registration in the form of an official B-BBEE Profile issued by the DTI.

Transnet would wish to use the DTI B-BBEE IT Portal as a data source for tracking B-BBEE compliance.

For instructions to register and obtain a DTI B-BBEE Profile go to http://bee.thedti.gov.za

6. COMMUNICATION

Respondents are warned that a Quotation will be liable to disqualification should any attempt be made by a Respondent either directly or indirectly to canvass any officer or employee of Transnet in respect of this RFQ between the closing date and the date of the award of the business.

6.1. For specific queries relating to this RFQ, an RFQ Clarification Request Form should be submitted before 12h00 on 08 July 2020, substantially in the form set out in tender returnable T2.2. In the interest of fairness and transparency Transnet’s response to such a query will then be made available to the other Respondents who have collected RFQ documents.

6.2. After the closing date of the RFQ, a Respondent may only communicate with the Secretariat of the Regional Acquisition Council, at telephone number, email andani.mavhusha-gundula@transnet.net on any matter relating to its RFQ Quotation.

6.3. Respondents are to note that changes to its submission will not be considered after the closing date.

Respondents found to be in collusion with one another will be automatically disqualified and restricted from doing business with Transnet in the future.
7. **INSTRUCTIONS FOR COMPLETING THE RFQ**

7.1. Proposals must be submitted in duplicate hard copies [1 original and 1 copy] and must be bound.

7.2. Sign one set of original documents [sign, stamp and date the bottom of each page]. This set will serve as the legal and binding copy. A duplicate set of documents is required. This second set must be a copy of the original signed Quotation.

7.3. Both sets of documents are to be submitted to the address specified in paragraph 4 above.

7.4. All returnable documents tabled in the Proposal Form [Section 4] must be returned with your Proposal.

7.5. Unless otherwise expressly stated, all Proposals furnished pursuant to this RFP shall be deemed to be offers. Any exceptions to this statement must be clearly and specifically indicated.

7.6. Any additional conditions must be embodied in an accompanying letter. Subject only to clause 15 [Alterations made by the Respondent to Bid Prices] of the General Bid Conditions, alterations, additions or deletions must not be made by the Respondent to the actual RFP documents.

8. **COMPLIANCE**

The successful Respondent [hereinafter referred to as the *Contractor*] shall be in full and complete compliance with any and all applicable laws and regulations.

9. **ADDITIONAL NOTES**

9.1. Changes by the Respondent to its submission will not be considered after the closing date.

9.2. The person or persons signing the Quotation must be legally authorised by the Respondent to do so [Refer tender returnable T2.2-1]. A list of those person(s) authorised to negotiate on behalf of the Respondent [if not the authorised signatories] must also be submitted along with the Quotation together with their contact details.

9.3. Bidders who fail to submit a duly completed and signed RFQ Declaration Form [Refer tender returnable T2.2-11] will not be considered.

9.4. Transnet will not do business with companies involved in B-BBEE fronting practices.

9.5. Transnet may wish to visit the Respondent's place of manufacture and/or workshop and/or office premises during this RFQ process.

9.6. Transnet reserves the right to undertake post-tender negotiations [PTN] with selected Respondents or any number of short-listed Respondents, such PTN to include, at Transnet's option, any evaluation criteria listed in this RFQ document.

9.7. Unless otherwise expressly stated, all Quotations furnished pursuant to this RFQ shall be deemed to be offers. Any exceptions to this statement must be clearly and specifically indicated.

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FAILURE TO OBSERVE ANY OF THE AFOREMENTIONED REQUIREMENTS MAY RESULT IN A QUOTATION BEING REJECTED
10. DISCLAIMERS

Respondents are hereby advised that Transnet is not committed to any course of action as a result of its issuance of this RFQ and/or its receipt of Quotations. In particular, please note that Transnet reserves the right to:

10.1. modify the RFQ’s Works and request Respondents to re-bid on any such changes;
10.2. reject any Quotation which does not conform to instructions and specifications which are detailed herein;
10.3. disqualify Quotations submitted after the stated submission deadline [closing date];
10.4. not necessarily accept the lowest priced Quotation;
10.5. reject all Quotations, in accordance with the PPPFA
10.6. withdraw the RFQ on good cause shown;
10.7. award a contract in connection with this Quotation at any time after the RFQ’s closing date;
10.8. make no award of a contract.
10.9. bids lodged at an incorrect venue and reach the correct venue late will be regarded as late and will not be considered.

In addition, Transnet reserves the right to exclude any Respondent from the bidding process who has been convicted of a serious breach of law during the preceding 5 [five] years, including but not limited to breaches of the Competition Act 89 of 1998. Respondents are required to indicate in tender returnable [Breach of Law] whether or not they have been found guilty of a serious breach of law during the past 5 [five] years.

Transnet reserves the right to award the business to the highest scoring bidder/s unless objective criteria justify the award to another bidder.

Kindly note that Transnet will not reimburse any Respondent for any preparatory costs or other work performed in connection with its Quotation, whether or not the Respondent is awarded a contract.

11. LEGAL REVIEW

A Quotation submitted by a Respondent will be subjected to review and acceptance or rejection of its proposed contractual terms and conditions by Transnet’s Legal Counsel, prior to consideration for an award of business.

Transnet urges its clients, Contractors and the general public
to report any fraud or corruption to
TIP-OFFS ANONYMOUS: 0800 003 056
The Standard Conditions of Tender make several references to Tender Data for details that apply specifically to this tender. This Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the Standard Conditions of Tender.

Each item of data given below is cross-referenced in the left hand column to the clause in the Standard Conditions of Tender to which it mainly applies.

<table>
<thead>
<tr>
<th>Clause</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>T.1.1</td>
<td>The Employer is Transnet Port Terminals:</td>
</tr>
<tr>
<td>T.1.2</td>
<td>The tender documents issued by the Employer comprise:</td>
</tr>
<tr>
<td></td>
<td>The Tender</td>
</tr>
<tr>
<td></td>
<td>Part T1: Tendering procedures</td>
</tr>
<tr>
<td></td>
<td>Part T2: Returnable documents</td>
</tr>
<tr>
<td></td>
<td>The Contract</td>
</tr>
<tr>
<td></td>
<td>Part C1: Agreements and contract data</td>
</tr>
<tr>
<td></td>
<td>Part C2: Pricing data</td>
</tr>
<tr>
<td></td>
<td>Part C3: Scope of work</td>
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<tr>
<td></td>
<td>Part C4: Site information</td>
</tr>
<tr>
<td></td>
<td>Annexure</td>
</tr>
<tr>
<td>T.1.4</td>
<td>The Employer's agent is: Transnet Port Terminals:</td>
</tr>
<tr>
<td></td>
<td>Name: Nicolaas Carstens</td>
</tr>
<tr>
<td></td>
<td>Address: Transnet Port Terminals Kingsmead Office Park, South Tower Stalwart Simelane (Stanger) Street Durban</td>
</tr>
<tr>
<td></td>
<td>E – mail</td>
</tr>
</tbody>
</table>

E – mail
<table>
<thead>
<tr>
<th>T.1.6</th>
<th>The competitive negotiation procedure shall be applied.</th>
</tr>
</thead>
<tbody>
<tr>
<td>T.2.1</td>
<td>Only those tenderers who satisfy the following eligibility criteria are eligible to submit tenders:</td>
</tr>
<tr>
<td></td>
<td>a) Submit all mandatory returnables.</td>
</tr>
<tr>
<td></td>
<td>b) Submits a tendered price in the form of offer and acceptance which is fixed and firm for the duration of the contract.</td>
</tr>
<tr>
<td></td>
<td>c) Fully comply with all the requirements of the Mandatory Eligibility Criteria returnable Form (T2.2.)</td>
</tr>
<tr>
<td></td>
<td>d) Modify statement, state eligibility criteria if other than that relating to Contractor grading designation requirements or delete row.</td>
</tr>
<tr>
<td>T.2.7</td>
<td>There are no compulsory clarification meetings.</td>
</tr>
<tr>
<td>-------</td>
<td>------------------------------------------------</td>
</tr>
<tr>
<td>T.2.7</td>
<td>The arrangements for a compulsory clarification meeting are as stated in the Tender Notice and Invitation to Tender.</td>
</tr>
<tr>
<td></td>
<td>Tenderers must sign the attendance list in the name of the tendering entity. Addenda will be issued to and tenders will be received only from those tendering entities appearing on the attendance list.</td>
</tr>
<tr>
<td>T.2.12</td>
<td>Main tender offers are not required to be submitted together with alternative tenders.</td>
</tr>
<tr>
<td>T.2.12</td>
<td>No alternative tender offers will be considered</td>
</tr>
</tbody>
</table>
If tenderer wishes to submit an alternative tender offer, the only criteria permitted for such alternative tender offer is that it demonstrably satisfies the Employer’s standards and requirements, the details of which may be obtained from the Employer’s Agent.

Calculations, drawings and all other pertinent technical information and characteristics as well as modified or proposed Pricing Data must be submitted with the alternative tender offer to enable the Employer to evaluate the efficacy of the alternative and its principal elements, to take a view on the degree to which the alternative complies with the Employer's standards and requirements and to evaluate the acceptability of the pricing Quotations. Calculations must be set out in a clear and logical sequence and must clearly reflect all design assumptions. Pricing Data must reflect all assumptions in the development of the pricing Quotation.

Acceptance of an alternative tender offer will mean acceptance in principle of the offer. It will be an obligation of the contract for the tenderer, in the event that the alternative is accepted, to accept full responsibility and liability that the alternative offer complies in all respects with the Employer’s standards and requirements.

The modified Pricing Data must include an amount equal to 5% of the amount tendered for the alternative offer to cover the Employer's costs of confirming the acceptability of the detailed design before it is constructed.

Delete row if no alternative tenders are permitted and where there are no criteria for alternative tenders.

Amend criteria as relevant.

All Quotations shall be submitted in the following format:

- A completed original with all Returnables
- 1 (one) copy of the original with all Returnables

The Employer's details and address for delivery of tender offers and identification details that are to be shown on each tender offer package are:

Location of tender box: Ground Floor

Physical address:
THE SECRETARIAT
REGIONAL ACQUISITION COUNCIL
TRANSNET PORT TERMINALS
TENDER BOX
PAARDEN EILAND
CAPE TOWN
OR
TENDERSCT@TRANSNET.NET
<table>
<thead>
<tr>
<th>Identification details:</th>
<th>The tender documents must be submitted to Transnet Port Terminals Regional Acquisition Council in a sealed envelope labelled with:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>The Secretariat, Regional Acquisitions Council, Transnet Port Terminals TPTCT34/20</strong></td>
</tr>
</tbody>
</table>

**Couriered documents:** tenderers must ensure that envelopes which are delivered by courier must not be placed in the tender box but must be delivered by hand to the office of:

The Secretariat, TPT Regional Acquisition Council (RAC) and a signature obtained from the office, the address of which is:

THE SECRETARIAT REGIONAL ACQUISITION COUNCIL TRANSNET PORT TERMINALS TENDER BOX PAARDEN EILAND CAPETOWN OR TENDERSCT@TRANSNET.NET

Tenderers are to ensure that the Quotations submitted will fit into the tender box slot (opening) which measures 305mm x 65mm.

Prior arrangement on the submittal of large tender documents should be made with the Secretariat, Regional Acquisitions Council.

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**T.2.13.9**  
Telephonic, telegraphic, facsimile or e-mailed tender offers will not be accepted.
T2.14 The following essential returnables are to be submitted together with a mandatory signed Form of Offer and Acceptance (C1.1) and mandatory completed Price Schedule (C2.2) and all mandatory returnable documents.

- A copy of the Tendering Entity’s latest BBBEE Certificate must accompany returnable [T2.2.6]. If the tenderer is not certified or valid if a BBBEE Certificate is not submitted the tenderer will automatically score Zero for BBBEE.
- An original valid Tax Clearance Certificate issued by the South African Revenue Services [T2.2.7] and If the tenderer is not certified or if a Tax Clearance Certificate is not submitted the tenderer will have to provide one prior to award.

NB: Non South African tenderers are to still submit the signed mandatory returnable template [T2.2.6] – BBBEE Accreditation Certificate, stating “not applicable” on the documents.

T.2.15 The closing time for submission of tender offers is as stated in the Tender Notice and Invitation to Tender.

T.2.16 The tender offer validity period is 90 working days

T.2.18 Provide, on request by the Employer, any other material information that has a bearing on the tender offer, the tenderer’s commercial position (including notarized joint venture agreements), preferencing arrangements, or samples of materials, considered necessary by the Employer for the purpose of a full and fair risk assessment. Should the tenderer not provide the material, or a satisfactory reason as to why it cannot be provided, by the time for submission stated in the Employer’s request, the Employer may regard the tender offer as non-responsive.

T.2.22 Return all retained tender documents within 28 day after the expiry of the validity period

T.2.23 The tenderer is required to submit with his tender:

1. An original or a certified copy of a valid Tax Clearance Certificate issued by the South African Revenue Services;
2. A Valid Letter of good standing with the compensation fund or with a licensed compensation insurer (Returnable Schedule [T2.2.23]);
3. Tendering Entity’s latest valid BBBEE Certificate must accompany returnable [T2.2.6].

Note: Refer to Section T2.1 for List of Returnable Documents

PRE-QUALIFICATION AND EVALUATION METHODOLOGY AND CRITERIA

Transnet will utilise the following methodology and criteria in selecting a preferred Contractor, if so required:
STAGE ONE: Test for Administrative Responsiveness

The test for administrative responsiveness will include the following:

<table>
<thead>
<tr>
<th>Administrative responsiveness check</th>
<th>RFQ Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Whether the Bid has been lodged on time</td>
<td>T.2.15.1</td>
</tr>
<tr>
<td>• Whether all Returnable Documents and/or schedules [where applicable] were completed and returned by the closing date and time</td>
<td>Part T 2</td>
</tr>
<tr>
<td>• Verify the validity of all returnable documents</td>
<td>T.2.14</td>
</tr>
</tbody>
</table>

The test for administrative responsiveness [Stage One] must be passed for a Respondent's Quotation to progress to Stage Two for further pre-qualification.
STAGE TWO: Test for Substantive Responsiveness to RFQ

The test for substantive responsiveness to this RFQ will include the following:

<table>
<thead>
<tr>
<th>Pre-Qualification Criteria</th>
<th>RFQ Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Whether any pre-qualification criteria set by Transnet, have been met</td>
<td>Section 1 paragraphs 2.3, 6, 10.3 F2.7 &amp; F2.14 Returnables Section, T2.2-10, T2.2-11</td>
</tr>
<tr>
<td>• Whether the Bid contains a priced offer</td>
<td>T.2.10</td>
</tr>
<tr>
<td>• Whether the Bid materially complies with the scope and/or specification given</td>
<td>Technical returnables</td>
</tr>
</tbody>
</table>

*The test for substantive responsiveness [Stage Two] must be passed for a Respondent’s Quotation to progress to Stage Three for further pre-qualification*

STAGE THREE: Test Minimum Threshold of 70% for Technical Criteria and Functional Requirements

The test for the Technical and Functional threshold will include the following:

<table>
<thead>
<tr>
<th>Pre-Qualification Criteria</th>
<th>% Weightings</th>
<th>RFQ Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Contractor must complete the Transnet Integrated Management System (TIMS) Tender Pre-Qualification Criteria Submitted and complies with requirements.= 10 Points Not submitted.= 0 Points</td>
<td>10</td>
<td>T2.2.17</td>
</tr>
<tr>
<td>The Contractor must provide a formal response to the Scope of Work document, stating in writing that the work is understood, their bid meets the full requirements (with any exclusions to be listed which may lead to the bid’s disqualification). This letter must include a full company profile on a company letterhead. The quality of this submission will be assessed by the CFET and may disqualify companies or tenderers who do not evidently possess a technical understanding of the work requirement. Formal, signed response on company letterhead provided with a detailed company profile and evidence that the Contractor has an understanding of the work requirement. =10 Signed response not on company letterhead provided with a short company profile and evidence that the Contractor has an understanding of the work requirement. =5 Response and company profile submitted, but Scope compliance not explicitly mentioned. =2 Any evidence that the Contractor does not understand the work or has not reviewed the Scope of Work.=0 Not submitted.=0</td>
<td>10</td>
<td>T2.2.18</td>
</tr>
<tr>
<td>The Contractor shall be in the business of providing building maintenance and repair services for the past five years</td>
<td>25</td>
<td>T2.2.19</td>
</tr>
<tr>
<td>T1.2: Tender Data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td></td>
</tr>
</tbody>
</table>
| continuously, of which supporting documents and three (3) traceable references are to be provided.  
At least five years continuous experience with three traceable reference provided. = 25  
At least five years continuous relevant experience with two traceable reference provided. = 15  
Less than five years continuous relevant experience with two traceable references provided = 5  
Not submitted / no references provided = 0 | 15 |
| The Contractor must prove possession of IRATA (Independent Rope Access Trade Association) Training Certificates and/or a SETA (Sector Education and Training Authority) accredited Training Certificate for employees working at heights (certified copies to be attached).  
Three or more valid Certified copies of Training Certificates attached. = 15  
Three or more expired Certified copies of Training Certificates attached with signed undertaking to renew and supply proof of updating them before work commences. = 10  
1 - 2 valid Certified copies of Training Certificates attached. = 10  
1 - 2 expired Certified copies of Training Certificates attached with signed undertaking to renew and supply proof of updating them before work commences. = 10  
Copies are not certified. = 0 | 15 |
| The Contractor must be a Registered Asbestos Contractor (RAC) with the Department of Labour and provide a certified copy of their proof of registration.  
Submitted confirmation on company letterhead. = 10  
Submitted, but not on company letterhead. = 5  
Not compliant / nothing submitted. = 0 | 10 |
| The Contractor must at least have the CIDB Contractor Grading Designations for the following classes of which proof must be submitted:  
- General Building Works (GB) (level 4 or higher)  
- Civil Engineering Works (CE) (level 3 or higher)  
- Specialist works SE (level 2 or higher) and SN (level 2 or higher)  
Submitted and complies with requirements. = 20  
Submitted, but not compliant with all requirements. = 0  
Not compliant / nothing submitted. = 0 | 20 |
| The Contractor must provide confirmation on a company letterhead that the physical address of their business/depot is located within a 50km radius of the Port of Cape Town.  
Submitted confirmation on company letterhead. = 10  
Submitted, but not on company letterhead. = 5 | 10 |
Technical shall be scored in accordance with the following mandatory returnables:

- T2.2-16 Previous Experience
- T2.2-17 Method Statement
- T2.2-18 Risk Elements
- T2.2-19 Quality Plan
- T2.2-20 Guarantees and Warrantees
- T2.2-21 Experience of team members, CV’s
- T2.2-22 Company Profile
- T2.2-23 Health and Safety Plan
- T2.2-24 Lead Time

The minimum number of evaluation points for technical is: 80 out of 100

Each evaluation criteria will be assessed in terms of six indicators – Scores of 0, 20, 40, 60, 80 or 100 will be allocated to no response, detrimental response, less than acceptable response, partially acceptable response, almost compliant response and fully compliant response, respectively.

The scores of each of the evaluators will be averaged, weighted and then totalled to obtain the final score for technical.

The minimum threshold for Stage three pre-qualification criteria must be met or exceeded for a Respondent’s Quotation to progress to Stage Four for final evaluation

**STAGE FOUR: Evaluation and Final Weighted Scoring**

a) **Price Criteria** [Weighted score 80%]:

<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>RFQ Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial offer</td>
<td>Part C1.1</td>
</tr>
</tbody>
</table>

b) **Broad-Based Black Economic Empowerment criteria**

- B-BBEE - current scorecard / B-BBEE Preference Points Claims Form [tender returnable T2.2-6]
• Preference points will be awarded to a bidder for attaining the B-BBEE status level of contribution in accordance with the table below:

<table>
<thead>
<tr>
<th>B-BBEE Status Level of Contributor</th>
<th>Number of points (80/20 system)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>18</td>
</tr>
<tr>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>Non-compliant contributor</td>
<td>0</td>
</tr>
</tbody>
</table>

**SUMMARY: Pre-Qualification Threshold and Final Evaluated Weightings**

<table>
<thead>
<tr>
<th>Pre-Qualification Criteria</th>
<th>Minimum Threshold [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical / functionality</td>
<td>80</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>Final Weighted Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>80</td>
</tr>
<tr>
<td>B-BBEE - Scorecard</td>
<td>20</td>
</tr>
</tbody>
</table>

**TOTAL SCORE:** 100

*Note: Transnet reserves the right to conduct post-tender negotiations with the preferred Respondent(s)*

**STAGE FIVE Post Tender Negotiations (if applicable)**

Transnet reserves the right to conduct post tender negotiations with a shortlist of Respondent(s). The shortlist could comprise of one or more Respondents. Should Transnet conduct post tender negotiations, Respondents will be requested to provide their best and final offers to Transnet based on such negotiations. A final evaluation will be conducted in terms of 80/20 and the contract will be negotiated and awarded to the successful Respondent(s).

Should the BBBEE rating not be provided, Transnet reserves the right to award no points. Transnet also reserves the right to carry out an independent audit of the tenderers scorecard components at any stage from the date of close of the tenders until completion of the contract.

Tenderers with no accreditation will score zero points for preference purposes.
F.3.13.1 Tender offers will only be accepted if:

a) the tenderer or any of its directors/shareholders is not listed on the Register of Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector;

b) the tenderer has not:

i) abused the Employer's Supply Chain Management System; or

ii) failed to perform on any previous contract and has been given a written notice to this effect;

e) the tenderer has completed the Mandatory Enterprise Questionnaire and there are no conflicts of interest which may impact on the tenderer's ability to perform the contract in the best interests of the Employer or potentially compromise the tender process and persons in the employ of the state are permitted to submit tenders or participate in the contract;

f) the tenderer is registered and in good standing with the compensation fund or with a licensed compensation insurer;

g) the Employer is reasonably satisfied that the tenderer has in terms of the Construction Regulations, 2003, issued in terms of the Occupational Health and Safety Act, 1993, the necessary competencies and resources to carry out the work safely.

F.3.18 The number of paper copies of the signed contract to be provided by the Employer is 1 (one).

The additional conditions of tender are:

1. The Tenderer is deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the works and of the prices stated in the priced activity schedule/bill of quantities/pricing schedule. The prices (except in so far as otherwise provided in the Tender) collectively cover full payment for the discharge of all his obligations under the Contract and all the matters and things necessary for the proper completion of the works.

2. The Employer reserves the right to request latest audited financial statements for the purposes of a due diligence exercise. A financial due diligence exercise will be performed on the preferred tenderer or shortlist of preferred tenderers before an award is made.

3. Green Economy / Carbon Footprint

Whereas Transnet cannot prescribe a Respondent's commitment to environmental issues, Transnet would wish to have an understanding of your company's position in this regard, including key environmental characteristics such as waste disposal, recycling and energy conservation. Please submit details of your entity's policies in this regard.
Such conditions should only be used on very rare occasions.

It is easier to use tender schedules for the purpose of soliciting information to be returned with the tender offer, including design details for design and build contracts. The conditions of tender state that all schedules shall be completed and submitted as part of the tender offer.
T 1.3 Standard Conditions of Tender

Where the following words or phrases are used in this Agreement, such words or phrases shall have the meaning assigned thereto in this clause, except where the context clearly requires otherwise:

1.1 Bid or Bid Document(s) shall mean a reference to a Request for Proposal or Request for Quotation;
1.2 Goods shall mean the goods required by Transnet as specified in its Bid Document;
1.3 Respondent(s) shall mean a respondent/bidder to a Transnet Bid;
1.4 RFP shall mean Request for Proposal;
1.5 RFQ shall mean Request for Quotation;
1.6 RFX shall mean RFP and/or RFQ, as the case may be;
1.7 Supplier shall mean the successful Respondent;
1.8 Tax Invoice shall mean the document as required by Section 20 of the Value-Added Tax Act, 89 of 1991, as may be amended from time to time;
1.9 Transnet shall mean Transnet SOC Ltd, a State Owned Company; and
1.10 VAT shall mean Value-Added Tax chargeable in terms of the Value-Added Tax Act, 89 of 1991, as may be amended from time to time.
1.11 Day shall mean any day other than a Saturday, Sunday or public holiday

T.1 General

All Bid Documents and subsequent contracts and orders shall be subject to the following general conditions as laid down by Transnet and are to be strictly adhered to by any Respondent to this RFX

T.1.1 Actions

The Employer and each Tenderer submitting a tender offer shall comply with these Conditions of Tender. In their dealings with each other, they shall discharge their duties and obligations as set out in T.2 and T.3, timely and with integrity, and behave equitably, honestly and transparently.

T.1.2 Tender Documents

The documents issued by the Employer for the purpose of a tender offer are listed in the tender data.

T.1.3 Interpretations

T.1.3.1 The tender data and additional requirements contained in the tender schedules that are included in the Mandatory returnable documents are deemed to be part of these Conditions of Tender.

T.1.3.2 These Conditions of Tender, the tender data and those tender schedules which are only required for tender evaluation purposes (as detailed in schedule T1.2 - T3.11.3), shall not form part of any contract arising from the invitation to tender.

T.1.3.3 For the purposes of these Conditions, the following definitions apply:

a) comparative offer means the Tenderer’s financial offer after the factors of non-firm prices, all unconditional discounts and any other tendered parameters that will affect the value of the financial offer have been taken into consideration
b) corrupt practice means the offering, giving, receiving or soliciting of anything of value to influence the action of the Employer or his staff or agents in the tender process; and

c) fraudulent practice means the misrepresentation of the facts in order to influence the tender process or the award of a contract arising from a tender offer to the detriment of the Employer, including collusive practices intended to establish prices at artificial levels

d) quality (functionality) means the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs

T.1.4 Communication and Employer's agent

Each communication between the Employer and a tenderer shall be to or from the Employer's agent only, and in a form that can be read, copied and recorded. Writing shall be in the English language. The Employer shall not take any responsibility for non-receipt of communications from or by a tenderer. The name and contact details of the Employer's agent are stated in the tender data.

T.1.5 The Employer's right to accept or reject any tender offer

The Employer may accept or reject any variation, deviation, tender offer, or alternative tender offer, and may cancel the tender process and reject all tender offers at any time before the formation of a contract. The Employer shall not accept or incur any liability to a tenderer for such cancellation and rejection, but will give written reasons for such action upon written request to do so.

T.2 Tenderer's obligations

T.2.1 Eligibility

Submit a tender offer only if the tenderer satisfies the criteria stated in the tender data and the tenderer, or any of his principals, is not under any restriction to do business with Employer.

T.2.2 Cost of tendering

Accept that the Employer will not compensate the tenderer for any costs incurred in the preparation and submission of a tender offer, including the costs of any testing necessary to demonstrate that aspects of the offer satisfy requirements.

T.2.3 Check documents

Check the tender documents on receipt for completeness and notify the Employer of any discrepancy or omission.

T.2.4 Confidentiality and copyright of documents

Treat as confidential all matters arising in connection with the tender. Use and copy the documents issued by the Employer only for the purpose of preparing and submitting a tender offer in response to the invitation.

T.2.5 Reference documents

Obtain, as necessary for submitting a tender offer, copies of the latest versions of standards, specifications, conditions of contract and other publications, which are not attached but which are incorporated into the tender documents by reference.
T.2.6 Acknowledge addenda

Acknowledge receipt of addenda to the tender documents, which the Employer may issue, and if necessary apply for an extension to the closing time stated in the tender data, in order to take the addenda into account.

T.2.7 Compulsory Briefing Session

Attend, where required, a briefing session at which tenderers may familiarize themselves with aspects of the proposed work, services or supply and raise questions. Details of the meeting(s) are stated in the tender data.

T.2.8 Seek clarification

Request clarification of the tender documents, if necessary, by notifying the Employer at least ten working days before the closing time stated in the tender data.

T.2.9 Insurance

Be aware that the extent of insurance to be provided by the Employer (if any) might not be for the full cover required in terms of the conditions of contract identified in the contract data. The tenderer is advised to seek qualified advice regarding insurance.

T.2.10 Pricing the tender offer

T.2.10.1 Include all duties, taxes (except South African Value Added Tax (VAT)), and other levies payable by the successful tenderer in the rates, prices, and the tendered total of the prices. All duties, taxes and levies that are applicable 14 days before the closing time as stated in the tender data, to be included in the prices.

T.2.10.2 Show VAT payable by the Employer separately as an addition to the tendered total of the prices.

T.2.10.3 Provide rates and prices that are fixed for the duration of the contract and not subject to adjustment except as provided for in the conditions of contract identified in the contract data.

T.2.10.4 State the rates and prices in South African Rand (ZAR) unless instructed otherwise in the tender data.

T.2.10.5 The delivery place for the Works is as per Part 3 Scope of works in South Africa

T.2.10.6 The Contractor shall be responsible for all costs for the transportation of the Works from place of manufacture to the Employer’s nominated place of delivery in South Africa, including the clearance of the Works through South African Customs, payment of Customs VAT, local testing and onward delivery to Transnet’s nominated destination, which costs (excluding the payment of Customs VAT) shall be separately identified in its Tax Invoices henceforth. The Inco Term Required is [DAT/DAP/DDP Incoterms 2010 (Port Specific)].

T.2.11 Alterations to documents
Not make any alterations or additions to the tender documents, except to comply with instructions issued by the Employer, or necessary to correct errors made by the tenderer. All signatories to the tender offer shall initial all such alterations. Erasures and the use of masking fluid are prohibited.

T.2.12 Alternative tender offers

T.2.12.1 Submit alternative tender offers only if a main tender offer is also submitted, strictly in accordance with all the requirements of the tender documents. The alternative tender offer is to be submitted with the main tender offer together with a schedule that compares the requirements of the tender documents with the alternative requirements the tenderer proposes.

T.2.12.2 Accept that an alternative tender offer may be based only on the criteria stated in the tender data or criteria otherwise acceptable to the Employer.

T.2.13 Submitting a tender offer

T.2.13.1 Submit a tender offer to provide the whole of the works, services or supply identified in the contract data and described in the scope of works, unless stated otherwise in the tender data.

T.2.13.2 Return all mandatory returnable documents to the Employer after completing them in their entirety in writing in black ink.

T.2.13.3 Submit the parts of the tender offer communicated on paper as an original plus the number of copies stated in the tender data, with an English translation of any documentation in a language other than English, and the parts communicated electronically in the same format as they were issued by the Employer.

T.2.13.4 Seal the original and each copy of the tender offer as separate packages marking the packages as “ORIGINAL” and “COPY”. Each package shall state on the outside the Employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address.

T.2.13.5 Seal the original tender offer and copy packages together in an outer package that states on the outside only the Employer's address and identification details as stated in the tender data.

T.2.13.6 Accept that the Employer will not assume any responsibility for the misplacement or premature opening of the tender offer if the outer package is not sealed and marked as stated.

T.2.14 Information and data to be completed in all respects

Accept that tender offers, which do not provide all the data or information requested completely and in the minimum issued format required, will be regarded by the Employer as non-responsive.

T.2.15 Closing date and time

T.2.15.1 Ensure that the Employer receives the tender offer at the address specified in the tender data not later than the closing time stated in the tender data. The Employer shall not accept tender offers submitted by telegraph, facsimile, e-mail or tenders submitted by post. Only tenders delivered by hand or delivered by courier will be accepted by the Employer.
T.2.15.2 Accept that, if the Employer extends the closing time stated in the tender data for any reason, the requirements of these conditions of tender apply equally to the extended deadline.

T.2.16 Tender offer validity

T.2.16.1 Hold the tender offer(s) valid for acceptance by the Employer at any time during the validity period stated in the tender data after the closing time stated in the tender data.

T.2.16.2 If requested by the Employer, consider extending the validity period stated in the tender data for an agreed additional period.

T.2.17 Clarification of tender offer after submission

Provide clarification of a tender offer in response to a request to do so from the Employer during the evaluation of tender offers. This may include providing a breakdown of rates or prices and correction of arithmetical errors by the adjustment of certain rates or item prices (or both). No change in the competitive position or substance of the tender offer is sought, offered, or permitted during this stage of the tender process. The total of the prices stated by the tenderer shall be binding upon the tenderer.

Note: Sub-clause T.2.17 does not preclude the negotiation of price and the final terms of the contract during the post tender negotiation, should the Employer elect to do so.

T.2.18.2 Dispose of samples of materials provided for evaluation by the Employer, where required.

T.2.19 Inspections, tests and analysis

Provide access during working hours to premises for inspections, tests and analysis as provided for in the tender data.

T.2.20 Submit securities, bonds, policies, etc.

If requested, submit for the Employer's acceptance before formation of the contract, all securities, bonds, guarantees, policies and certificates of insurance required in terms of the conditions of contract identified in the contract data.

T.2.21 Check final draft

Check the final draft of the contract provided by the Employer within the time available for the Employer to issue the contract.

T.2.23 Certificates

Include in the tender submission or provide the Employer with any certificates as stated in the tender data.

T.3 The Employer's undertakings

T.3.1 Respond to clarification

Respond to a request for clarification received up to five working days before the tender closing time stated in the Tender Data and notify all tenderers who drew procurement documents.

T.3.2 Issue Addenda
If necessary, issue addenda that may amend or amplify the tender documents to each during the period from the date that tender documents are available until seven days before the tender closing time stated in the Tender Data. If, as a result a tenderer applies for an extension to the closing time stated in the Tender Data, the Employer may grant such extension and, shall then notify all tenderers who drew documents.

T.3.3 Return late tender offers

Return tender offers received after the closing time stated in the Tender Data, unopened, (unless it is necessary to open a tender submission to obtain a forwarding address), to the tenderer concerned.

T.3.4 Opening of tender submissions

T.3.4.1 Unless the two-envelope system is to be followed, open valid tender submissions in the presence of tenderers' agents who choose to attend at the time and place stated in the tender notice and tender data.

The names of tenderers will be announced at the opening in the presence of tenderers who choose to attend. Tender submissions for which acceptable reasons for withdrawal have been submitted will not be opened.

T.3.5 Non-disclosure

Not disclose to tenderers, or to any other person not officially concerned with such processes, information relating to the evaluation and comparison of tender offers, the final evaluation price and recommendations for the award of a contract, until after the award of the contract to the successful tenderer.

T.3.6 Grounds for rejection and disqualification

Determine whether there has been any effort by a tenderer to influence the processing of tender offers and instantly disqualify that tenderer (and his tender offer) if it is established that he engaged in corrupt or fraudulent practices.

T.3.7 Test for responsiveness

T.3.7.1 The Employer will determine before detailed evaluation, whether each tender offer is properly received, namely:

a) meets the laid-down grounds for eligibility;
b) complies with the requirements of these Conditions of Tender;
c) has been properly and fully completed and signed; and
d) is responsive to all other requirements of the tender documents, including the return of all Mandatory returnable Schedules and documentation, as specified.

T.3.7.2 A responsive tender is one that conforms to all the terms, conditions, and specifications of the tender documents without material deviation or qualification. A material deviation or qualification is one which, in the Employer's opinion, would:

a) detrimentally affect the scope, quality, or performance of the works, services or supply identified in the Scope of Work,
b) change the Employer's or the tenderer's risks and responsibilities under the contract, or
c) affect the competitive position of other tenderers presenting responsive tenders, if it were to be rectified.
T.3.7.3 Reject a non-responsive tender offer, and not allow it to be subsequently made responsive by correction or withdrawal of the non-conforming deviation or reservation.

T.3.8 Arithmetical errors

T.3.8.1 Check responsive tender offers for arithmetical errors, correcting them in the following manner:

   a) Where there is a discrepancy between the amounts in figures and in words, the amount in words shall govern.
   b) If bills of quantities (or schedule of quantities or schedule of rates) apply and there is an error in the line item total resulting from the product of the unit rate and the quantity, the line item total shall govern and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line item total as quoted shall govern, and the unit rate shall be corrected.
   c) Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the tenderer's addition of prices, the total of the prices shall govern and the tenderer will be asked to revise selected item prices (and their rates if bills of quantities apply) to achieve the tendered total of the prices.

T.3.9 Clarification of a tender offer

Obtain clarification from a tenderer on any matter that could give rise to ambiguity in a contract arising from the tender offer.

T.3.10 Evaluation of Tender Offers

In order to achieve the South African Government’s industrialization, capacity and capability building goals a three step evaluation strategy will be used in the evaluation proposal as it qualifies for the strategic Supplier Development (SD) requirement.

T.3.11 Principles for Awarding Business

As is elsewhere also provided in the Tender, Tenderers are advised and should note that any final award of business is entirely conditional upon and subject to the successful conclusion of a written contract between the preferred Tenderer(s) and the Employer, which contract will include such terms and conditions as the Employer’s management and Acquisitions Council may require or prescribe.

T.3.12 Insurance provided by the Employer

If requested by the proposed successful tenderer, submit for the tenderer’s information the policies and / or certificates of insurance which the conditions of contract identified in the contract data, require the Employer to provide.

T.3.13 Acceptance of tender offer

T.3.13.1 Accept tender offer only if the tenderer complies with the legal requirements stated in the Tender data

T.3.13.2 Notify the successful tenderer of the Employer’s acceptance of his tender offer by completing and returning one copy of the form of offer and acceptance before the expiry of the validity period stated in the tender data, or agreed additional period. Providing the form of offer and
acceptance does not contain any qualifying statements, it will constitute the formation of a contract between the Employer and the successful tenderer as described in the form of offer and acceptance.

T.3.13.3 The Employer reserves the right to conduct post-tender negotiations.

T.3.14 Notice to unsuccessful Tenderers

After the successful tenderer has acknowledged the Employer’s notice of acceptance, notify other tenderers that their tender offers have not been accepted.

T.3.15 Prepare contract documents

If necessary, revise documents that shall form part of the contract and that were issued by the Employer as part of the tender documents to take account of:

addenda issued during the tender period,

inclusion of some of the mandatory returnable documents,

other revisions agreed between the Employer and the successful tenderer, and

the schedule of deviations attached to the form of offer and acceptance, if any.

T.3.16 Issue final contract

Prepare and issue the final draft of contract documents to the successful tenderer for acceptance as soon as possible after the date of the Employer’s signing of the form of offer and acceptance (including the schedule of deviations, if any). Only those documents that the conditions of tender require the tenderer to submit, after acceptance by the Employer, shall be included.

T.3.17 Complete adjudicator's contract

Unless alternative arrangements have been agreed or otherwise provided for in the contract, arrange for both parties to complete formalities for appointing the selected adjudicator at the same time as the main contract is signed.

T.3.18 Provide copies of the contracts

Provide to the successful tenderer the number of copies stated in the Tender Data of the signed copy of the contract as soon as possible after completion and signing of the form of offer and acceptance.

T.3.19 Disclaimers

a) The Employer reserves the right to request audited financial statements for the purposes of the due diligence exercise.

b) The Employer reserves the right to accept the whole or any part of a tender

c) Changes or purported changes by the Tenderer to the Tender prices will not be permitted after the closing date.

d) The person(s) signing the Tender must be legally authorised by the Tenderer to do so by way of an appropriate written resolution, as also the person(s) authorised to negotiate on the Tenderer’s behalf.

e) The Employer reserves the right to verify any information supplied by a Tenderer. By submitting a Tender, the Tenderers hereby irrevocably grant the necessary consent to the Employer to do so.
f) The Employer reserves the right to undertake post-tender negotiations with those persons appearing on the list of preferred Tenderers, once such list is approved by the Divisional Acquisitions Council.

g) Unless otherwise expressly stated, each Tender lodged in response to the invitation to Tender shall be deemed to be an offer by the Tenderer. The Employer has the right in its sole and unfettered discretion not to accept any offer without assigning any reason therefor.

h) The Employer will not reimburse any Tenderer for any preparatory costs, travelling and/or accommodation costs, or for other work performed in connection with the Tender, whether the Tenderer is awarded any business arising out of the Tender, or not.

i) The successful tenderer will be subject to the conclusion of a final NEC 3 Engineering and Construction Contract.

j) Tenderers must note that the Employer is not committed to any irrevocable course of action as a result of it issuing the Tender and/or its receipt of any Tender documents. Without limitation to the Employer's rights elsewhere contained herein, and in addition thereto, the Employer may accordingly in its sole and unfettered discretion:

k) change all services stipulated for in the Tender and re-issue the Tender in an amended form;

l) reject any Tender which does not conform strictly with the stipulations and requirements which are set out in these documents;

m) disqualify late Tenders received after the stated submission deadline;

n) not necessarily accept the lowest priced Tender;

o) award a contract in connection with this Tender at any time to any person(s) or company;

p) make no award of business; and

q) withdraw the Tender on good cause at any stage of the Tender process upon written notification to the Tenderers.

T.3.20 Compliance

a. Tenderers must be fully compliant with any and all the statutory and common law that is applicable to the tender.

b. Tenderers shall comply with all applicable South African laws, including without limitation, the following:


d. International Health Regulation Act 28 of 1974;

e. National Environmental Management ACT No. 107 of 1998;


g. Environment Conservation Act No. 73 of 1989;

h. Hazardous Substances Act 15 1973;

i. The Compensation for Occupational Injuries and Disease Act, 1993 (Act No.130 of 1993);

j. All material aspects of all applicable legislation, provincial ordinances and local authority by-laws, including all relevant regulations promulgated in terms thereof, which affects the Maritime business;

k. The Basic Conditions of Employment Act No. 75 of 1997;

l. Criminal Procedure Act No. 51 of 1977;

m. National Ports Act No. 12 of 2005 (“NPA”) and enabling legislation thereto, including the Port Rules; Harbour Master's Written Instructions and Regulations promulgated in terms of the NPA.

n. Control of Access to Public Premises and Vehicle Act, No. 53 of 1985;

o. Legal Succession to the South African Transport Services Act No. 9 of 1989 (but excluding any tariff provided for in such regulations);

p. Customs and Excise Act No 91 of 1964;

q. The National Railway Safety Regulator Act No 16 of 2002;

r. The Labour Relations Act No. 66 of 1995 and the Regulations thereto, and

FAILURE TO OBSERVE ANY OF THE AFOREMENTIONED REQUIREMENTS MAY RESULT IN A QUOTATION BEING REJECTED
**T2.1 List of Returnable Documents**

1. **Returnable Schedules**

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>T2.2-1</td>
<td>Authority to submit tender</td>
<td>Mandatory</td>
</tr>
<tr>
<td>T2.2-2</td>
<td>Mandatory Enterprise Questionnaire</td>
<td>Mandatory</td>
</tr>
<tr>
<td>T2.2-3</td>
<td>Certificate of attendance at tender clarification meeting</td>
<td>Mandatory</td>
</tr>
<tr>
<td>T2.2-4</td>
<td>RFQ – Breach of Law</td>
<td>Mandatory</td>
</tr>
<tr>
<td>T2.2-5</td>
<td>RFQ Declaration Form</td>
<td>Mandatory</td>
</tr>
<tr>
<td>T2.2-6</td>
<td>Supplier Integrity Pact</td>
<td>Mandatory</td>
</tr>
<tr>
<td>T2.2-7</td>
<td>Broad-Based Black Economic Empowerment (BBBEE)</td>
<td>Essential</td>
</tr>
<tr>
<td>T2.2-8</td>
<td>Tax Clearance Certificate</td>
<td>Essential</td>
</tr>
<tr>
<td>T2.2-9</td>
<td>Supplier Code of Conduct</td>
<td>Essential</td>
</tr>
<tr>
<td>T2.2-10</td>
<td>Supplier Declaration Form</td>
<td>Essential</td>
</tr>
<tr>
<td>T2.2-11</td>
<td>Mutual Non-Disclosure Agreement</td>
<td>Essential</td>
</tr>
<tr>
<td>T2.2-12</td>
<td>RFQ Clarification Request Form</td>
<td>Essential</td>
</tr>
<tr>
<td>T2.2-13</td>
<td>Record of addenda to tender documents</td>
<td>Essential</td>
</tr>
<tr>
<td>T2.2-14</td>
<td>Changes to tender documents</td>
<td>Essential</td>
</tr>
<tr>
<td>T2.2-15</td>
<td>Schedule of Proposed Subcontractors</td>
<td>Essential</td>
</tr>
<tr>
<td>T2.2-16</td>
<td>Form of Intent to Provide Bonds</td>
<td>Essential</td>
</tr>
</tbody>
</table>

2. **Technical Returnable Schedules**

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>T2.2-17</td>
<td>Tender Pre-Qualification Criteria</td>
<td>Mandatory</td>
</tr>
<tr>
<td>T2.2-18</td>
<td>Declaration of Understanding</td>
<td>Mandatory</td>
</tr>
<tr>
<td>T2.2-19</td>
<td>Previous Experience</td>
<td>Mandatory</td>
</tr>
<tr>
<td>T2.2-20</td>
<td>Competency: Working at Heights</td>
<td>Mandatory</td>
</tr>
<tr>
<td>T2.2-21</td>
<td>Competency: Working with Asbestos</td>
<td>Mandatory</td>
</tr>
<tr>
<td>T2.2-22</td>
<td>Competency: Construction Industry Development Board</td>
<td>Mandatory</td>
</tr>
<tr>
<td>T2.2-23</td>
<td>Physical Address</td>
<td>Mandatory</td>
</tr>
</tbody>
</table>

3. **C1.1 Offer portion of Form of Offer & Acceptance**

4. **C1.2 Contract Data Part 2: Data by Contractor/Supplier**

5. **C2.2 Activity Schedule/Bill of Quantities/Price List**

---

**ALL RETURNABLES MUST BE FULLY COMPLETED, FAILURE TO DO SO WILL NEGATIVELY AFFECT YOUR TENDER AND MAY RESULT IN DISQUALIFICATION**
TRANSNET PORT TERMINALS
TENDER NUMBER: TPT CT 34/20

DESCRIPTION OF THE SERVICE: Facilities Maintenance and Repairs on an as-and-when required basis for a period of one year for Transnet Port Terminals in the Port of Cape Town

T2.2-17 Tender Pre-Qualifying Criteria
## TRANSNET PORT TERMINALS
### TENDER NUMBER: TPT CT 34/20

**DESCRIPTION OF THE SERVICE:** Facilities Maintenance and Repairs on an as-and-when required basis for a period of one year for Transnet Port Terminals in the Port of Cape Town

### From: TRN-IMS-GRP-GDL-014.3

<table>
<thead>
<tr>
<th>1.</th>
<th>POLICY, ORGANISATION AND MANAGEMENT INVOLVEMENT</th>
<th>YES</th>
<th>NO</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Does your company have a SHEQ Policy?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2</td>
<td>Has a copy signed by the Chief Executive Officer / Managing Director been supplied?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Provide company organogram.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.3</td>
<td>Company Certified? i.e. ISO 14001, ISO 9001, OHSAS 18001 etc.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>If yes, provide proof of periodical work area inspections and Regular Health and Safety meetings with personnel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.4</td>
<td>Does the company have OHSAct 16.2 Appointee?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.5</td>
<td>Is your company registered with the Compensation Commissioner (C OID Act) or licenses compensation insurer? If so, please provide registration number.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.6</td>
<td>Do you have a copy of good standing certificate, confirming that your registration is paid up? If so, please provide copy thereof</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.7</td>
<td>Does the company comply with the relevant legal appointees for this project i.e. Representatives, Environmental Control Officer, First Aiders, Risk Assessors, etc.?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2.</th>
<th>ACCREDITATION</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Does the company have the auditable Management Systems in place?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>If so, please provide proof of certificate issued by a credible external Assurance Auditor.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3.</th>
<th>TRAINING</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>Has the training based on risks/hazards that has been identified been done?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2</td>
<td>Is training provided to employees at the following stages?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• When joining the company</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• When changing jobs within the company</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• When new plant or equipment needs to be operated</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• As a result of experience of and feedback from an accident/incident reports</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**DESCRIPTION OF THE SERVICE:** Facilities Maintenance and Repairs on an as-and-when required basis for a period of one year for Transnet Port Terminals in the Port of Cape Town

<table>
<thead>
<tr>
<th></th>
<th>Provide proof of specialist training provided such as training analysis, Certificates, Job Specific Training or Induction Training program?</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.4</td>
<td>What legal or compliance training is provided specifically to</td>
</tr>
<tr>
<td></td>
<td>• First line supervisors?</td>
</tr>
<tr>
<td></td>
<td>• Middle and top management?</td>
</tr>
<tr>
<td>3.5</td>
<td>Are all employees (including sub-contractors) instructed as to the application of rules and regulations within your organization?</td>
</tr>
<tr>
<td>3.6</td>
<td>Does this training include the selection, use and care of personal protective equipment?</td>
</tr>
<tr>
<td>3.7</td>
<td>What refresher training is provided and at what intervals?</td>
</tr>
<tr>
<td></td>
<td>Please list examples</td>
</tr>
</tbody>
</table>
DESCRIPTION OF THE SERVICE: Facilities Maintenance and Repairs on an as-and-when required basis for a period of one year for Transnet Port Terminals in the Port of Cape Town

<table>
<thead>
<tr>
<th>4.</th>
<th>PURCHASE OF GOODS, MATERIALS AND SERVICES</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1</td>
<td>Do you have a system which ensures that all statutory inspections of plant and equipment are carried out?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Give examples of plant/equipment covered:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.2</td>
<td>Is there a record of inspections conducted above?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.3</td>
<td>Do you carry out plant and equipment inspections prior to work commencing to ensure the hazards are identified?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Please provide copies of these inspection reports.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.4</td>
<td>Do you evaluate the competence of all sub-contractors?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Please describe how this is achieved and how the results are monitored.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5.</th>
<th>INSPECTIONS</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>Are periodic work inspections carried out by first line supervisors?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.2</td>
<td>Are unsafe acts and conditions reported and remedial actions formally monitored?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6.</th>
<th>RULES AND REGULATIONS</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1</td>
<td>Do organisational rules and regulations exist for personnel and subcontractors?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Do these cover</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• General rules</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Project rules</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Specific task rules</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.2</td>
<td>Do these rules include a permit to work system (as applicable)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.3</td>
<td>Do you have experience of contractor execution plans?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Give examples of where these have been used</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.4</td>
<td>Do you have a formal company guideline for holding pre-contract progress meetings with the client?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7.</th>
<th>RISK MANAGEMENT</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.1</td>
<td>Have you performed assessment of the risks involved in the execution of contract work?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.2</td>
<td>Do you have safe work procedure for all high risk/hazards identified?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.3</td>
<td>Are employees trained on Safe Work Procedures?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.4</td>
<td>Do you have a copy of the PPE needs analysis done and issue records kept?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| 8. | BUSINESS CONTINUITY AND EMERGENCY ARRANGEMENTS | YES | NO |
DESCRIPTION OF THE SERVICE: Facilities Maintenance and Repairs on an as-and-when required basis for a period of one year for Transnet Port Terminals in the Port of Cape Town

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>8.1</strong></td>
<td>Do you have an emergency plan AND business continuity plan in place?</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>8.2</strong></td>
<td>Are provision made for Trained First Aiders?</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>8.3</strong></td>
<td>Are employees trained on the emergency plan/procedure and business continuity plan?</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>9. FALL PROTECTION</strong></td>
<td>YES NO</td>
</tr>
<tr>
<td><strong>9.1</strong></td>
<td>Are you able to demonstrate that work at heights undertaken under competent supervision, carried out by employees who are trained and medically fit?</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>9.2</strong></td>
<td>Does your fall protection plan include rescue plan, risk assessment, inspection, testing and maintenance of fall protection equipment?</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>10. PROJECT SECURITY</strong></td>
<td>YES NO</td>
</tr>
</tbody>
</table>

TENDER Part T2: Returnable Schedules T2.2-17: Tender Pre-Qualifying Criteria
**DESCRIPTION OF THE SERVICE:** Facilities Maintenance and Repairs on an as-and-when required basis for a period of one year for Transnet Port Terminals in the Port of Cape Town

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10.1</td>
<td>Has the security assessment for the site been done?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.2</td>
<td>Are measures put in place to ensure security of the project personnel and equipment?</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>11. RECRUITMENT OF PERSONNEL</strong></td>
<td><strong>YES</strong></td>
<td><strong>NO</strong></td>
<td></td>
</tr>
<tr>
<td>11.2</td>
<td>Are medical examinations carried prior to employment, in all cases?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.3</td>
<td>Are exit medicals conducted on staff once they have resigned? e.g. via trade testing, reference checks, etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.4</td>
<td>How do you assess the competence of staff before an appointment is made?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.5</td>
<td>Is the substance abuse policy and testing procedure in place?</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>12. REPORTING AND INVESTIGATION OF ACCIDENTS, INCIDENTS AND DANGEROUS CONDITIONS</strong></td>
<td><strong>YES</strong></td>
<td><strong>NO</strong></td>
<td></td>
</tr>
<tr>
<td>12.1</td>
<td>Do you have a procedure for reporting, investigating and recording accidents and incidents?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Supply copy of this procedure and incident register including first aid and medical cases.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.2</td>
<td>Is there a standard report/investigation form used? If yes, supply copy.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.3</td>
<td>Do you have a formal system for reporting situations/near misses etc.? If yes, provide copy.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>YEAR-1</th>
<th>YEAR-2</th>
<th>YEAR-3</th>
<th>YEAR-4</th>
<th>YEAR-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lost time accidents per 100 employees</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major/Reportable injuries per 100 employees</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of dangerous occurrences</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lost man days due to accidents</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>13. COMMUNICATION AND CONSULTATION</strong></td>
<td><strong>YES</strong></td>
<td><strong>NO</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.1</td>
<td>Are progress and other legal meetings held?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.2</td>
<td>Are minutes of the meetings recorded and results of these meetings communicated to all employees? If yes, please describe method</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
DESCRIPTION OF THE SERVICE: Facilities Maintenance and Repairs on an as-and-when required basis for a period of one year for Transnet Port Terminals in the Port of Cape Town

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>13.3</td>
<td>Are daily talks meetings conducted to discuss hazards on site, incident recall, performance?</td>
</tr>
<tr>
<td>14.</td>
<td>COSTS</td>
</tr>
<tr>
<td>14.1</td>
<td>Has the Contractor made provision for the cost for IMS requirements for the project? Refer to Pricing Schedule</td>
</tr>
</tbody>
</table>
DESCRIPTION OF THE SERVICE: Facilities Maintenance and Repairs on an as-and-when required basis for a period of one year for Transnet Port Terminals in the Port of Cape Town

The following scoring principal will be used:

<table>
<thead>
<tr>
<th>SCORING PRINCIPAL</th>
<th>WEIGHING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Submitted and complies with requirements.</td>
<td>10 Points</td>
</tr>
<tr>
<td>Not submitted.</td>
<td>0 Points</td>
</tr>
</tbody>
</table>

(Name)  
(Designation)  

(Representing)

Declare that I have read and understood the contents of the Scope of Services (Part C3: Service Information), the referenced documents and I have enclosed a formal response as above.

I also declare that I understand my responsibilities in terms of enforcing and implementing the full scope of services for the aforementioned Contract.

<table>
<thead>
<tr>
<th>Signed</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Place</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Witness 1:</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Witness 2:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<tr>
<td></td>
</tr>
</tbody>
</table>
TENDER NUMBER: TPT CT 34/20

DESCRIPTION OF THE SERVICE: Facilities Maintenance and Repairs on an as-and-when required basis for a period of one year for Transnet Port Terminals in the Port of Cape Town

T2.2-18 Declaration of Understanding

Note to tenderers:

The Contractor must provide a formal response to the Scope of Work document, stating in writing that the work is understood, their bid meets the full requirements (with any exclusions to be listed which may lead to the bid’s disqualification). This letter must include a full company profile on a company letterhead. The quality of this submission will be assessed by the CFET and may disqualify companies or tenderers who do not evidently possess a technical understanding of the work requirement.

The following scoring principal will be used:

<table>
<thead>
<tr>
<th>SCORING PRINCIPAL</th>
<th>WEIGHING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal, signed response on company letterhead provided with a detailed company</td>
<td>10 Points</td>
</tr>
<tr>
<td>profile and evidence that the Contractor has an understanding of the work</td>
<td></td>
</tr>
<tr>
<td>requirement.</td>
<td></td>
</tr>
<tr>
<td>Signed response not on company letterhead provided with a short company profile</td>
<td>5 Points</td>
</tr>
<tr>
<td>and evidence that the Contractor has an understanding of the work requirement.</td>
<td></td>
</tr>
<tr>
<td>Response and company profile submitted, but Scope compliance not explicitly</td>
<td>2 Points</td>
</tr>
<tr>
<td>mentioned.</td>
<td></td>
</tr>
<tr>
<td>Any evidence that the Contractor does not understand the work or has not reviewed</td>
<td>0 Points</td>
</tr>
<tr>
<td>the Scope of Work.</td>
<td></td>
</tr>
<tr>
<td>Not submitted.</td>
<td>0 Points</td>
</tr>
</tbody>
</table>

__________________________________________________________________________________

(Name) (Designation)

(Representing)

Declare that I have read and understood the contents of the Scope of Services (Part C3: Service Information), the referenced documents and I have enclosed a formal response as above.

I also declare that I understand my responsibilities in terms of enforcing and implementing the full scope of services for the aforementioned Contract.

Signed  Signature  Date
TRANSNET PORT TERMINALS
TENDER NUMBER: TPT CT 34/20

DESCRIPTION OF THE SERVICE: Facilities Maintenance and Repairs on an as-and-when required basis for a period of one year for Transnet Port Terminals in the Port of Cape Town

<table>
<thead>
<tr>
<th>Place</th>
</tr>
</thead>
</table>

TENDER Part T2: Returnable Schedules

2 of 2

Part T2: Returnable Schedules
T2.2-18 Declaration of Understanding
T2.2-19 Previous Experience

Note to tenderers:

*The Contractor* shall be in the business of providing building maintenance and repair services for the past five years continuously, of which supporting documents and three (3) traceable references are to be provided.

---

Index of documentation attached to this schedule:

The following scoring principle will be used:

<table>
<thead>
<tr>
<th>SCORING PRINCIPAL</th>
<th>WEIGHING</th>
</tr>
</thead>
<tbody>
<tr>
<td>At least five years continuous experience with three traceable reference provided.</td>
<td>25 Points</td>
</tr>
<tr>
<td>At least five years continuous relevant experience with two traceable reference</td>
<td>15 Points</td>
</tr>
<tr>
<td>provided.</td>
<td></td>
</tr>
<tr>
<td>Less than five years continuous relevant experience with two traceable references</td>
<td>5 Points</td>
</tr>
<tr>
<td>provided.</td>
<td></td>
</tr>
<tr>
<td>Not submitted / no references provided.</td>
<td>0 Points</td>
</tr>
</tbody>
</table>

Signed

Date

Name

Position

Tenderer
T2.2-20 Competency: Working at Heights

Note to tenderers:

The Contractor must prove possession of IRATA (Independent Rope Access Trade Association) Training Certificates and/or a SETA (Sector Education and Training Authority) accredited Training Certificate for employees working at heights (certified copies to be attached).

<table>
<thead>
<tr>
<th>SCORING PRINCIPAL</th>
<th>WEIGHTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three or more valid Certified copies of Training Certificates attached.</td>
<td>15 Points</td>
</tr>
<tr>
<td>Three or more expired Certified copies of Training Certificates attached with signed undertaking to renew and supply proof of updating them before work commences.</td>
<td>15 Points</td>
</tr>
<tr>
<td>1 - 2 valid Certified copies of Training Certificates attached.</td>
<td>10 Points</td>
</tr>
<tr>
<td>1 - 2 expired Certified copies of Training Certificates attached with signed undertaking to renew and supply proof of updating them before work commences.</td>
<td>10 Points</td>
</tr>
<tr>
<td>Copies are not certified.</td>
<td>0 Points</td>
</tr>
<tr>
<td>Not submitted.</td>
<td>Disqualified</td>
</tr>
</tbody>
</table>

Signed

______________________________
Date

Name

______________________________
Position

Tenderer

________________________________________________________________________
TRANSNET PORT TERMINALS
TENDER NUMBER: TPT CT 34/20
DESCRIPTION OF THE SERVICE: Facilities Maintenance and Repairs on an as-and-when required basis for a period of one year for Transnet Port Terminals in the Port of Cape Town
Tender Number: TPT CT 34/20

Description of the Service: Facilities Maintenance and Repairs on an as-and-when required basis for a period of one year for Transnet Port Terminals in the Port of Cape Town

T2.2-21 Competency: Working with Asbestos

Note to tenderers:

*The Contractor* must be a Registered Asbestos Contractor (RAC) with the Department of Labour and provide a certified copy of their proof of registration.

---

Index of documentation attached to this schedule:

---

The following scoring principle will be used:

<table>
<thead>
<tr>
<th>SCORING PRINCIPAL</th>
<th>WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certified proof of registration included.</td>
<td>10 Points</td>
</tr>
<tr>
<td>Not certified.</td>
<td>5 Points</td>
</tr>
<tr>
<td>Not submitted.</td>
<td>0 Points</td>
</tr>
</tbody>
</table>

Signed ........................................... Date ...........................................

Name ........................................... Position ...........................................

Tenderer ...........................................
T2.2-22 Competency: CIDB Grading

Note to tenderers:

The Contractor must at least have the CIDB Contractor Grading Designations for the following classes of which proof must be submitted:

- General Building Works (GB) (level 4 or higher)
- Civil Engineering Works (CE) (level 3 or higher)
- Specialist works SE (level 2 or higher) and SN (level 2 or higher)

Index of documentation attached to this schedule:

The following scoring principle will be used:

<table>
<thead>
<tr>
<th>SCORING PRINCIPAL</th>
<th>WEIGHTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Submitted and complies with requirements.</td>
<td>20 Points</td>
</tr>
<tr>
<td>Submitted, but not compliant with all requirements.</td>
<td>0 Points</td>
</tr>
<tr>
<td>Not submitted.</td>
<td>0 Points</td>
</tr>
</tbody>
</table>

Signed

Date

Name

Position

Tenderer
TENDER PART T2: RETURNABLE SCHEDULES

T2.2-23 Physical Address

Note to tenderers:

The Contractor must provide confirmation on a company letterhead that the physical address of their business/depot is located within a 50km radius of the Port of Cape Town.

Index of documentation attached to this schedule:

| Page 1 | Page 2 | Page 3 | Page 4 | Page 5 |

The following scoring principle will be used:

<table>
<thead>
<tr>
<th>SCORING PRINCIPAL</th>
<th>WEIGHTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Submitted confirmation on company letterhead.</td>
<td>10 Points</td>
</tr>
<tr>
<td>Submitted, but not on company letterhead.</td>
<td>5 Points</td>
</tr>
<tr>
<td>Not compliant / nothing submitted.</td>
<td>Disqualified</td>
</tr>
</tbody>
</table>

Signed: ___________________________ Date: ___________________________

Name: ___________________________ Position: ___________________________

Tenderer: ___________________________________________________________
PART C2: PRICING INFORMATION

C2.1 Pricing assumptions

All prices are to be shown excluding VAT unless instructed otherwise by the Employer in Tender Data or in an instruction the Employer has given before the Contractor enter his/her Prices.

2.1.1. The Contractor completes all empty cells where the Employer has not made entries.

2.1.2. If the Contractor is to be paid an amount for the item which is not adjusted if the quantity of work in the item changes, the Contractor enters the amount in the Price column only; the Unit, Quantity and Rate columns being left blank.

2.1.3. If the Contractor is to be paid an amount for the item of work which is the rate for the work multiplied by the quantity completed, the Contractor enters the rate which is then multiplied by the expected quantity to produce the Price, which is also entered.

2.1.4. All Prices are to be shown excluding VAT unless instructed otherwise by the Employer in Tender Data or in an instruction the Employer has given before the Contractor enters his Prices.

2.1.5. If there is insufficient space in the Price List which follows, state in which document the Price List is contained.

2.1.6. The Contractor is deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the works and of the rates and prices stated in the priced Price List in the Service Information. The rates and prices (except in so far as otherwise provided in the Tender) collectively cover full payment for the discharge of all his obligations under the Contract and all matters and things necessary for the proper completion of the works.

2.1.7. Any additional costs foreseen by the Contractor for items not included in the Price List shall be included in the List to be submitted, under the item 15 of part 1. These items must be specified.

2.1.8. It will be assumed that prices included in the Price List are based on Acts, Ordinances, Regulations, Bylaws, International Standards and National Standards that were published 28 days before the closing date for tenders.

2.1.9. Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted but will be subject to approval by the Employer.

2.1.10. The prices and rates in this Price List are fully inclusive prices for the work described under the items. Such prices and rates cover all costs and expenses that may be required in and for the execution of the work described in accordance with the provisions of the scope of work and shall cover liabilities and obligations set forth or implied in the Contract data, as well as profit.
DESCRIPTION OF THE SERVICE: Facilities Maintenance and Repairs on an as-and-when required basis for a period of one year for Transnet Port Terminals in the Port of Cape Town.

2.1.11. Where no quantity has been provided against an item in the Price List, the Contractor shall use their discretion and provide the quantity.

2.1.12. The short descriptions of the items of payment given in this Price List are only for purposes of identifying the items. More details regarding the extent of the work entailed under each item appear in the Service information.

C2.2 The Price List

Part 1: Integrated Management System Cost Components

The rates and prices entered for each item includes all work and other things necessary to complete the item.

Table 1: Transnet Integrated Management System requirements

<table>
<thead>
<tr>
<th>#</th>
<th>Cost element</th>
<th>Unit Cost (R)</th>
<th># of Units</th>
<th>Total Cost (R)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Human Resources</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Systems Documentation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Meetings &amp; Administration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Training</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>PPE &amp; Safety Equipment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Signage &amp; Barricading</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Workplace Facilities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Emergency &amp; Rescue Measures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Hygiene Surveys &amp; Monitoring</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Medical Surveillance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Safe Transport of Workers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>HAZMat Management (e.g. asbestos /silica)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>Substance Abuse Testing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>Rewards &amp; Recognition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>Other</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total IMS Cost (R)

Total Tender Value (R)
DESCRIPTION OF THE SERVICE: Facilities Maintenance and Repairs on an as-and-when required basis for a period of one year for Transnet Port Terminals in the Port of Cape Town

<table>
<thead>
<tr>
<th>IMS Cost as % of Tender value</th>
<th>%</th>
</tr>
</thead>
</table>
TRANSNET PORT TERMINALS  
TENDER NUMBER: TPT CT 34/20

DESCRIPTION OF THE SERVICE: Facilities Maintenance and Repairs on an as-and-when required basis for a period of one year for Transnet Port Terminals in the Port of Cape Town

Part 2: Labour rates
The rates and Prices entered for each item includes for all work and other things necessary to complete the item.

Schedule: Fixed Cost – Labour

Table 2: Labour rates and mark-up

<table>
<thead>
<tr>
<th>#</th>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
<th>Unit Price</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Normal hours 07:00 – 17:00</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Site Agent / Supervisor</td>
<td></td>
<td>/hr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Artisan (qualified/skilled) (e.g. welder)</td>
<td></td>
<td>/hr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Semi-Skilled (e.g. general labourer)</td>
<td></td>
<td>/hr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Travelling costs</td>
<td></td>
<td></td>
<td>INCLUDED</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>After hours (overtime)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Site Agent / Supervisor</td>
<td></td>
<td>/hr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Artisan (qualified/skilled) (e.g. welder)</td>
<td></td>
<td>/hr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Semi-Skilled (e.g. general labourer)</td>
<td></td>
<td>/hr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Travelling costs</td>
<td></td>
<td></td>
<td>INCLUDED</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Sundays and public holidays</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Site Agent / Supervisor</td>
<td></td>
<td>/hr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Artisan (qualified/skilled) (e.g. welder)</td>
<td></td>
<td>/hr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Semi-Skilled (e.g. general labourer)</td>
<td></td>
<td>/hr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Travelling costs</td>
<td></td>
<td></td>
<td>INCLUDED</td>
<td></td>
</tr>
</tbody>
</table>
TRANSNET PORT TERMINALS
TENDER NUMBER: TPT CT 34/20

DESCRIPTION OF THE SERVICE: Facilities Maintenance and Repairs on an as-and-when required basis for a period of one year for Transnet Port Terminals in the Port of Cape Town

Part 3: Cost mark-up for material, Plant and Equipment not owned by Contractor
The rates and prices entered for each item includes for all work and other things necessary to complete the item.

Schedule: Cost mark-up for materials and equipment

<table>
<thead>
<tr>
<th>Cost mark-up for material and equipment</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>13. Material, Plant and Equipment (not owned by Contractor)</td>
<td>%</td>
</tr>
</tbody>
</table>

Part 4: Schedule of the Contractor’s Equipment
The Contractor must provide a schedule of equipment to be used for contract purposes that is owned by the Contractor

<table>
<thead>
<tr>
<th>#</th>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
<th>Unit Price</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.</td>
<td>e.g. cherrypicker</td>
<td></td>
<td>/hr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>e.g. jib-crane</td>
<td></td>
<td>/hr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>e.g. cement mixer</td>
<td></td>
<td>/hr</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Description of the Service: Facilities Maintenance and Repairs on an as-and-when required basis for a period of one year for Transnet Port Terminals in the Port of Cape Town

Part 5: Others

Any outsourced services (sub-contracted work) utilised in place of existing resources which would normally form part of routine maintenance on the contract will not be subject to a mark-up and will be part of the routine maintenance cost of the Contractor.

Travelling costs and call-out fees are not reimbursable and are deemed to be included in overall costs.

Development of health and safety plans, quality management plans and execution plans are not reimbursable and are deemed to be included in overall costs.

Signed at on this day of 2020

(Bidder) ________________________________

As witnesses:

1. ____________________________________ 2. ____________________________________
**PART C3: **EMPLOYER’S SERVICE INFORMATION

<table>
<thead>
<tr>
<th>Document reference</th>
<th>Title</th>
<th>No of page</th>
</tr>
</thead>
<tbody>
<tr>
<td>This cover page</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>C3.1</td>
<td>Employer's Works Information</td>
<td>4 – 27</td>
</tr>
</tbody>
</table>

Total number of pages 27
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TRANSNET PORT TERMINALS
TENDER NUMBER: TPT CT 34/20

DESCRIPTION OF THE SERVICE: Facilities Maintenance and Repairs on an as-and-when required basis for a period of one year for Transnet Port Terminals in the Port of Cape Town

6.1 Drawings issued by the Employer

NeC3 TERM SERVICES CONTRACT  Page 3 of 28  Part C3: Service Information
1 Description of the service

1.1 Executive overview

Transnet Port Terminals (hereinafter the Employer) is responsible for the commercial handling services of sea-route freight across imports, exports and transhipments in South Africa. In the Port of Cape Town, TPT manages the Cape Town Container Terminal (CTCT) and the Cape Town Multi-Purpose Terminal (CTMPT), which play a pivotal role in the regional economy. The terminals are used for the movement of bulk, break-bulk and containerised cargo to and from markets in Asia, Europe, the Americas, Australia and West and East Africa.

The Cape Town Terminals are served by facilities that include office buildings, mess rooms, ablution facilities, locker rooms, temporary structures, cargo sheds, workshops, substations, parking garages and canopies. The maintenance for these facilities is completed by the Employer's in-house facilities team with occasional assistance from service providers as required.

The objective of this contract to source and consolidate these services through a single service provider capable of servicing the Employer's requirements. This scope is deemed to cover all civil and electrical components of TPT facilities infrastructure to be utilized when and where the in-house team does not have the capacity.

The service that the Contractor is to perform involve general civil and electrical maintenance and repairs of TPT facilities in the Port of Cape Town to ensure “Fitness for Purpose”.

The scope of this document does not include work that is deemed to be in line with TPT Capital Projects or Minor Works.

1.2 Employer's objectives

The selected service provider will share in the mission and business objectives of TPT. The Employer’s objective is to apply general maintenance to Transnet buildings and facilities in the Cape Town Container and Multi-Purpose Terminals.

These mutual goals will be achieved by meeting contractual requirements and new challenges in an environment of teamwork, joint participation, flexibility, innovation and open communications.

Specifically, TPT seeks to benefit from the partnership in the following ways:

- Reduce cost of acquisition and improved service benefits resulting from the Contractor’s economics of scales and streamlined service processes;
- Achieve appropriate facility availability that meets user needs while reducing costs;
- Receive proactive improvements from the Service Provider's personnel for service enquiries, recommendations and substitutions;
- Reduce costs by streamlining its acquisition of Services, including managed service processes on a consolidated basis.

The facilities are located operational environments requiring all Works to be planned and executed in a manner which results in minimal operational disruption and this requirement is considered to be a primary concern of the Employer.
The Contractor will provide a comprehensive building maintenance and repair service that includes all planned and emergency maintenance within the scope of the facilities department on buildings, structures, warehouses, office and temporary structures in the Cape Town Container and Multi-Purpose Terminals on an as-and-when required and emergency basis.

The Contractor will be required to work closely with all departments and agents of the Employer. The Contractor will be responsible to ensure that their work results in infrastructure being “fit for purpose”.

The Services pertinent to the contract are the following:

General

- Contract administration, management, site supervision, material acquisition and progress reporting;
- Provision of repair techniques and method statements that will be used (as and when required);
- Site establishment, demarcation and installation of temporary safety signage and erection of temporary supports;

1.2.1 Civil work

- Non-structural maintenance, repairs and demolition of non-structural elements, including steel, concrete, masonry and wall plaster;
- Earthworks including excavation, infill and compaction up to a 500mm depth;
- Maintenance and repairs of paving (walkways, sidewalks);

1.2.2 Plumbing

- Planned and emergency maintenance and repair work on water and wastewater reticulation systems from and including facility up to municipal/port authority connection point;
- Fault finding and leak detection;
- Clearance of drainage systems;
- Repair and replacement of all permanent and sanitary components, including but not limited to toilets, basins, urinals, extractor fans;
- Water and wastewater sludge pumping;
- Emergency sewage removal and associated cleaning;

1.2.3 Electrical

- Planned and emergency maintenance and repairs to low voltage systems
- Inspection and testing (as necessary) of electrical installations;
- Issue of a Certificate of Compliance for each installation in accordance with regulation 7(1) of the Electrical Installation Regulations of 2009.
- Identification of non-compliances, submission of their test reports and preparation of a technical report summarizing defects and recommending corrective action.

1.2.4 Roofing

- Planned and emergency maintenance and repairs to all roof components including gutters, fascia boards, insulation, waterproofing, mold treatment, sheets, fasteners, flashing, capping, downpipes and other associated components;
1.2.5 Asbestos removal
- Planned and emergency removal and disposal
- Reinstatement and replacement of insulation, ceiling boards and associated equipment;

1.2.6 Other
- Interior and exterior paint work;
- Repair and replacement of all permanent and temporary facility components, including but not limited to signage, doors, locks, windows, blinds, window film, carpets, tiles, cabinets, ceilings, partitioning, toilets, basins, urinals;
- Joinery;
- Ironmongery;
- High-pressure washing of buildings, workshops and braai areas;
- Asbestos removal in accordance with the Asbestos Regulations of 2002;

Any other work arising out of or incidental to the above, or required of the Contractor for the proper completion of the Service in accordance with the true meaning and intent of the contract document.

1.3 Interpretation and terminology

The following abbreviations are used in this Works Information:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning given to the abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIA</td>
<td>Authorised Inspection Authority</td>
</tr>
<tr>
<td>BBBEE</td>
<td>Broad Based Black Economic Empowerment</td>
</tr>
<tr>
<td>CEP</td>
<td>Contractor Execution Plan</td>
</tr>
<tr>
<td>CSHEO</td>
<td>Contractor’s Safety, Health and Environmental Officer</td>
</tr>
<tr>
<td>CTCT</td>
<td>Cape Town Container Terminal</td>
</tr>
<tr>
<td>CTMPT</td>
<td>Cape Town Multi-Purpose Terminal</td>
</tr>
<tr>
<td>DTI</td>
<td>Department of Trade and Industry</td>
</tr>
<tr>
<td>HSSP</td>
<td>Health and Safety Surveillance Plan</td>
</tr>
<tr>
<td>PFMA</td>
<td>Public Finance Management Act</td>
</tr>
<tr>
<td>PPM</td>
<td>Procurement Procedures Manual</td>
</tr>
<tr>
<td>QA</td>
<td>Quality Assurance</td>
</tr>
<tr>
<td>SANS</td>
<td>South African National Standards</td>
</tr>
<tr>
<td>SES</td>
<td>Standard Environmental Specification</td>
</tr>
<tr>
<td>SHE</td>
<td>Safety, Health and Environment</td>
</tr>
<tr>
<td>TNPA</td>
<td>Transnet National Ports Authority</td>
</tr>
<tr>
<td>TPT</td>
<td>Transnet Port Terminals</td>
</tr>
</tbody>
</table>
The following terminology are used in this Service Information:

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contractor</strong></td>
<td>The successful company or service provider contracted to supply equipment/services specified in this specification.</td>
</tr>
<tr>
<td><strong>Construction / Construction Work</strong></td>
<td>&quot;construction work&quot; 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;</td>
</tr>
<tr>
<td><strong>Defects liability period</strong></td>
<td>The defects liability period is the period during which The Contractor is liable for any defects that are not part of normal &quot;wear and tear&quot;. Normally 12 months.</td>
</tr>
<tr>
<td><strong>Employer</strong></td>
<td>Transnet Port Terminals - the Employer is the sponsor of the contract and shall provide all the necessary support for the contract team.</td>
</tr>
<tr>
<td><strong>Fall Protection Plan</strong></td>
<td>A documented plan, which includes and provides for- (a) all risks relating to working from a fall risk position, considering the nature of work undertaken; (b) the procedures and methods to be applied in order to eliminate the risk of falling; and (c) a rescue plan and procedures;</td>
</tr>
<tr>
<td><strong>Maintenance</strong></td>
<td>The checking, servicing, repairing or replacing of necessary devices or components of infrastructure or equipment to ensure readiness operation or use over the utilization stage of a system lifecycle.</td>
</tr>
<tr>
<td><strong>Non-conformity</strong></td>
<td>A deficiency in characteristic, documentation or procedure which renders the quality of an item, work or service unacceptable or indeterminate in accordance with specified requirements.</td>
</tr>
<tr>
<td><strong>Senior Engineering Manager</strong></td>
<td>The senior manager representing the Employer in respect to sign-offs and approval of key technical documents.</td>
</tr>
<tr>
<td><strong>Technical Manager</strong></td>
<td>The manager appointed by the Employer to manage and oversee the maintenance action.</td>
</tr>
<tr>
<td><strong>The contract area</strong></td>
<td>Cape Town Container Terminal</td>
</tr>
<tr>
<td><strong>Toolbox talks</strong></td>
<td>An informal group discussion focusing on specific safety issues to facilitate health and safety discussions on job sites.</td>
</tr>
</tbody>
</table>

*as defined by Construction Regulations of 2014

Where in these documents the words or expression “Engineer”, “engineer” or “Technical Manager” is used, read “Project Manager” or “Supervisor” as the context requires.
2 Management and start up

2.1 The Contractor’s plan for the service

The Contractor must submit a detailed Contractor Execution Plan (CEP) in accordance with the Employer’s broad outline of the service.

This Contractor Execution Plan must include the following components:

1. Purpose
2. Scope
3. Definitions
4. Roles and Responsibilities
   - Responsibility allocation
   - Functional Role Definition
   - Contractor Delivery and action plan
5. Contractor Details
   - Contractor Scope
   - Key Milestones
6. Contractor Delivery Methodology
   - Execution Management Plan
   - Engineering Management Plan
   - Project Controls Management Plan
   - Systems Management Plan
   - Business Continuity Management Plan
   - Safety and Health and Environment Management Plan
   - Environmental Management Plan
   - Security Management Plan
   - Quality Management Plan
   - Risk Management Plan
   - Inspection and Controls Management Plan
   - Document and Data Management Plan
   - Communication Management Plan
   - Human Resources Management Plan
   - Industrial Relations Management Plan
   - Interface Management Plan
   - Commissioning Management Plan
   - Close-out Management Plan
   - Lesson Learnt

2.2 Management meetings

Regular meetings of a general nature may be convened and chaired by the Technical Manager. These meetings require attendance by the TPT delegates and the Contractor representative.

<table>
<thead>
<tr>
<th>Title and purpose</th>
<th>Approximate time &amp; interval</th>
<th>Location</th>
<th>Attendance by:</th>
</tr>
</thead>
</table>

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DESCRIPTION OF THE SERVICE: Facilities Maintenance and Repairs on an as-and-when required basis for a period of one year for Transnet Port Terminals in the Port of Cape Town

| Kick-off meeting | Once off | Technical Services, Port of Cape Town | Employer's Agents  
Contractor's Agents |
|------------------|----------|---------------------------------------|-------------------|
| Overall contract progress and feedback | Monthly on last Thursday of every month | Technical Services, Port of Cape Town | Employer's Agents  
Contractor's Agents |
| Close-out meeting | Within one week after contract expiry | Technical Services, Port of Cape Town | Employer's Agents  
Contractor's Agents |

Meetings of a specialist nature may be convened as specified elsewhere in this Works Information or if not so specified by persons and at times and locations to suit the Parties, the nature and the progress of the works. Records of these meetings are to be submitted to the Project Manager by the person convening the meeting within five days of the meeting.

To ensure that the Employer can notify affected parties by the activities, the following persons must be notified 3 days before any activities on the site is commenced with. Work in progress shall be communicated regularly with these persons regarding timelines, deviations and defects.

- Technical Manager
- Project Manager
- Supervisor

All meetings are to be recorded using minutes or a register prepared and circulated by the person who convened the meeting. Such minutes or register are not to be used for the purpose of confirming actions or instructions under the contract as these are to be done separately by the person identified in the conditions of contract to carry out such actions or instructions.

2.3 Contractor’s management, supervision and key people

The Contractor shall make an adequate, experienced and stable team available for the duration of the contract. Every effort must be exercised by The Contractor to minimise the replacement of contract team members in order to ensure optimum contract management continuity and efficiency.

The Contractor provides an Organogram of all his key people.

2.4 Provision of bonds and guarantees

Not applicable.

2.5 Documentation Control

In undertaking the service (including all incidental services required), the Contractor will be required to submit documentation from time to time.

The Contractor must use a stable, reliable electronic transmission system to send and receive documentation from the Employer.

The required format includes files with .doc and .pdf extensions.

The Contractor is to ensure that the latest versions of the required application software and a suitable ‘IT’ Infrastructure are in place to support the electronic transmission of documentation.
DESCRIPTION OF THE SERVICE: Facilities Maintenance and Repairs on an as-and-when required basis for a period of one year for Transnet Port Terminals in the Port of Cape Town

2.6 Invoicing and payment

Refer to section 4.

2.7 Contract change management

N/A

2.8 Records of Defined Cost kept by Contractor

The Contractor keeps the records per clause 52.2 ("Defined Cost") of the contract.

2.9 Insurance provided by the Employer

Insurance provided by the Employer is contained in the Contract Data – Part 1.

2.10 Training workshops and technology transfer

Not required.
3 Health and safety, the environment and quality assurance

3.1 Health and Safety risk management

The Contractor complies with the following SMP:

TRN-IMS-GRP-GDL-014.2

Contractor Safety, Health and Environmental Management Specification Guideline

The Contractor ensures that its Sub-contractors comply with the requirements of the SMP.

The Contractor performs the works having due regard to the HSSP.

The HSSP is: TPT SHEQ RS STD 001

Transnet Port Terminals Standard Operating Procedure for Safety, Health, Environment and Quality Standard

The Contractor shall comply with Transnet safety requirements to the satisfaction of the Employer

The Contractor shall prepare a project safety file according to the requirements of TPT CTT SHEQ/RS FORM 077. Approval of this file is a requirement before work can commence.

A Site Access Certificate can only be obtained by the Contractor once the SHE Department has approved the safety plan and documentation.

The Contractor shall ensure that the site and work areas are kept neat, clean and tidy at all times and minimise potential hazards. The Contractor shall provide their own safety equipment.

The Contractor shall undertake regular site safety toolbox talks. The toolbox talks shall take place at least once per week of work planned.

3.2 Environmental constraints and management

The Contractor complies with the following CEMP:

TRN-IMS-GRP-GDL-014.2

Contractor Safety, Health and Environmental Management Specification Guideline

The Contractor performs the works and all construction activities within the Site and Working Areas having due regard to the environment and to environmental management practices as more particularly described within the Standard Environmental Specification.

The SES describes the minimal acceptable standard for environmental management for a range of environmental aspects commonly encountered on construction projects and sets environmental objectives and targets, which the Contractor observes and complies.

The Contractor complies with the following SES:

Waste Management Objective

To ensure that all waste generated during construction and commissioning of the facilities is properly disposed of.
**DESCRIPTION OF THE SERVICE:** Facilities Maintenance and Repairs on an as-and-when required basis for a period of one year for Transnet Port Terminals in the Port of Cape Town

Examples of typical construction waste which, could be expected on the Site are indicated in the following table:

### TABLE 2: EXAMPLE OF CONSTRUCTION WASTE CLASSIFICATION

<table>
<thead>
<tr>
<th>WASTE</th>
<th>CLASSIFICATION</th>
<th>NON-HAZARDOUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clean soil</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Construction debris contaminated by oil or organic compounds</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Empty drums (depends on prior use)</td>
<td></td>
<td>X X</td>
</tr>
<tr>
<td>Empty paint and coating containers</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Waste paint and/or solvent</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Waste oil</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Phenolic waste</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Waste concrete</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Rubble (not contaminated by oil or organic compounds)</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Waste containing appreciable properties of fibrous asbestos</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Sewerage sludge</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Scrap metal</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Explosive waste</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Waste timber</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Waste Cable</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>PCB waste</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Waste plastic</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Aerosol containers</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Batteries, light bulbs, circuit boards, etc.</td>
<td></td>
<td>X X</td>
</tr>
<tr>
<td>Domestic waste</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

**Scope**

The standard applies to all construction, commissioning and Site activities that may lead to the generation of waste.

**Approach**

Waste is grouped into general or hazardous, depending on its characteristics. The classification determines handling methods and the ultimate disposal of the Material.

General waste to be expected during construction includes the following:

- Trash (waste paper, plastics, cardboard, etc.) and food waste from offices, warehouses and construction personnel.
- Uncontaminated construction debris such as used wood and scrap metal.
- Uncontaminated soil and non-hazardous rubble from excavation or demolition.
Hazardous waste is waste, which has the potential, even in low concentrations, to have a significant adverse effect on public health and/or the environment. This would be on account of its inherent chemical and physical characteristics, such as toxic, ignitable, corrosive, carcinogenic or other property.

Waste avoidance and minimisation

A ladder approach to waste management is encouraged. Waste should preferably be managed in the following order:

- Prevent: by waste avoidance and minimisation during production
- Recycle: waste recycling, recovery and utilisation
- Treat: waste treatment in order to reduce toxicity and to minimise the quantities of waste
- Disposal: waste disposal, probably by incineration, destruction or landfill

Waste Management

The Contractor is responsible for the removal from Site of all waste generated through the Contractor's activities. The Contractor shall ensure that all waste is removed to appropriate licensed waste management facilities.

- The classification of waste determines handling methods and the ultimate disposal of the Material. The Contractor shall manage hazardous wastes that are anticipated to be generated by his operations as follows:
  - Characterise the waste to decide if it is general or hazardous
  - Obtain and provide an acceptable container with label
  - Place hazardous waste material in container
  - Inspect the container on a regular basis as prescribed by the Contractor’s waste environment management plan
  - Track the accumulation time for the waste
  - Haul the full container to the disposal Site
  - Provide documentary evidence of proper disposal of the waste

The Contractor shall manage NON-HAZARDOUS / GENERAL WASTE that are anticipated to be generated by operations as follows:

- Determine if waste is non-hazardous and obtain containers for waste storage
- Notify waste hauler when container is full so that it can be removed and replaced with an empty

On the Project, however, waste generating entities are directed to control the generation of non-hazardous waste by:

- Eliminating waste generation or reducing the total volume
- Reducing the degree of contamination of waste generated
- Reclaiming materials otherwise considered waste

The Contractor shall therefore recycle NON-HAZARDOUS / GENERAL WASTE that are anticipated to be generated by its operations as follows:

Obtain and label recycling containers for:

- Office Waste
• Aluminium and steel cans
• Glass Bottles
• Scrap Metals
• Waste Timber
• And locate them within temporary office building and trailers
• Establish recycled material collection schedule
• Arrange for full bins to be hauled away

Spent batteries, circuit boards, and bulbs, while non-hazardous, require special collection and handling.

Spray Painting and Sandblasting

Objective
To ensure that all spray painting and sandblasting on Site is done in a controlled manner where appropriate measures are taken to prevent paint contamination of the soil and to ensure that sandblasting grit/media is properly disposed of.

Scope
All spray painting and sandblasting on Site.

Spray Painting and Sandblasting
Spray painting and sandblasting should be kept to a minimum. All painting should as far as practicable be done before Equipment and Material is brought on Site. Touch up painting is to be done by hand painting or by an approved procedure. A method statement shall be submitted to the SHEC for approval.

The Contractor will inform the EO of when and where spray painting or sandblasting is to be carried out prior to commencement of work. The EO will monitor these activities to ensure that adequate measures are taken to prevent contamination of the soil.

NB: If the area is in confined or high areas then a protection plan is to be issued for approval.

Dust Management

Objective
The Contractor (associated with activities such as earthworks, geotechnical surveys, piling, storm water drainage, construction of roads and railways, foundations, brick building, operating workshops, fencing, erecting construction camps, and batch plant activities, etc.) shall submit a dust control plan for approval by the EO.

Scope
Control of dust on the construction Site and access roads

Dust Management
Material in transit should be loaded and contained within the load bin of the vehicle in such a way as to prevent any spillage onto the roads and the creation of dust clouds. If necessary, the load bin of the vehicle shall be covered with a tarpaulin to prevent dust.

Dust to be controlled on unsurfaced access roads and Site roads using sprayed water. The Contractor is responsible for managing dust generated as a result of his activities. The CM will be responsible for the dust control of the Site and Working Areas.
Some dust control measures, which are normally applied during construction, are presented in this section for inclusion by the Contractor in the Contractor’s dust control method statement.

These dust-mitigating procedures include the following:

- Limit vehicle speeds on unpaved roads to 20 km/h
- Wash the paved surfaces within the construction area twice a week
- Minimise haulage distances
- Apply water to gravel roads with a spraying truck when required

Environmental friendly soil stabilisers may be used as additional measures to control dust on gravel road and construction area

- Dust suppression measures will also apply to inactive construction areas. (An inactive construction Site is one on which construction will not occur for a month or more.)
- Construction Material being transported by trucks must be suitable moistened or covered to prevent dust generation.
- Strip and store topsoil in separate stockpiles with mounds not exceeding 2m in height to, among other things, to prevent wind-blown dust.
- Minimise disturbance of natural vegetation during right-of-way construction (e.g. transmission lines and erection of fences) to reduce potential erosion, run-off, and air-borne dust.
- Implement a system of reporting excessive dust conditions by construction personnel (as instructed through Environmental Awareness Training).

Water for dust control shall be taken only from approved sources.

Noise Management

Objective
To maintain construction noise at the Site within required limits.

Scope
Construction noise at the construction Site.

Noise Management

- Keep all Equipment in good working order
- Operate Equipment within its specification and capacity and don’t overload machines
- Apply regular Maintenance, particularly with regards to lubrication
- Operate Equipment with appropriate noise abatement accessories, such as sound hoods

Noise control measures for incorporation by the Contractor in its noise control plan shall include the following:

- Ensure that the potential noise source will conform to the South African Bureau of Standards recommended code of practice, SABS Code 0103:1983, so that it will not produce excessive or undesirable noise when it is released.
- All the Contractors’ Equipment shall be fitted with effective exhaust silencers and shall comply with the South African Bureau of Standards recommended code of practice, SABS Code 0103:1983, for construction plant noise generation.
TRANSNET PORT TERMINALS
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- All the Contractors' vehicles shall be fitted with effective exhaust silencers and shall comply with Road Traffic Act (Act 29 of 1989) when any such vehicle is operated on a public road.
- If on Site noise control is not effective, protect the victims of noise (e.g. ear-plugs) by ensuring that all noise-related occupational health provisions are met. (Occupational Health and Safety Act (Act 85 of 1993).
- Normal machine working hours will be 06:00 – 22:00 Monday to Saturday. Outside these hours machine operations will be subject to approval. This does not define shift hours.

Protection of heritage resources

Objective
To ensure the protection of archaeological, historical artefacts, or heritage resources discovered during construction activities.

Scope
Archaeological, historical artefacts or heritage resources discovered on or near the Site.

Archaeological Sites
If an artefact on Site is uncovered, work in the immediate vicinity shall be stopped immediately. The Contractor shall take reasonable precautions to prevent any person from removing or damaging any such article and shall immediately upon discovery thereof inform the engineer of such discovery. The South African Heritage Resources Agency is to be contacted who will appoint an archaeological consultant. The work may only resume once clearance is given in writing by the archaeologist.

Discovery of an item of historical value or stopping the works would fall under compensation events 60.1(4) and/or (7), despite the manner in which the Works Information is written here.

Graves and middens
If a grave or midden is uncovered on Site, or discovered before the commencement of work, then all work in the immediate vicinity of the graves/middens shall be stopped and the engineer informed of the discovery. The National Monuments Council should be contacted and in the case of graves, arrangements made for an undertaker to carry out exhumation and reburial. The undertaker will, together with the National Monuments Council, be responsible for attempts to contact family of the deceased and for the Site where the exhumed remains can be re-interred.

Fire prevention

Objective
To minimise the risk of uncontrolled fires.

Scope
All activities on or near the Site that could initiate an uncontrolled fire.

Fire control
Fires shall only be allowed in facilities or Equipment specially constructed for this purpose. A firebreak shall be cleared and maintained around the perimeter of the camp and office Sites. All conditions incorporated in the requirements of the Occupational Health and Safety Act shall also be implemented.

3.3 Quality assurance requirements
3.3.1 The Contractor shall have, maintain and demonstrate its use to the Project Manager (and/or the Supervisor) the documented Quality Management System to be used in the performance of the works.

3.3.2 The Contractor develops and maintains a comprehensive register of documents that will be generated throughout the contract including all quality related documents as part of its Quality Plan.

3.3.3 The Project Manager indicates those documents required to be submitted for either information, review or acceptance and the Contractor indicates such requirements within his register of documents. The register shall indicate the dates of issue of the documents with the Project Manager responding to documents submitted by the Contractor for review or acceptance within the period for reply prior to such documents being used by the Contractor.
4 Procurement

4.1 Code of Conduct

Transnet aims to achieve the best value for money when buying or selling goods and obtaining services. This however must be done in an open and fair manner that supports and drives a competitive economy. Underpinning our process are several acts and policies that any supplier dealing with Transnet must understand and support. These are:

- The Transnet Procurement Procedures Manual (PPM);
- Section 217 of the Constitution - the five pillars of Public PSCM (Procurement and Supply Chain Management): fair, equitable, transparent, competitive and cost effective;
- The Public Finance Management Act (PFMA);
- The Broad Based Black Economic Empowerment Act (B-BBEE); and
- The Anti-Corruption Act.

This code of conduct has been included in this contract to formally apprise Transnet Suppliers of Transnet's expectations regarding behaviour and conduct of its Suppliers.

Prohibition of Bribes, Kickbacks, Unlawful Payments, and Other Corrupt Practices

Transnet is in the process of transforming itself into a self-sustaining State Owned Enterprise, actively competing in the logistics industry. Our aim is to become a world class, profitable, logistics organisation. As such, our transformation is focused on adopting a performance culture and to adopt behaviours that will enable this transformation.

1. Transnet will not participate in corrupt practices and therefore expects its suppliers to act in a similar manner.

- Transnet and its employees will follow the laws of this country and keep accurate business records that reflect actual transactions with and payments to our suppliers.
- Employees must not accept or request money or anything of value, directly or indirectly, to:
  - Illegally influence their judgement or conduct or to ensure the desired outcome of a sourcing activity;
  - Win or retain business or to influence any act or decision of any decision stakeholders involved in sourcing decisions; or
  - Gain an improper advantage.
- There may be times when a supplier is confronted with fraudulent or corrupt behaviour of Transnet employees. We expect our Suppliers to use our “Tip-offs Anonymous” Hot line to report these acts. (0800 003 056).

2. Transnet is firmly committed to the ideas of free and competitive enterprise.

- Suppliers are expected to comply with all applicable laws and regulations regarding fair competition and antitrust.
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- Transnet does not engage with non-value adding agents or representatives solely for the purpose of increasing B-BBEE spend (fronting)

3. Transnet’s relationship with suppliers requires us to clearly define requirements, exchange information and share mutual benefits.

- Generally, Suppliers have their own business standards and regulations. Although Transnet cannot control the actions of our suppliers, we will not tolerate any illegal activities. These include, but are not limited to:
  - Misrepresentation of their product (origin of manufacture, specifications, intellectual property rights, etc);
  - Collusion;
  - Failure to disclose accurate information required during the sourcing activity (ownership, financial situation, B-BBEE status, etc.);
  - Corrupt activities listed above; and
  - Harassment, intimidation or other aggressive actions towards Transnet employees.

- Suppliers must be evaluated and approved before any materials, components, products or services are purchased from them. Rigorous due diligence is conducted and the supplier is expected to participate in an honest and straightforward manner.

- Suppliers must record and report facts accurately, honestly and objectively. Financial records must be accurate in all material respects.

Conflicts of Interest

1. A conflict of interest arises when personal interests or activities influence (or appear to influence) the ability to act in the best interests of Transnet.

- Doing business with family members
- Having a financial interest in another company in our industry

4.2 The Contractor’s Invoices

All planned work must be preceded by a quotation with exact quantities at the tendered rates. Ad-hoc costs of material and equipment must correspond to a third-party quotation referenced in and attached to the Contractor’s quotation. The Employer confirms acceptance of this quotation by issuing a purchase order. No planned work can commence without a purchase order.

All unplanned, emergency work must be preceded by a written instruction (including electronic communication methods) from the Service Manager to assess the emergency and recommend corrective action. The Service Manager must instruct the Contractor after the initial visit to proceed with the corrective work.

After completion of work, the Contractor submits a detailed invoice that corresponds to the amount on the purchase order.

The Employer’s Agents (either Service Manager, engineer or supervisor) inspects the work and cannot certify completion until it is completed and free of defects.

When the Service Manager certifies payment following an assessment date, the Contractor complies with the Employer’s procedure for invoice submission.

The invoice must correspond to the original purchase order.

All material supplied must be approved by TPT prior to supplying which will be supplied at cost plus the agreed upon rate.
TRANSNET PORT TERMINALS
TENDER NUMBER: TPT CT 34/20

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Should material be supplied as stipulated above, TPT will require copies of the invoices for these materials which will be used for auditing purposes.

All payments are provisional and subject to audit.

The invoice states the following:

- Invoice addressed to Transnet SOC Ltd;
- Transnet SOC Limited’s VAT No: 4720103177;
- Invoice number;
- The Contractor’s VAT Number; and
- The Contract number [ ].

The invoice is presented through accepted electronic communication methods.

4.3 People

4.3.1 B-BBEE and preferencing scheme

Points will be awarded to tenderers based on preferencing using the balanced Department of Trade and Industry (DTI) scorecard. The application of the Broad-Based Black Economic Empowerment recognition levels and score preferencing points are as follows:

<table>
<thead>
<tr>
<th>Contribution Level</th>
<th>Qualification Points on the generic scorecard</th>
<th>Broad-Based BEE Recognition Level</th>
<th>Preferencing Points Scored</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>Greater than or equal to 100 points</td>
<td>135%</td>
<td>10</td>
</tr>
<tr>
<td>Level 2</td>
<td>Greater than or equal to 85 points but less than 100 points</td>
<td>125%</td>
<td>9.26</td>
</tr>
<tr>
<td>Level 3</td>
<td>Greater than or equal to 75 points but less than 85 points</td>
<td>110%</td>
<td>8.15</td>
</tr>
<tr>
<td>Level 4</td>
<td>Greater than or equal to 65 points but less than 75 points</td>
<td>100%</td>
<td>7.41</td>
</tr>
<tr>
<td>Level 5</td>
<td>Greater than or equal to 55 points but less than 65 points</td>
<td>80%</td>
<td>5.95</td>
</tr>
<tr>
<td>Level 6</td>
<td>Greater than or equal to 45 points but less than 55 points</td>
<td>60%</td>
<td>4.44</td>
</tr>
<tr>
<td>Level 7</td>
<td>Greater than or equal to 40 points but less than 55 points</td>
<td>50%</td>
<td>3.70</td>
</tr>
<tr>
<td>Level 8</td>
<td>Greater than or equal to 30 points but less than 40 points</td>
<td>10%</td>
<td>0.74</td>
</tr>
<tr>
<td>Level 9</td>
<td>Less than 30 points</td>
<td>0%</td>
<td>0.00</td>
</tr>
</tbody>
</table>

On the basis the tenderer with a B-BBEE recognition level of 135% will achieve 10 points, and the points will be allocated accordingly on a pro-rata basis as per the table above.

In addition to the above, provision is made for the case where a tenderer has greater than 50% black ownership. In this instance, provided the requisite documentary evidence is supplied, the tenderer will then be awarded preference points one level above that awarded based on the DTI scorecard. For example, a tenderer with > 50% black ownership obtaining a Level 6 contribution equating to 4.44 points will be awarded 5.95 preferencing points (Level 5).
Tenderers claiming Preference Points must submit together with the tender document their
generic scorecard, evaluated by an independent accreditation agency. Transnet therefore
requires tenderers to have been accredited by one of the various SANAS Accreditation
Agencies in accordance with the latest relevant Codes of Practice applicable not more than 3
months prior to the date of tender. Although Transnet cannot be prescriptive in this regard,
especially if a tenderer has already employed another Rating Agency to provide a rating
certificate, it can recommend the services of either Verify Solutions, Cerilog 271 CC trading as
Goal Achievement Partners or Mohlaleng trading as On Track, all of whom Transnet has
already had extensive dealings with and whose rating methodologies are aligned to the most
recent DTI Codes of Good Practice. Should the B-BBEE rating not be provided, Transnet
reserves the right to award no points and/or declare the tender void. Transnet also reserves
the right to carry out an independent audit of the tenderers scorecard components at any
stage from the date of close of the tenders until completion of the contract.

Tenderers with no accreditation will score zero points for preferencing.

4.3.2 Use of locally manufactured materials

The Contractor must adhere to the revised Preferential Procurement Policy Framework Act
(PPPFA) regulations. This act empowers the Department of Trade and Industry (the dti) to
designate industries, sectors and sub-sectors for local production at a specified level of local
content.

The following relevant industries, sectors and sub-sectors have so far been designated for local
production with minimum local content thresholds:

<table>
<thead>
<tr>
<th>Industry/sector/sub-sector</th>
<th>Minimum threshold for local content</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Steel Value-added Products</strong></td>
<td></td>
</tr>
<tr>
<td>• Fabricated Structural Steel</td>
<td>100%</td>
</tr>
<tr>
<td>• Joining/Connecting Components</td>
<td>100%</td>
</tr>
<tr>
<td>• Frames</td>
<td>100%</td>
</tr>
<tr>
<td>• Roof and Cladding</td>
<td>100%</td>
</tr>
<tr>
<td>• Fasteners</td>
<td>100%</td>
</tr>
<tr>
<td>• Wire Products</td>
<td>100%</td>
</tr>
<tr>
<td>• Ducting and Structural pipework</td>
<td>100%</td>
</tr>
<tr>
<td>• Gutters, downpipes and lauders</td>
<td>100%</td>
</tr>
</tbody>
</table>

| **Steel Value-added Products** | |
| • Plates | 100% |
| • Sheets | 100% |
| • Galvanised and Colour Coated Coils | 100% |
| • Wire Rod and Drawn Wire | 100% |
| • Sections | 100% |
| • Reinforcing bars | 100% |
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<table>
<thead>
<tr>
<th>Plastic pipes</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Polyvinyl chloride (PVC) pipes</td>
<td>100%</td>
</tr>
<tr>
<td>• High density polyethylene (HDPE) pipes</td>
<td>100%</td>
</tr>
<tr>
<td>• Polypropylene (PP) pipes</td>
<td>100%</td>
</tr>
<tr>
<td>• Glass reinforced plastic (GRP) pipes</td>
<td>100%</td>
</tr>
</tbody>
</table>

4.4 Subcontracting

4.4.1 Preferred sub-Contractors
NONE

4.4.2 Subcontract documentation, and assessment of subcontract tenders
The Contractor shall only employ or bring a Sub-Contractor onto the site and/or working areas with prior written approval of the Service Manager.

The Contractor shall be responsible for the correct and complete installation of all Plant and Materials supplied by sub-Contractors.

4.4.3 Limitations on subcontracting
The Contractor shall be responsible for the correct and complete installation of all Plant and Materials supplied by sub-Contractors.

4.4.4 In such instances where the Contractor employs a Sub-Contractor who constructs or installs part of the Works, The Contractor shall ensure that any such Sub-Contractor complies with all the safety, risk and quality requirements as stipulated in this document and as required by the Employer.

4.4.5 Attendance on Sub-Contractors
The safety file of the Sub-Contractor shall be submitted and approved by TPT SHEQ department.

4.5 Plant and Materials

4.5.1 Standard Codes of Practise
All materials, where applicable, shall conform in respect to quality, manufacture, tests and performance, to the applicable South African National Standards or where no such Standard exists, the appropriate British Standard. Materials not specifically stipulated shall be of the best commercial quality.

4.5.2 The latest editions and/or amendments of the following Standards and Codes shall be considered a minimum requirement. In the event of differing requirements, the most stringent Code or Standard shall apply:

- Occupational Health and Safety Act (85 of 1993);
- South African National Standards;
• DIN or British Standard Specifications / DIN,
• EN and ASME Standard Specifications; N.O.S.A. Safety Guidelines;

4.5.3 Specifications

The Employer provides input during material selection for all projects. The Contractor will be required to submit option data sheets, samples and pricing options as and when required. The Employer approves materials selected before acquisition by the Contractor.

Plant and Materials are items included in the Affected Property. This will include replacement of worn or defective parts, routine replacement as part of regular preventative maintenance and supply of spare parts. Quality is usually designed in or specified in the technical specifications.

All work must be executed in accordance with prevailing industry norms and standards relating to quality. In this regard, the Contractor will be expected to draft quality plans for the Service Manager from time to time. Emphasis must be on improving system reliability and on ensuring that rostered maintenance work is indeed performed as and when required. All new parts should be replaced with original OEM prescribed parts and the quality should be in accordance with SABS, SANS, ANSI standards.

4.5.4 Contractor’s procurement of Plant and Materials

The Contractor provides all Plant and Materials for inclusion in the service in accordance with SANS 1200A sub-paragraph 2.1, unless otherwise stated elsewhere in the Service Information provided by the Employer. All Plant and Materials are new, unless the use of old or refurbished goods and/or Materials are expressly permitted as stated elsewhere in this Service Information or as may be subsequently instructed by the Service Manager.

Where Plant and Materials for inclusion in the works originate from outside the Republic of South Africa, all such Plant and Materials are new and of merchantable quality, to a recognised national standard, with all proprietary products installed to manufacturers’ instructions.

The Contractor replaces any Plant and Materials subject to breakages (whether in the Working Areas or not) or any Plant and Materials not conforming to standards or specifications stated and notifies the Project Manager and the Supervisor on each occasion where replacement is required.

4.5.5 Investigation, survey and site clearance

The Contractor carries out a site investigation before site establishment to prepare a repair proposal and other documents.

The Contractor shall ensure the existing services & infrastructure in the vicinity of the work area are protected.

All existing surfaces, services and / or structures affected, whether shown on the plan or otherwise, that are damaged or caused to be repositioned as a result of the activities, will have to be reinstated at the cost of the Contractor.

4.5.6 Scaffolding

The Contractor shall contract with a certified scaffolding Contractor who will supply and erect all scaffolding (as and when required). The Contractor shall manage their activities
to ensure the timely and safe supply and erection of all scaffolding needed for the Erection of all work under this Contract as defined in the Scope of Work.

4.5.7 Rigging
Before undertaking heavy lifting and rigging, the Contractor must undertake a rigging study and all rigging activities must have the following in place:

The rigging study must be reviewed by the Engineer and the Employers Safety Officer prior to any heavy lifting and rigging activities being undertaken by the Contractor;

The rigging study must be co-ordinated with the overall site planning and activities.

4.5.8 Sheet ing and cladding:
Sheeting for roof, side cladding and accessories shall conform to specification SANS1200HB.

The profile, and fastenings must be suitable for the spans indicated on the Tenderer's drawings and for wind uplift forces corresponding to category 2 Class A of SANS 10160. The costs of testing must be included in the tender price. In areas with uplift forces higher than 1, 6 kPa extra fasteners and/or an increase in sheet thickness may be resorted to.

The Contractor must state the envisaged lap length, sealings and other items not covered above.

Polycarbonate sheeting shall have a light translucency of 85%. The profile shall match the existing sheeting profile (“Industry 7”). Sheet ing and fixings must withstand the same wind uplift forces as the surrounding aluminium sheeting. The selected polycarbonate sheeting shall be at least 1.2 mm thick. The polycarbonate sheeting must be SABS approved and must be procured from a reputable source. If necessary, tests may be called for. Additional purlins are to be provided in order to reduce the span for polycarbonate sheeting. Samples of sheeting and fixings have to be provided for approval.

Flashings, corner trims, closure pieces, ridge cappings etc. shall consist of the same sheeting as above of minimum thickness 1.2mm and coloured to match the sheeting. These items have to withstand the highest negative wind pressures and must be suitably fixed. The type of fasteners and their spacing is subject to approval by the Engineer.

All sheeting fasteners shall be diameter 6.3mm grade 304 stainless steel self tapping screws with hexagonal washer heads. Saddle washer with sealer, capped by 19mm diameter flat bonded washers, shall be used at all purlin/sheeting rail fixings. Saddle washers need not be used under stitching bolts since flat bonded washers only will suffice.

Isolation strips shall be used between the sheeting and steel frames to prevent galvanic action.

4.5.9 Fasteners
All bolts, U-bolts, nuts, washers used for fastening of handrails, gratings, panels, staircases etc. shall be stainless steel.

Grade 8.8 and 10.9 bolts and nuts used in high stress and friction grip joints shall be manufactured according to BS EN ISO 898 and galvanised to BS EN 12502.
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The selected fasteners shall be manufactured in compliance with SANS 1273. The fasteners shall be of the highest quality to ensure durability and an extended service life. Fasteners not susceptible to rust and UV-radiation degradation is required.

Please refer to section 3.4.2 for details regarding use of locally manufactured plant and materials.

4.5.10 Completion, Testing, Commissioning and Correction of Defects

*The Contractor* is expected to provide quality materials and guarantee workmanship with a minimum 12-month defects liability period.

*The Contractor* will remain accountable for defects caused by workmanship construction practise, negligence, even if they are not explicitly noted at site handover. Such defects will be corrected at the cost of *The Contractor*. 
5 Working on affected Property

5.1 Employer's site entry and security control, permits and site regulations

5.1.1 Access to the Works will be via existing port roads (Container Road and Duncan Road) in the Port of Cape Town.

5.1.2 The Port of Cape Town is a security regulated port in terms of the ISPS Maritime Security Regulations of 2004.
   a) The Contractor's employees shall produce their identification cards at the main entrance gate.
   b) All vehicles, persons and goods may be subject to a search.
   c) Admission to the port is subject to random breathalyser testing. No alcohol is permitted on site and Transnet property.

5.1.3 Access will be subject to the Employer's security and SHERQ requirements and regulations, which is described in the Service Information only at a high level.

5.1.4 Visitors must sign in at the main entrance gate to gain access to the Port. Should the Contractor prefer to gain access by electronic card, such access permits may be obtained from Transnet National Ports Authority.

5.1.5 All personnel entering general and operational areas under the jurisdiction of the Employer in the Port of Cape Town must undergo safety induction, which is available hourly between 10:00 and 14:00 every day at the TPT Administration Building.
   d) Induction slips are mandatory to carry on site and are renewable yearly. The slips are also submitted as part of the safety file.
   e) The Contractor must obtain a permit for persons and vehicles entering the terminal from the TPT Permit Office for the duration of the work (including third-party delivery vehicles). Permits are renewable monthly and will be the responsibility of the Contractor.
   f) The Contractor shall provide all personnel (including delivery personnel) with the required PPE. The minimum safety requirement access to operational zones includes steel-toe boots, a hard-hat and a high-visibility vest. Additional equipment including but not limited to ear-, hand and face-protecting PPE may be required for the Works. All vehicles (including delivery vehicles) are required to use orange strobe lights.
   g) The Contractor shall comply with the safety rules as indicated during the safety induction and as indicated on signage on any TPT site entered.

5.1.6 Access to the Works will be via existing port roads (Container Road and Duncan Road) in the Port of Cape Town. Due allowance must be made for any potential delays arising from vehicular congestion due to the large number of trucks that use Container and Duncan Road.

5.1.7 Barricades and lighting

Where hoarding, barricades or lighting is required in the execution of the Works, the Contractor shall provide same at his/her own expense. Hoarding, barricades and lighting shall comply with industry accepted norms and standards and may not be used for purposes of advertising or any other purpose than safeguarding the Works.

5.2 People restrictions, hours of work, conduct and record.
5.2.1 The terminal operates on a 24-hour basis and work can be scheduled during and after normal working hours, subject to arrangements with the Service Manager and Operations Supervisors.

5.2.2 All facilities will remain in use for the duration of repairs. The Contractor shall account for this complication and introduce measures to restrict site access to prevent accidents, interference or damage to property.

5.2.3 Transnet reserves the right to verify all personnel employed under this contract. Furthermore, Transnet reserves the right to order that personnel that are not adequately qualified or suited for this contract are removed from the site.

5.3 Health and safety facilities on the Affected Property

5.3.1 Section 3 deals with contractual H & S requirements in addition to those of the Occupational Health and Safety Act. The respondent must state what measures are to be taken on the Affected Property.

5.4 Environmental controls, fauna & flora

5.4.1 This matter has been dealt with in the general environmental requirements referred to in section 3 above 5.5

5.5 Cooperating with and obtaining acceptance of Others

5.5.1 The Contractor's duty is to co-operate with Others as expressed under the service information.

5.5.2 Where the Contractor's work may affect or interfere with the activities of the Employer or Others, it is important that interfaces in respect of physical location and timing are agreed by all parties and shown on the Contractor's plan.

5.5.3 The exchange of information on health and safety matters is particularly important in order to comply with the law as well as with the contract.

5.6 Records of Contractor's Equipment

5.6.1 The Contractor shall have all Tools and Special Equipment, necessary for the execution of the works, either on site or readily available at his/her premises.

5.7 Equipment provided by the Employer

5.7.1 None

5.8 Site services and facilities

5.8.1 Provided by the Employer

The Employer will provide power and water as far as reasonably possible.

5.8.2 Provided by the Contractor

The Contractor is to provide in the way of accommodation, storage, vehicles, waste disposal, telecomms, ablutions, fire protection and lighting and office equipment for its
employees and these are not regarded as any restrictions or minimum requirements concerning the Contractor’s and shall provide everything else necessary for providing the Service.

5.9 Control of noise, dust, water and waste

5.9.1 The Contractor will keep noise and dust levels to a minimum. At no time shall his/her work result in nuisance, interference or danger to the public or any other person working at Transnet.

5.9.2 At no time shall the Contractor: - allow any palliative or toxic substance to be released into the air or storm water systems interfere with, or put at risk, the functionality of any system or service cause a fire or safety hazard - interfere with, or put at risk, the functionality of any system or service - cause a fire or safety hazard.

5.10 Hook ups to existing works

5.10.1 None

5.11 Tests and inspections

5.11.1 Electrical testing and inspections as per Electrical Regulations of 2009 and SANS 10142

6 List Of Drawings

6.1 Drawings issued by the Employer

This is the list of drawings issued by the Employer at or before the Contract Date and which apply to this contract.

<table>
<thead>
<tr>
<th>Drawing number</th>
<th>Revision</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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1. **Purpose**

This specification development guideline identifies and encompass the working behaviours and safe work practices that are expected of all Transnet SOC Ltd employees, Contractors, Consultant, Visitors and Suppliers, engaged on Transnet managed projects as required by Construction Regulation of 2014, regulation 5(1)(b).

All contractors and service providers must take careful note of these requirements and must ensure that adequate provision has been made to ensure compliance.

This Specification development guideline has been compiled to cover a wide range of construction/work activities and should serve as a guideline for Safety Agents to develop site specific specifications for construction projects. In order to determine which requirements are applicable, the contractor must conduct a health and safety risk assessment specific to the project and specific to the contractor’s scope of work. All applicable requirements must be addressed in the Contractor’s Health and Safety Management Plan.

This Specification development guideline will be reviewed and updated periodically as and when necessary) to address and / or include:

- Changes in legislation;
- Client requirements;
- Leading practices; and
- Lessons learnt from incidents.

The specification development guideline provides the minimum requirements for site specific specification and should be used as a guide to develop the site specific specification as it is required by the Construction Regulation of 2014.

2. **Scope**

This Specification applies to all project sites, and to all persons working on or visiting the Transnet managed projects. The requirements specified in this document are applicable to the contractor as well as any sub-contractors, EPCM Contractors, Consultant, Vendors and Visitors that may be appointed by Transnet as an Employer. It is the contractor’s responsibility to ensure that all sub-contractors comply fully with all legal requirements as well as the requirements of this health and safety specification.

3. **Definitions**

**Acceptable Risk**

A risk that has been reduced to a level that can be tolerated having regard for the applicable legal requirements and the Health and Safety Policy adopted for the project.

**ALARP (As Low As Reasonably Practicable)**

The concept of weighing a risk against the sacrifice needed to implement the measures necessary to avoid the risk. With respect to health and safety, it is assumed that the measures should be implemented unless it can be shown that the sacrifice is grossly disproportionate to the benefit.
**Applicant (Permit to Work)**
A person requesting permission to perform work for which a Permit to Work is required. Applicants must be authorised (in writing) to receive (or accept) Permits to Work and must be competent to do so by virtue of their training, experience and knowledge of the area or plant in which the work is to be performed.

**Authorised Person (Permit to Work)**
A person (typically a Project employee or an employee of the client) who has been authorised (in writing) by the nominated project management representative to issue Permits to Work within the scope of his designation. A person may only be appointed to issue Permits to Work if he has undergone training and has been assessed and found competent in systems, plant and equipment operation within the scope of his designation.

**Barricade**
A temporary structure that is erected as a physical barrier to prevent persons from inadvertently coming into contact with an identified hazard.

**Battering**
Sloping the sides of an excavation to a predetermined angle (usually less than the natural angle of repose) to ensure stability.

**Benching**
The creation of a series of steps in the sides of an excavation to prevent collapse.

**Consequence**
The outcome of an event expressed qualitatively or quantitatively.

**Contractor**
An employer (organisation) or a person who performs ANY work and has entered into a legal binding business agreement contract to supply a product or provide services to Transnet. This applies to the Suppliers, Vendors, and Consultants, Service providers or Contractors performing construction work.

**NB:** A Contractor is an employer in his/her own right.

**Competent Person**
A person who has in respect of the work or task to be performed the required knowledge, training, experience and as per act cr2014.

**Construction Supervisor**
A competent person responsible for supervising construction activities on a construction site.

**Clearance Certificate**
A signed declaration by an Isolation Officer that a specified hazardous energy source associated with a particular system, plant or item of equipment has been isolated in accordance with an approved Isolation and Lockout Procedure.

**Discipline Lock (many locks with a restricted number of identical keys)**
Attached at a Lockout Station or at a Local Isolation Point in order to lock out a system, plant or equipment. A Discipline Lock (e.g. A Low Voltage Electricity Discipline Lock) is owned by an
Isolation Officer who has been authorised in writing to isolate and lockout a particular hazard (e.g. Low voltage electricity).

**Equipment Lock (many locks with one unique key)**
Attached directly to pieces of equipment in order to lock them out. Equipment Locks may only be used by Isolation Officers who have been authorised in writing to perform isolation and lockout procedures. The key must have a solid key ring that fits over an Isolation Bar.

**Excavation**
Any man-made cut, cavity, pit, trench, or depression in the earth's surface formed by removing rock, sand, soil or other material using tools, machinery, and / or explosives. Tunnels, caissons and cofferdams are specifically excluded and are not addressed in this standard.

**First-Aid Injury (FA)**
A first-aid injury is any one time treatment and any follow up visit for observation of minor scratches, cuts, burns, splinters and the like which do not normally require medical care. Such treatment is considered to be first aid even if administered or supervised by a medical practitioner. First aid includes any hands on treatment given by a first aider. (E.g. Band-Aid, washing, cleansing, pain, relief). The following procedures are generally considered first aid treatment:
- Application of Antiseptics.
- Application of Butterfly adhesive dressing or sterile strips for cuts and lacerations.
- Administration of tetanus shot(s) or booster(s). However, these shots are often given in conjunction with more serious injuries, consequently injuries requiring these shots may be recordable for other reasons.
- Application of bandages during any visit to medical personnel.
- Application of ointments to abrasions to prevent drying or cracking.
- Inhalation of toxic or corrosive gas, limited to the removal of the employee to fresh air or the one time administration of oxygen for several minutes.
- Negative X-Ray diagnosis.
- Removal of foreign bodies not embedded in the eye if only irrigation is required.
- Removal of foreign bodies from a wound if procedure is uncomplicated, for example by tweezers or other simple technique.
- Treatment for first degree burns.
- Use of non-prescription medications and administration of single dose of prescription medication on first visit for any minor injury or discomfort.

**Hazard**
A source of potential harm in terms of human injury or ill health, or a combination of these.

**Hierarchy of Controls**
A sequence of control measures, arranged in order of decreasing effectiveness, used to eliminate or minimise exposure to workplace health and safety hazards:
- Elimination – Completely removing a hazard or risk scenario from the workplace.
- Substitution – Replacing an activity, process or substance with a less hazardous alternative.
- Isolation (Engineering) Controls – Isolating a hazard from persons through the provision of mechanical aids, barriers, machine guarding, interlocks, extraction, ventilation or insulation.
- Administrative Controls – Establishing appropriate policies, procedures and work practices to reduce the exposure of persons to a hazard. This may include the provision of specific training and supervision.
Personal Protective Equipment – Providing suitable and properly maintained PPE to cover and protect persons from a hazard (i.e. Prevent contact with the hazard).

Isolation and Lockout Procedure
A plant or equipment-specific procedure that describes the method, and sequence to be followed, for rendering equipment, plant and systems safe to work on.

Isolation Bar
A device used at a Lockout Station to which anyone is able to attach a Personal Lock making it impossible for an Isolation Officer to remove the key to the Equipment Locks, thus preventing the de-isolation of a system, plant or equipment while it is still being worked on. A Discipline Lock must always be the first lock attached to an Isolation Bar and last to be removed.

Isolation Officer
A person (typically a Project employee or an employee of the client) who has been authorised (in writing) by the nominated project management representative to perform isolation and lockout procedures. A person may only be appointed as an Isolation Officer if he has undergone training and has been assessed and found competent in the isolation and lockout of systems, plant and equipment within the scope of his designation.

Incident
An event (or a continuous or repetitive series of events) that results or has the potential to result in a negative impact on people (employees, contractors and visitors), the environment, operational integrity, assets, community, process, product, legal liability and / or reputation.

Likelihood
A description of probability or frequency, in relation to the chance that an event will occur.

Lost Time Injury (LTI)
Any occurrence that resulted in a permanent disability or time lost from work of one day/shift or more.

If an employee is injured and cannot return to work in the next shift (will ordinarily miss one whole shift), and the department brings the employee in to only receive treatment by the Supervisor/Return to Work Coordinator in that shift, this is still considered an LTI.

Lost Time Injury Frequency Rate (LTIFR) - Number of LTI's multiplied by 1 million or 200,000 and divided by labour hours worked.

Light Vehicle
A vehicle that:

- Can be licensed and registered for use on a public road;
- Has four or more wheels, and seats a maximum of 12 adults (including the driver);
- Requires the driver to hold only a standard civil driving licence; and
- Does not exceed 4.5 tonnes gross vehicle mass (GVM), which is the maximum loaded mass of the motor vehicle as specified by:
  - The vehicle's manufacturer; or
  - An approved and accredited automotive engineer, if the vehicle has been modified to the extent that the manufacturer’s specification is no longer appropriate.
Examples of light vehicles include passenger cars, four-wheel drive vehicles, sports utility vehicles (SUVs), pick-ups, minibuses, and light trucks.

Any vehicle falling outside of this definition must be considered mobile equipment.

Medical Treatment Injury (MTI)

A work injury requiring treatment by a Medical Practitioner and which is beyond the scope of normal first aid including initial treatment given for more serious injuries. The procedure is to be of an invasive nature (e.g. Stitches, removal of foreign body).

The following procedures are generally considered medical treatment:

- Application of sutures (stitches).
- Cutting away dead skin (surgical debridement).
- Loss of consciousness due to an injury or exposure in the work environment.
- Positive X-Ray diagnosis (fractures, broken bones etc.).
- Removal of foreign bodies embedded in the eye.
- Removal of foreign bodies from the wound by a physician due to the depth of embedment, size or shape of object or the location wound.
- Reaction to a preventative shot administered because of an occupational injury.
- Sprains and strains - series (more than one) of hot and cold soaks, use of whirlpools, diathermy treatment or other professional treatment.
- Treatment of infection.
- Treatment for second or third degree burns
- Use of prescription medications (except a single dose administered on first visit for minor injury or discomfort.)

Mobile Equipment

A vehicle (wheeled or tracked) that generally requires:

- The driver to hold a specific state or civil license; or
- The operator to hold a nationally recognized certificate of competency.

Examples of mobile equipment include, but are not limited to, dump trucks, water trucks, graders, dozers, loaders, excavators, forklifts, tractors, back-actors, bobcats, mobile cranes, tele-handlers, drill rigs, buses and road-going trucks.

Near Hit

An incident that has occurred that did not result in any injuries, illnesses, environmental or property damage but had the potential to cause an injury, illness, environmental or property damage.

Personal Lock

A single lock with one unique key controlled by the owner. Used for personal protection.

Regulation

Risk
A combination of the likelihood of an occurrence of a hazardous event or exposure and the severity of injury or ill health that can be caused by the event or exposure.

Risk Assessment
A process of evaluating the risk arising from a hazard, taking into account the adequacy of any existing control measures, and deciding on whether or not the risk is acceptable.

Risk Management
The systematic application of management policies, processes and procedures to identifying hazards, analysing and evaluating the associated risks, determining whether the risks are acceptable, and controlling and monitoring the risks on an ongoing basis.

4. Abbreviations
DSTI - Daily Safety Task Instruction
CR – Construction Regulations
EPC - Engineering Procurement and Construction
EPCM - Engineering Procurement and Construction Management
HIRA - Hazard Identification and Risk Assessment
HEALTH AND SAFETY - Integrated Management System
MS - Management System
OHS Act - Occupational Health and Safety Act
SOC - Safety Observation and Conversation
VFL - Visible Felt Leadership
OHS - Occupational Health and Safety
SACPCMP - The South African Council for Project and Construction Management Professions, here in refer to as they register of Health and Safety Professionals

5. SHE Management Plan
The contractor must prepare, implement and maintain a project-specific SHE Management Plan. The plan must be based on the requirements set out in this specification as well as all applicable legislation. It must cover all activities that will be carried out on the project site(s), from mobilisation and set-up through to rehabilitation and decommissioning.

The plan must demonstrate the contractor's commitment to HEALTH AND SAFETY and must, as a minimum, include the following:

- A copy of the contractor’s Health and Safety Policy; in terms of the OHS Act section 7
- Procedures concerning Hazard Identification and Risk Assessment, including both Baseline and Task-Based Risk Assessments;
- Arrangements concerning the identification of applicable Legal and Other Requirements, measures to ensure compliance with these requirements, and measures to ensure that this information is accessible to relevant personnel;
• Details concerning **Health and Safety Objectives** – a process must be in place for setting objectives (and developing associated action plans) to drive continual improvement;

• Details concerning **Resources, Accountabilities and Responsibilities** – this includes the assignment of specific health and safety responsibilities to individuals in accordance with legal or project requirements, including the appointment of a Project Manager, Health and Safety Officers, Supervisors, Health and Safety Representatives, and First Aiders;

• Details concerning **Competence, Training and Awareness** – a system must be in place to ensure that each employee is suitably trained and competent, and procedures must be in place for identifying training needs and providing the necessary training;

• **Communication, Participation and Consultation** arrangements concerning health and safety, including Safety Observations and Coaching, Toolbox Talks, Daily Safe Task Instructions, project health and safety meetings, and notice boards;

• **Documentation and Document Control** – project-specific documentation required for the effective management of health and safety on the project must be developed and maintained, and processes must be in place for the control of these documents;

• Processes and procedures for maintaining **Operational Control**, including rules and requirements (typically contained in Safe Work Procedures) for effectively managing health and safety risks, particularly critical risks associated with working at heights, confined spaces, mobile equipment and light vehicles, lifting operations, hazardous chemical substances, etc.;

• **Emergency Preparedness and Response** procedures;

• **Management of Change** – a process must be in place to ensure that health and safety risks are considered before changes are implemented;

• **Sub-contractor Alignment** procedures – a process must be in place for the assessment of sub-contractors and suppliers with regard to health and safety requirements and performance (before any contract or purchase order is awarded);

• **Measuring and Monitoring** plans, including a plan for the measuring and monitoring of employee exposure to hazardous substances or agents (e.g. Noise, dust, etc.) In order to determine the effectiveness of control measures;

• **Incident Reporting and Investigation** procedures describing the protocols to be followed with regard to incident reporting, recording, investigation and analysis;

• **Non-conformance and Action Management** procedures concerning the management of corrective actions;

• **Performance Assessment and Auditing** procedures concerning health and safety performance reporting, monthly internal audits to assess compliance with the project health and safety requirements, and daily site health and safety inspections; and

• Details concerning the **Management Review** process followed to assess the effectiveness of health and safety management efforts.

Prior to mobilisation, the HEALTH AND SAFETY Management Plan must be forwarded electronically, and as a hard copy, to the nominated project management representative for review. The plan will be audited for completeness and, if found to be adequate, will be accepted (typically “with comments”). Work may not commence until the plan has been accepted.
Once the plan has been accepted, the contractor must action and resolve any issues within 30 days from the start of work.

If the issues requiring corrective action are not resolved within this 30 day period, the contractor will be required to stop any work related to the outstanding actions until they have been resolved.

Any proposed amendments or revisions to the contractor’s Health and Safety Management Plan must be submitted to the nominated project management representative for acceptance.

Should it be identified that the contractor has overlooked a high risk activity, and as a result has omitted the activity and associated control measures from the Health and Safety Management Plan, the plan will not be approved.

6. **Policy**

The contractor must develop, display and communicate a Health and Safety Policy that clearly states the contractor’s values and objectives for the effective management of health and safety as required by OHS Act of 1993, 7(3). These values and objectives must be endorsed by the contractor’s management representatives and must be consistent with those adopted for the project.

The policy must be signed and dated, and must be reviewed annually.

The policy must commit to:

- Compliance with all applicable legal requirements in the TCP regulatory universe;
- The effective management of health and safety risks;
- The establishment of measurable objectives for improving performance, and the provision of the necessary resources to meet these objectives;
- The prevention of incidents; and
- Achieving continual improvement with regard to health and safety performance.

All employees of the contractor as well as the employees of any sub-contractors that may be appointed by the contractor must be made aware of the policy. This must be done through Health and Safety Induction Training and Toolbox Talks (refer to Sections 10 and 11).

A copy of the policy must be displayed in each meeting room and on each notice board.

7. **Hazard Identification and Risk Assessment.**

Detailed hazard identification and risk assessment processes must be followed for all work to be performed as well as for all associated equipment and facilities as required by the Construction regulation of 2014, regulation 9(1) – (7).

The client will provide a baseline risk assessment informing contractor on the hazards and risks on site. Contractor must ensure that effective procedures and risk assessment systems are in place to control hazards and to mitigate risks to levels that are as low as is reasonably practicable.

The risk assessment processes must be applied to:

- The full life cycle of the project;
- Routine and non-routine activities;
- Planned or unplanned changes (refer to Section 15);
All employees, sub-contractors, suppliers and visitors; and
All infrastructure, equipment and materials.

The risk assessment processes and methodologies must be appropriate for the nature and scale of the risks, and must be implemented by competent persons.

The process of analysing and managing risk must include the following:

- Establishing the context of the risk assessment;
- Identifying hazards and determining possible risk scenarios (unwanted events);
- Evaluating risks and assigning ratings (classification);
- Recording the risk analysis in a risk register;
- Managing risks according to their classification (prioritising for action);
- Identifying and implementing control measures (through the application of the Hierarchy of Controls) to ensure that risks are managed to levels that are as low as is reasonably practicable (ALARP);
- Developing action plans for reducing risk levels (where possible);
- Verifying the completion of actions;
- Re-evaluating the risks and classifications as appropriate; and
- Reviewing and updating the risk register.

### 7.1 Baseline Risk Assessments

Prior to site establishment, the client must conduct a detailed Baseline Risk Assessment identifying foreseeable hazards and risk scenarios associated with the contractor’s scope of work on the project site(s) as required by Construction Regulations of 2014, regulation 5(1)(a). Details concerning proposed control measures must be included. The risk assessment process must be facilitated by a competent person who has been appointed in writing and must involve the participation of the contractor’s site management representatives, supervisory personnel and technical experts (as required). An attendance register must be completed and retained for reference purpose. The Baseline Risk Assessment must be reviewed and approved by the Project Health and Safety Manager and Project Construction Manager.

When carrying out a Baseline Risk Assessment or a Task-Based Risk Assessment (refer to Section 6.2), Hazard (Energy) Types must be specified in accordance with the categorisation detailed in Table 6-1. Risk scenarios must be described indicating the manner in which a person may come into contact with, or be exposed to, a specific hazard.

An initial risk rating must be assigned to each risk scenario without taking any control measures into consideration. Control measures for managing the risks to levels that are as low as is reasonably practicable must then be identified for implementation on the project, and a residual risk rating must be assigned to each risk scenario taking the identified control measures into consideration.

Ratings must be assigned qualitatively using TCP consequence and likelihood scales and descriptors (i.e. TCP 5x5 qualitative risk matrix). Refer to Tables 6-2, 6-3 and 6-4.

**Table 7-1: Hazard (Energy) Types**
A Risk Register comprised of all significant risks (i.e. Risks rated as major or catastrophic) identified for the project will be compiled using the information contained in the project Baseline Risk Assessment as well as the contractor's Baseline Risk Assessment. Key control measures for managing each of these risks will be specified in the register.

For the significant risks in particular, action plans will be developed for reducing the risk levels (where possible).

The project Risk Register will be reviewed and, if necessary, updated:

- On a quarterly basis during construction;
- When changes are made to a design and / or the construction scope, schedule, methods, etc. That result in a change to the risk profile; and
- Following an incident.

The contractor must ensure that the hazards, risk scenarios and control measures identified in the contractor’s Baseline and Task-Based Risk Assessments are taken into consideration when developing, implementing and maintaining the various elements of the contractor’s health and safety management system for the project (e.g. Competence, training and awareness requirements).

All persons potentially affected must be made aware of the hazards, risk scenarios and control measures identified in the contractor's risk assessments. This must be done through training, Toolbox Talks, and Daily Safe Task Instructions (refer to Sections 10 and 11).

### 7.2 Task-Based Risk Assessments

The contractor must carry out detailed project-specific Task-Based Risk Assessments which must be reviewed and approved by the Client’s Project Health and Safety Manager and Contract Manager prior to the commencement of any work.

The risk assessment process must be facilitated by a competent person who has been appointed in writing in terms CR 9 sub regulation (1). The contractor's site management representatives, supervisory personnel, technical experts (as required) and workforce personnel directly involved with the task being examined must participate in the risk assessment process. An attendance register must be completed and retained.

**Please Note:** Under no circumstances may a Contractor Health and Safety Officer perform a risk assessment in isolation. The active participation of all persons referred to above is mandatory.

A Task-Based Risk Assessment must at least:

- Be accompanied by a Work Method Statement (describing in sufficient detail how the specific job or task is to be performed in a logical and sequential manner);
- Provide a breakdown of the job or task into specific steps;
- Identify the hazards and potential risk scenarios associated with each step;
- Include consideration of possible exposure to noise, heat, dust, fumes, vapours, gases, chemicals, radiation, vibration, ergonomic stressors, or any other occupational health hazard or stressor;
- Describe the control measures that will be implemented to ensure that the risks are managed to levels that are as low as is reasonably practicable; and
• Assign an initial risk rating (without taking any control measures into consideration) and a residual risk rating (taking the identified control measures into consideration) to each risk scenario.

A Task-Based Risk Assessment must be reviewed and, if necessary, updated:

• On an annual basis (as a minimum);
• When changes are made to the associated Work Method Statement; and
• Following an incident.

7.3 Pre-Task Hazard Assessments
A pre-task hazard assessment must be completed whenever a change is identified while carrying out an activity. Any deviation from what was discussed during the Daily Safe Task Instruction (prior to the activity commencing), or anything that was not discussed, constitutes a change.

Before carrying out the particular task that involves the identified change, a few minutes must be spent identifying the hazards and risks associated with that task as well as suitable control measures.

8. Legal and Other Requirements
The Contractor must comply with the requirements of all applicable legislation as well as Transnet and project-specific standards and procedures as amended from time to time.

The Contractor must compile and maintain a register of all legal and other requirements applicable to the work that will be carried out and/or services that will be provided. This register must be updated regularly to ensure that it remains relevant.

Applicable laws and standards must be appropriately communicated to all employees of the contractor (as well as the employees of any sub-contractors that may be appointed by the contractor) through training, Toolbox Talks, and Daily Safe Task Instructions (refer to Sections 10 and 11).

9. Objectives
In order to drive continual improvement, the contractor must set project-specific objectives, and must develop improvement action plans to achieve these objectives. The contractor’s objectives must be aligned with the objectives set for the project as a whole as required by the Construction regulations of 2014, regulation 7.

Eliminating hazards, minimising risks, preventing incidents, injuries and illnesses, and ensuring legal compliance must be the primary considerations for setting objectives.

When setting objectives, consideration must be given to the following:

• Leading indicators such as inspection findings, audit findings, hazard reporting, and observations;
• Lagging indicators (i.e. Incidents including Near Hits);
• Leading practices and lessons learnt; and
• Injury frequency rates with due understanding that the goal is “no harm”.

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The objectives must be specific and measurable. The improvement action plans must specify the resources (both human and financial) required to achieve the objectives, the person’s responsible, and realistic timeframes for completion. The contractor must ensure that adequate resources are allocated and that progress towards meeting the objectives is monitored regularly.

The objectives and associated improvement action plans must be documented and must be communicated to all contractor employees. Furthermore, to ensure that the objectives remain relevant, they must be reviewed on a quarterly basis and whenever significant change has taken place on the project (i.e. Changes to activities, scope of work, operating conditions, etc.).

Performance reviews must be carried out at quarterly intervals to assess and document performance against these personal or team objectives.

If a reward or incentive scheme is introduced, it must be designed in such a manner that health and safety performance is not compromised in order to maximise financial reward.

10. **Resources, Accountabilities and Responsibilities**

The Contractor must adequately allocate resources, responsibility and accountability to ensure the effective implementation, maintenance and continual improvement of the contractor’s HEALTH AND SAFETY management system on the projects required by Construction regulation of 2014, regulation 7(2)(c)

For each role that carries health and safety accountability and / or responsibilities (including legislative requirements), a role description detailing the accountability and / or responsibilities must be documented.

All appointments (i.e. the assignment of specific SHE responsibilities to individuals in accordance with legal or project requirements) must be done in writing. Documented proof of each appointment (i.e. a signed appointment letter) must be retained.

Contractor should not discharge any legal responsibilities to employees who are not legally appointed.

The contractor must comply with the requirements of all applicable legislation concerning health and safety related appointments and delegations for the project.

A Organogram specific to the project must be documented and maintained. All roles that carry SHE accountability and / or responsibilities must be included, and all individuals that carry health and safety appointments must be clearly identified.

The provision of dedicated professionals on the project must be appropriate for the nature and scale of the work to be carried out.

The contractor is solely responsible for carrying out the work under the contract whilst having the highest regard for the health and safety of all persons on the project site(s).

Health and safety is the responsibility of each and every individual on the project site(s), but in particular, it is the responsibility of the contractor’s management team who must set the tone.

Visible commitment is essential to providing and maintaining a safe workplace. The contractor’s managers and supervisors at all levels must demonstrate their commitment and support by adopting a risk management approach to all health and safety issues. These individuals must consistently take immediate and firm action to address violations of health and safety rules, and must actively participate in day to day activities with the objective of preventing harm.
The contractor’s management representatives are responsible and accountable for health and safety performance on the project. Key responsibilities include the following:

- Preparing, implementing and maintaining a risk-based Health and Safety Management Plan specific to the work that will be carried out (refer to Section 4);
- Establishing, implementing and maintaining health and safety programmes and procedures to ensure that all work is carried out in compliance with the requirements of this specification, the contract, and all applicable legislation;
- Establishing, implementing and maintaining effective hazard identification and risk management processes and procedures to ensure that all reasonably foreseeable hazards are controlled in order to minimise risk (refer to Section 6);
- Providing the resources necessary to meet the requirements of this specification (refer to Section 9);

- Ensuring that all contractor employees have clearly defined responsibilities with regard to health and safety, and that these responsibilities are clearly communicated and understood (refer to Section 9);
- Establishing, implementing and maintaining a system for ongoing training and assessment of skills and competence (refer to Section 10);
- Establishing, implementing and maintaining procedures to ensure that only qualified and competent personnel are permitted to work on the project site(s) (refer to Section 10);
- Establishing, implementing and maintaining effective communication and consultative processes concerning health and safety for the duration of the contract (refer to Section 11);
- Maintaining operational control for the protection of all persons on the project site(s) as well as the public (refer to Section 13);
- Establishing, implementing and maintaining effective emergency preparedness and response procedures (refer to Section 14);
- Establishing, implementing and maintaining effective management of change processes and procedures (refer to Section 15);
- Establishing, implementing and maintaining effective incident reporting and investigation processes and procedures (refer to Section 18);
- Establishing, implementing and maintaining effective auditing and inspection processes and procedures (refer to Section 20); and
- Formally reviewing the contractor’s Health and Safety Management System annually to ensure that the system continues to be effective in managing health and safety performance and meeting project requirements (refer to Section 21).

All costs associated with meeting these responsibilities shall be borne by the contractor.

Any cost associated with any work stoppage due to non-compliance with a health and safety requirement shall be for the contractor’s account.
10.1 **Contractor Construction Manager**

The Contractor must appoint a competent Construction Manager who shall be responsible for the successful and safe completion of all work to be carried out by the contractor as required by the Construction regulations of 2014, regulation 8(1).

The contractor’s Project Manager shall be responsible for:

- Ensuring that a Health and Safety Policy that clearly states the contractor’s values and objectives for the effective management of health and safety on the project is in place and is communicated to all contractor and sub-contractor employees;
- Ensuring that all applicable legal and project health and safety requirements are identified and complied with at all times;
- Ensuring that effective hazard identification and risk management processes are established and implemented for all work to be carried out by the contractor;
- Participating in the Baseline Risk Assessment for the contractor’s scope of work (prior to site establishment);
- Participating in (and approving) all Task-Based Risk Assessments conducted for the work to be carried out by the contractor;
- Driving the achievement of agreed health and safety objectives;
- Ensuring that the necessary resources are made available for the effective implementation of the contractor’s Health and Safety Management Plan;
- Ensuring that all work is adequately and competently supervised;
- Ensuring that all contractor employees have clearly defined responsibilities with regard to health and safety (assigned in writing), and that these responsibilities are clearly communicated and understood;
- Ensuring as far as is reasonably practicable that each contractor and sub-contractor employee is competent to perform his role, and has received appropriate workplace health and safety training and instruction;
- Managing all appointed sub-contractors with regard to health and safety performance;
- Establishing and maintaining effective communication and consultative processes to ensure that all contractor and sub-contractor employees are kept up to date with regard to health and safety information (e.g. Incidents and lessons learnt, leading practices, hazards, risks and control measures, etc.) And that feedback is provided promptly regarding issues and / or concerns raised;
- Participating in the project’s Visible Felt Leadership (VFL) programme;
- Chairing monthly Contractor Health and Safety Meetings and attending monthly Site Health and Safety Meetings;
- Implementing programmes that encourage continual improvement and providing recognition for suggestions made by contractor and sub-contractor employees;
- Implementing the contractor’s Health and Safety Management Plan and associated Safe Work Procedures;
• Acting consistently and strictly against any contractor or sub-contractor employee who transgresses a health and safety rule or requirement;
• Ensuring that an effective management of change process is in place;
• Implementing, testing and maintaining an effective Emergency Response Plan for all contractor and sub-contractor activities, and ensuring that the plan is adequately resourced;
• Ensuring that workplace exposure of contractor and sub-contractor employees to hazardous substances or agents is measured and monitored to determine the effectiveness of controls and compliance with legal (and project) requirements;
• Ensuring that all incidents are reported without delay and are investigated thoroughly;
• Participating in investigations into significant incidents;
• Ensuring that accurate health and safety statistics are maintained, and that health and safety performance reports are compiled as required;
• Providing the necessary resources for regular health and safety audits and inspections to be conducted, and supporting the auditing process;
• Participating in health and safety audits, and carrying out workplace inspections;
• Ensuring that corrective actions (arising from incident investigations, audits, inspections, etc.) are implemented, and that adequate resources are provided for this purpose; and
• Participating in an annual review of the contractor’s Health and Safety Management System.

10.2 Contractor Health and Safety Officers

The contractor must appoint a full-time Health and Safety Officer for the duration of the contract who is registered with the SACPCMP (The South African Council for Project Construction Management Professions). The project site(s) (directly or through sub-contractors), must at least appoint two full-time Health and Safety Officers depending on the scope, complexity, budget and high risk activities involved, as required by the Construction regulations of 2014, regulation 7(2)(c).

The Health and Safety Officer must be on site when work commences at the start of the day and must remain on site until all activities for that day (including the activities of sub-contractors) have been completed. A Health and Safety Officer must be present during all shifts, so if work is carried out over more than one shift per day, the contractor must make provision for an additional Health and Safety Officer.

Each Contractor Health and Safety Officer shall be responsible for:

• Reviewing all applicable legal and project health and safety requirements and providing guidance to contractor and sub-contractor personnel (particularly the contractor’s Project Manager) to help ensure compliance at all times;
• Assisting with the implementation of effective hazard identification and risk management processes for all work to be carried out by the contractor;
• Participating in the Baseline Risk Assessment for the contractor’s scope of work (prior to site establishment) and ensuring that identified control measures are implemented;
• Participating in all Task-Based Risk Assessments conducted for the work to be carried out by the contractor and ensuring that identified control measures are implemented;
• Conducting contractor health and safety induction training for all contractor and sub-contractor personnel;
• Compiling and maintaining all health and safety related documents and records required of the contractor;
• Communicating relevant health and safety information to contractor and sub-contractor personnel (e.g. Incidents and lessons learnt, leading practices, hazards, risks and control measures, etc.);
• Carrying out Safety Observations and Coaching (one per day);
• Evaluating (on a daily basis) the content of the Daily Safe Task Instructions (DSTI’s) conducted by the contractor’s appointed supervisors, and attending at least one DSTI each day;
• Attending monthly Contractor and Site Health and Safety Meetings;
• Assisting with the implementation of the contractor’s Health and Safety Management Plan and associated Safe Work Procedures;
• Carrying out Planned Task Observations on an ad hoc basis;
• Assisting with the implementation, testing and maintenance of an effective Emergency Response Plan for all contractor and sub-contractor activities;
• Responding to workplace incidents (as appropriate);
• Participating in incident investigations;
• Maintaining accurate health and safety statistics (for the contractor and all sub-contractors), and compiling health and safety performance reports as required;
• Auditing the health and safety management system and workplace activities of the contractor and each sub-contractor on a monthly basis to assess compliance with the project health and safety requirements; and
• Tracking and reporting on the implementation of corrective actions (arising from incident investigations, audits, inspections, etc.).

The contractor must ensure that each Health and Safety Officer is adequately equipped to enable him to perform his duties effectively. Each Health and Safety Officer must be provided with the following:
• A computer with access to all necessary systems, including access to e-mail and the internet;
• A mobile telephone on contract or with adequate pre-paid airtime; and
• A vehicle where required or instructed by a nominated project management representative (depending on the size and location of the project site(s)).

A Health and Safety Officer must over and above the SACPCMP registration as an Officer; be computer literate, fluent in English, and must have the following minimum qualifications, training and experience:
• At least 5 years’ experience as a Health and Safety Officer on construction projects;
• SAMTRAC, NEBOSH or an equivalent training course with accredited health and safety service provider as a minimum qualification;
- Experience and appropriate training with regard to implementing and maintaining a health and safety management system compliant with national legislation or an international standard;

- Experience and appropriate training with regard to construction related hazard identification and risk management processes;

- Competence, experience and relevant training with regard to incident investigation procedures and causation analysis;

- Health and safety auditing experience and training;

- A valid First Aid certificate of competency;

- Fire prevention and protection training; and

- A valid Driving Licence (light motor vehicle).

- Registered as a Health and Safety Officer or Health and Safety Manager with SACPCMP depending on the size of the project and on the risk.

Before placing a Health and Safety Officer on the project site(s), the contractor must forward a copy of the person’s CV to the nominated project management representative or to the Programme Health and Safety manager for review and acceptance. A proposed candidate may be rejected should he not meet the experience and / or qualification requirements, or due to poor work performance on previous projects.

10.3 Contractor Supervisors

The contractor must ensure that all project and / or construction works are supervised at all times by an adequate number of qualified, competent and appointed supervisors who have experience in the type of work being carried out as required by Construction regulations of 2014, regulation 8(7).

No work may be carried out without an appointed supervisor being physically present in the work area and daily safety task instruction.

Each Contractor Supervisor shall be responsible for:

- Ensuring that all work carried out under his supervision is done so in accordance with the requirements of all applicable legislation, rules, standards, specifications, plans and procedures;

- Participating in Baseline and Task-Based Risk Assessments;

- Ensuring that all employees under his supervision are made aware of the hazards, risk scenarios and control measures identified in relevant risk assessments;

- Ensuring that the control measures stipulated in all relevant risk assessments are in place and are implemented fully for all work carried out under his supervision;

- Ensuring that all employees under his supervision conduct pre-task hazard assessments when necessary;

- Driving the achievement of health and safety objectives set for his team;

- Ensuring that the necessary written appointments are in place for each employee under his supervision (e.g. First aider, mobile crane operator, etc.);

- Ensuring that all employees under his supervision attend all required training;
- Ensuring that no employee carries out any work that he is not competent to perform or has not been appointed to perform;
- Identifying training needs within his team;
- Carrying out Safety Observations and Coaching (one per day);
- Conducting a weekly Toolbox Talk with his team;
- Leading a Daily Safe Task Instruction discussion with his team;
- Attending Health and Safety Meetings as required;
- Maintaining a Health and Safety Management Information Notice Board in the work area for which he is responsible;
- Recording, on a daily basis, a description of the day's activities as well as a breakdown (by occupation) of the personnel on site under his supervision (e.g. 5 bricklayers, 2 carpenters, 3 welders, 22 general workers, and 1 supervisor);
- Ensuring that all Safe Work Procedures applicable to the work carried out under his supervision are adhered to and are fully implemented;
- Maintaining discipline and taking the necessary action whenever an employee under his supervision does not adhere to a rule or requirement;
- Carrying out Planned Task Observations (one per day);
- Ensuring that emergency response procedures are understood by all employees under his supervision and that these procedures are followed in the event of an emergency;
- Reporting all incidents immediately, participating in incident investigations, communicating the lessons learnt to all employees under his supervision, and implementing corrective actions where required; and
- Carrying out workplace health and safety inspections.

Each supervisor must accept these responsibilities in writing as part of his appointment.

Each supervisor must be equipped with a mobile telephone to ensure that effective communication can be maintained for the duration of the contract.

### 10.4 Health and Safety Representatives

The team of employees on site must have a health and safety representative deployed on the project site(s), a Health and Safety Representative must be elected and appointed. Taking into consideration the number of employees deployed, the geographical area in which the work is taking place, the different work disciplines, and the shift pattern (if applicable), the contractor must ensure that an adequate number of Health and Safety Representatives (at a minimum ratio of one Health and Safety Representative per 50 employees) are elected and appointed to effectively represent all site personnel as required by the OHS Act 85 of 1993, section 17 - 18.

Each Health and Safety Representative must attend an accredited training course for health and safety representatives. The cost of this training shall be for the contractor’s account.

The contractor must make the necessary allowances for the Health and Safety Representatives to carry out their duties as specified in the applicable legislation.

The contractor must ensure that an appropriate sticker is affixed to the safety helmet of each Health and Safety Representative for identification purposes.
10.5 First Aiders

If 10 or more employees are deployed on the project site(s), at least one trained and competent First Aider must be in place and must be appointed. Taking into consideration the number of employees deployed, the geographical area in which the work is taking place, the different work disciplines, and the shift pattern (if applicable), the contractor must ensure that an adequate number of First Aiders (at a minimum ratio of one First Aider per 50 employees) are in place and have been appointed to administer first aid treatment should this be required.

First Aid training must be done through an accredited training institution. The cost of this training shall be for the contractor’s account.

The contractor must ensure that an appropriate sticker is affixed to the safety helmet of each First Aider for identification purposes.

10.6 Duties of Client

As per the Construction regulations of 2014, regulation 5(1) – (8) a client must—

- Prepare a baseline risk assessment for an intended construction work project;
- Prepare a suitable, sufficiently documented and coherent site specific health and safety specification for the intended construction work based on the baseline risk assessment contemplated in paragraph;
- Provide the designer with the health and safety specification contemplated in paragraph (b);
- Ensure that the designer takes the prepared health and safety specification into consideration during the design stage;
- Ensure that the designer carries out all responsibilities contemplated in CR regulation 6;
- Include the health and safety specification in the tender documents;
- Ensure that potential principal contractors submitting tenders have made adequate provision for the cost of health and safety measures;
- Ensure that the principal contractor to be appointed has the necessary competencies and resources to carry out the construction work safely;
- Take reasonable steps to ensure co-operation between all contractors appointed by the client to enable each of those contractors to comply with these Regulations;
- Ensure before any work commences on a site that every principal 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 (Act No. 130 of 1993);
- Appoint every principal contractor in writing for the project or part thereof on the construction site;
- Discuss and negotiate with the principal contractor the contents of the principal contractor's health and safety plan contemplated in CR regulation 7(1), and must thereafter finally approve that plan for implementation;
- Ensure that a copy of the principal contractor's health and safety plan is available on request to an employee, inspector or contractor;
- Take reasonable steps to ensure that each contractor's health and safety plan contemplated in CR Regulation 7(1)(a) is implemented and maintained;
- Ensure that periodic health and safety 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;
- Ensure that a copy of the health and safety audit report contemplated in paragraph (o) is provided to the principal contractor within seven days after the audit;
- Stop any contractor from executing a construction activity which poses a threat to the health and safety of persons 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;
- Where changes are brought about to the design or construction work, make sufficient health and safety information and appropriate resources available to the principal contractor to execute the work safely; and
- Ensure that the health and safety file contemplated in CR regulation 7(1) (b) is kept and maintained by the Principal contractor.

Where a client requires additional work to be performed as a result of a design change or an error in Construction due to the actions of the client, the client must ensure that sufficient safety information and appropriate additional resources are available to execute the required work safely.

Where a fatality or permanent disabling injury occurs on a construction site, the client must ensure that the contractor provides the provincial director with a report contemplated in section 24 of the Act, in accordance with regulations 8 and 9 of the General Administrative Regulations, 2013, and that the report includes the measures that the contractor intends to implement to ensure a safe construction site as far as is reasonably practicable.

Where more than one principal contractor is appointed as contemplated in sub-regulation CR 5(1) (k), the client must take reasonable steps to ensure co-operation between all principal contractors and Contractors in order to ensure compliance with these Regulations.

Where a construction work permit is required as contemplated in CR regulation 3(1), the client must, without derogating from his or her health and safety responsibilities or liabilities, appoint a competent person in writing as an agent to act as his or her representative, and where such an appointment is made the duties that are imposed by these Regulations upon a client, apply as far as reasonably practicable to the agent so appointed: Provided that, where the question arises as to whether an Agent is necessary, the decision of an inspector is decisive.

An agent contemplated in CR sub-regulations (5) and (6) must—
Manage the health and safety on a construction project for the client; and
Be registered with a statutory body approved by the Chief Inspector as qualified to perform the required functions;

When the chief inspector has approved a statutory body as contemplated in CR sub-regulation (7) (b), he or she must give notice of that approval in the Gazette.

### 10.7 Duties of the Designer
As per the Construction regulations of 2014, regulation 6(1) – (2) a designer must –
• Ensure that the applicable safety standards incorporated into these Regulations under section 44 of the Act are compiled within the design;
• Take into consideration the health and safety specification submitted by the client;
• Before the contract is put out to tender, make available in a report to the client—
  • All relevant health and safety information about the design of the relevant structure that may affect the pricing of the construction work;
  • The geotechnical-science aspects, where appropriate; and
  • The loading that the structure is designed to withstand;
• Inform the client in writing of any known or anticipated dangers or hazards relating to the construction work, and make available all relevant information required for the safe execution of the work upon being designed or when the design is subsequently altered;
• When modifying the design or substituting materials; take into account the hazards relating to any subsequent maintenance of the relevant structure and must make provision in the design for that work to be performed to minimize the risk;
• When mandated by the client to do so, carry out the necessary inspections at appropriate stages to verify that the construction of the relevant structure is carried out in accordance with his design: Provided that if the designer is not so mandated, the client’s appointed agent in this regard is responsible to carry out such inspections;
• When mandated stop any contractor from executing any construction work which is not in accordance with the relevant design’s health and safety aspects: Provided that if the designer is not so mandated, the client’s appointed agent in that regard must stop that contractor from executing that construction work;
• When mandated in his or her final inspection of the completed structure in accordance with the National Building Regulations, include the health and safety aspects of the structure as far as reasonably practicable, declare the structure safe for use, and issue a completion certificate to the client and a copy thereof to the contractor; and
• During the design stage, take cognisance of ergonomic design principles in order to minimize ergonomic related hazards in all phases of the life cycle of a structure.
The designer of temporary works must ensure that -
• All temporary works are adequately designed so that it will be capable of supporting all anticipated vertical and lateral loads that may be applied;
• The designs of temporary works are done with close reference to the structural;
• The designs of temporary works are done with close reference to the structural design drawings issued by the contractor, and in the event of any uncertainty consult the contractor;
• All drawings and calculations pertaining to the design of temporary works are kept at the office of the temporary works designer and are made available on request by an inspector; and
• The loads caused by the temporary works and any imposed loads are clearly indicated in the design.

10.8 Duties of Principal Contractor
As per the Construction regulations of 2014, regulation 7(1) – (8) a Principal Contractor and Contractor must
• 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 CR 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-
- 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 CR regulation 5(1)(b) pertaining to the construction work which has to be performed;
- Ensure that potential contractors submitting tenders have made sufficient provision for health and safety measures during the construction process;
- 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;
- 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;
- Appoint each contractor in writing for the part of the project on the construction site;
- Ensure that potential contractors submitting tenders have made sufficient provision for health and safety measures during the construction process;
- 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;
- 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;
- Appoint each contractor in writing for the part of the project on the construction site;
- 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 CR 7 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 CR 7 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 CR 7 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.

10.9 Duties of Contractor

A contractor must -
- Prior to performing any construction work 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) and provided by the principal contractor), 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;
- Open and keep on site a health and safety file, which must include all documentation required and must be made available on request to an inspector, the client, the client’s agent or the principal contractor;
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;
• 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
• 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.

Where a contractor appoints another contractor to perform construction work, the duties that apply to the principal contractor apply to the contractor as if he or she were the principal contractor.

A 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.

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.

A contractor must ensure that all visitors to a construction site undergo health and safety induction pertaining to the hazards prevalent on the site and must ensure that such visitors have the necessary personal protective equipment.

A contractor must at all times keep on his or her construction site records of the health and safety induction training and such records must be made available on request to an inspector, the client, the client’s agent or the principal contractor;

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.

10.10 Management and supervision of Construction work
A principal contractor must in writing appoint one full-time competent person as the construction manager with the duty of managing all the construction work on a single site, including the duty of ensuring occupational health and safety compliance, and in the absence of the construction manager an alternate must be appointed by the principal contractor.

A principal contractor must upon having considered the size of the project, in writing appoint one or more assistant construction managers for different sections thereof: Provided that the designation of any such person does not relieve the construction manager of any personal accountability for failing in his or her management duties in terms of this regulation.

Where the construction manager has not appointed assistant construction managers as in the opinion of an inspector, a sufficient number of such assistant construction managers have not been appointed, that inspector must direct the construction manager in writing to appoint the number of assistant construction managers indicated by the inspector,
No construction manager appointed may manage any construction work on or in any construction site other than the site in respect of which he or she has been appointed.

A contractor must, after consultation with the client and having considered the size of the project, the degree of danger likely to be encountered or the accumulation of hazards or risks on the site, appoint a full-time or part-time construction health and safety officer in writing to assist in the control of all health and safety related aspects on the site: Provided that, where the question arises as to whether a construction health and safety officer is necessary, the decision of an inspector is decisive.

No contractor may appoint a construction health and safety officer to assist in the control of health and safety related aspects on the site unless he or she is reasonably satisfied that the construction health and safety officer that he or she intends to appoint is registered with a statutory body approved by the Chief Inspector and has necessary competencies and resources to assist the contractor

A construction manager must in writing appoint construction supervisors responsible for construction activities and ensuring occupational health and safety compliance on the construction site.

A contractor must, upon having considered the size of the project, in writing appoint one or more competent employees for different sections thereof to assist the construction supervisor and every such employee has, to the extent clearly defined by the contractor in the letter of appointment, the same duties as the construction supervisor: Provided that the designation of any such employee does not relieve the construction supervisor of any personal accountability for failing in his or her supervisory duties in terms of this regulation.

No construction supervisor appointed under may supervise any construction work on or in any construction site other than the site in respect of which he or she has been appointed: Provided that if a sufficient number of competent employees have been appropriately designated on all the relevant construction sites, the appointed construction supervisor may supervise more than one site.

### 10.11 Construction Health and Safety Agent

A Construction Health and Safety Agent, based on their experience, knowledge and capabilities, as prescribed in the registration requirements for the Construction Health and Safety Agent. A person will obtain registration once they have submitted the required documentation and met the registration criteria in full.

Construction Health and Safety Agent an applicant must provide proof of:

- Recognized and appropriate health and safety qualifications
- Relevant experience in the health and safety industry, with specific detail on construction experience
- Knowledge, skill and experience by attending and passing a professional interview
- Registration letter with SACPCMP

A Construction Health and Safety Agent is required to comply with the Continuing Professional Development (CPD) Policy Framework. A Construction Health and Safety Agent shall be expected to demonstrate detailed knowledge of health and safety requirements at all levels, with the capability to design, compile, implement and manage the health and safety requirements for a construction project from Initiation and Briefing to Project Close-out. A Construction Health and Safety Agent shall also be required to
show ability to mentor, coach and guide Construction Health and Safety Managers and Construction Health and Safety Officers.

Construction project health and safety management systems.

A Construction Health and Safety Agent is expected to be experienced and knowledgeable in:

- Identifying and developing an appropriate health and safety legal framework for a construction project
- Principles of cause and effect analysis and its application to hazard identification and risk management on a construction project
- Identifying leading construction health and safety practice and applying such to a construction project
- Construction project health and safety risk profiling
- Designing and developing a construction project health and safety management system
- Construction project health and safety policy and standards
- Design risk management

10.12 Operational legal appointment letters

The contractor must ensure other legal appointment letter are compiled and be submitted with the Contractor compliance plan, below is some appointment required as per the legislation, the appointment letters varies based on the project;

- OHSA Sec 16(2)
- Sec 17,18,19 SHE Representative
- GSR 3(4) First Aider
- GAR 9(2) Incident investigator
- GMR 2(1) Supervisor of machinery
- GMR 2(7) Assistant Supervisor of machinery
- CR 4(1)(c) Principal Contractor
- CR 8(1) Construction Manager
- CR 8(2) Assistant Construction Manager
- CR 8(7) Construction Supervisor
- CR 8(8) Assistant Supervisor of construction work
- CR 8(5) Construction Health and Safety Officer
- CR 9(1) Construction Risk Assessor
- CR 10(1)(a),(b) Fall protection plan
  - Developer
  - CR 10(2)(d) Inspector of fall arrest system
  - CR 14(2) Scaffolding Supervisor
  - DMR 17(2),18 Inspector of lifting machinery
  - CR17(8) Material hoist Inspector
  - CR 19(2)(g)(i) Explosive powered tool issuer
  - CR 23(1)(k) Construction vehicle and mobile plant Inspector
  - CR 24(d) Temporary Electrical Installation Controller
  - CR 24(e) Temporary Electrical Installation Inspector
  - CR 28(a) Stacking and storage Supervisor
  - CR 29(h) Fire extinguisher inspector
  - EMR 8(8) Appointment for electrical installation in hazardous location- Master Electrician (Inspector)
11. **Safety Agents in Project Stages**

The safety agent, must be involved in all stages of project management and take charge of all the health and safety related matters.

### 11.1 Stage 1 – Project Initiation and Briefing

The deliverables at this stage shall include agreeing client requirements and preferences, assessing user needs and options, appointment of necessary consultants in establishing project brief, objections, priorities, constraints, assumptions and strategies in consultation with client.

Standard Services:

- Demonstrate the Construction Health and Safety Agent competency and resource;
- Assist in developing a clear construction project health and safety brief;
- Attend the construction project initiation meetings;
- Conclude the terms of the agreement with the client;
- Advise on the necessary surveys, analyses, tests and site or other investigations where such information will be required for the next stage of the project;
- Advise the client on the adequacy of health and safety competency and resources of the other consultants
- Identify construction project health and safety risk profile
- Provide necessary information within the agreed scope of the construction project to the other consultants;
- Define the Construction Health and Safety Agent scope of work and services;

### 11.2 Stage 2 – Concept and Feasibility

Finalisation of the project concept and feasibility.

Standard Services:

- Agree the documentation programme with the principal consultant and other consultants
- Attend design and consultants meetings;
- Review and evaluate design concepts and advise on construction project health and safety in conjunction with the other consultants;
- Review, update and agree the construction project health and safety risk profile and prepare the construction health and safety policy for the construction project;
- Advise on preliminary cost estimates/budgets for construction project health and safety
- Prepare draft construction project baseline risk assessment;
- Assist the client and principal consultant in the procurement of the necessary and appropriate specialists, including a clear definition of their roles, responsibilities and liabilities;
- Advise the client on the adequacy of the health and safety competency and resources of the appropriate specialists;
- Assess and approve the appropriate specialists health and safety plans;
- Monitor the implementation of the appropriate specialists health and safety plans, including periodic audits;
• Prepare the draft construction project health and safety specification;
• Agree the format and procedures for health, safety and hygiene construction project control
• Advise and agree with the other consultants regarding their construction project health and safety requirements and related design risk management responsibilities;
• Liaise, co-operate and provide necessary information to the client/principal consultant and the other consultants;

Construction Health and Safety Agent Deliverables
• Updated construction project health and safety risk profile;
• Agreed construction project health and safety policy for the project;
• Draft construction project baseline risk assessment;
• Draft construction project health and safety specification;
• Record of appropriate specialists health and safety competency and resource assessments;
• Schedule of required surveys, tests and other investigations and related reports;
• Record of construction project health and safety risk communication;
• Design risk management process;
• Preliminary cost estimates/budgets for construction project health and safety;
• Approved specialists health and safety plans;
• Specialists health and safety audit reports and records;

11.3 Stage 3 – Design Development
Manage, coordinate and integrate the detail design development process within the project scope, time, cost and quality parameters.

Standard Services
• Review the documentation programme with the principal consultant and the other consultants
• Attend design and consultants meetings;
• Finalise the construction project health and safety risk profile;
• Advise designers of their health and safety legal liabilities and responsibilities for constructability, maintainability and operation ability of the structure;
• Manage, co-ordinate, integrate and record the design risk management process with the other consultants in a sequence to suit the documentation programme;
• Monitor the integration of health and safety aspects for constructability, maintainability and operation ability of the structure during the design process and finalise the construction project baseline risk assessment;
• Identify and implement precautions necessary for construction project health and safety control and update the construction project tender health and safety specifications;
• Agree on a format for the health and safety file;
• Assess and approve necessary construction project health and safety plans for early works;
• Monitor the implementation of necessary construction health and safety plans, including periodic audits for early works;
• Assist the cost consultant with detailed information for initial construction project health and safety cost estimates/budgets;
• Liaise, co-operate and provide necessary construction project health and safety information to the client, principal consultant and the other consultants;
• Construction Health and Safety Agent Deliverables;
- Final construction project health and safety risk profile
- Record of construction project health and safety risk communication;
- Final construction project health and safety baseline risk assessment;
- Updated draft construction project health and safety specification;
- Design risk management records;
- Schedule of precautions necessary for construction project health, safety and hygiene control;
- Approved early works health and safety plans;
- Early works audit reports and records;
- Initial schedule of construction project health and safety cost estimates/budgets;
- Template for health and safety file.

11.4 Stage 4 - Tender Documentation and Procurement

The process of establishing and implementing procurement strategies and procedures, including the preparation of necessary documentation for effective and timeous execution of the project.

Standard Services
- Attend design and consultants meetings;
- Assist in developing a clear construction project health and safety procurement process;
- Finalise construction project tender health and safety specifications and integrate with procurement documentation;
- Provide and record construction project health, safety, hygiene and design risk information to the principal consultant and other consultants;
- Prepare construction project health and safety documentation for submission to authorities;
- Participate in construction project tender clarification meetings;
- Assist with the evaluation of tenders and verify the contractors competencies, knowledge and resources to carry out the construction works in a safe and healthy manner;
- Assist the cost consultant in the finalisation of the construction project health and safety cost estimate/budget;
- Assist with the preparation of contract documentation for signature;
- Prepare construction project health and safety mobilisation and access plans for the construction work;
- Assess samples, mock-ups and products for construction project, structural maintainability and operability health and safety compliance.

Construction Health and Safety Agent Deliverables
- Final construction project tender health and safety specifications;
- Records of construction project health and safety procurement process;
- Construction project health and safety tender evaluation and records;
- Finalised schedule of construction project health and safety cost estimate/budget;
- Construction project health and safety contract documentation;
- Construction project health and safety mobilisation and access plans;
- Design risk management records;
- Record of construction project health and safety risk;
- Construction project health and safety documentation for authorities;
- Evaluation schedule of samples/mock-ups and products.
11.5 Stage 5 - Construction Documentation and Management

The management and administration of the construction contracts and processes, including the preparation and coordination of the necessary documentation to facilitate effective execution of the works

Standard Services

- Assess, discuss, negotiate and approve the contractor(s) construction project health and safety plans;
- Submit necessary construction health and safety documentation to authorities and facilitate permits that may be required to commence the construction work;
- Attend site handover meetings and lead construction project health and safety mobilisation and access plans;
- Attend regular site, technical and progress meetings;
- Prepare revised construction project health and safety risk profile, specifications and cost estimates/budgets where there is scope of work changes;
- Monitor the implementation of the construction project health and safety plans in accordance with the construction project health and safety specification and further scope of work changes and recommend stop work orders where necessary;
- Monitor design risk management;
- Perform incident and accident investigations where necessary;
- Audit compliance with the construction project health and safety plans and brief the project management team and contractor(s) following site audits;
- Conduct construction health and safety management system audits;
- Facilitate construction health and safety system and plans reviews for continual improvement;
- Monitor the compilation of the construction project health and safety file by the contractor(s)
- Prepare and maintain the consolidated health and safety file;
- Prepare the structure commissioning health and safety plans.

Construction Health and Safety Agent Deliverables

- Approved contractor(s) construction project health and safety plans, including all construction health and safety appointments;
- Permits to commence construction work;
- Record of meetings, including all construction health and safety matters to be actioned;
- Record of revised changes to the construction project health and safety risk profiles;
- Record of revised changes to the construction project health and safety specifications;
- Record of revised changes and commissioning of the construction project health and safety plans;
- Record of revised construction project health and safety cost estimate/budget;
- Records of design risk management;
- Record of construction project health and safety audit reports;
- Record of contractor(s) construction health and safety performance;
- Record of construction project health and safety work stoppage reports;
- Record of incident and accident investigations and corrective actions;
- Record of interactions with the Compensation Commissioner or similar;
- Record of construction health and safety system and plans reviews;
- Record of construction project health and safety risk communication;
- Interim health and safety file;
- Structure commissioning health and safety plans.

11.6 Stage 6 - Project Close - Out
The process of managing and administering the project close out, including preparation and co - ordination of the necessary documentation to facilitate the effective operation of the project.

Standard Services
- Review, discuss and approve the health and safety file with the contractor(s) and manage the construction project health and safety during the defects liability period;
- Cancel all construction project health and safety legal appointments;
- Prepare the health and safety operations and maintenance report;
- Prepare the consolidated construction project health and safety close - out report;
- Construction Health and Safety Agent Deliverables;
- Record of audits during the defects liability period;
- Record of construction health and safety risk communication;
- Report on approved health and safety file;
- Health and safety operations and maintenance report;
- Consolidated construction project health and safety close - out report;

11.7 Additional Related Services
- Provide advice to the Client on health and safety competence and resources of up to [number] proposed designers prior to arrangements being made for design work to begin.
- Prepare [number] additional copies of the health and safety file.
- Prepare [number] copies of abstracts of the health and safety file for delivery to tenants by the Client/Owner’s (The contents of the abstracts to be determined in consultation with the Client/Owner’s legal advisors).
- Seek the co - operation of and co – operate with anyone else involved in a construction project at an adjoining site so far as necessary to enable them to perform their duties under the Construction Regulations.
- Facilitate co – operation and co – ordination in relation to duty holders on adjoining construction sites as it may affect the project; ensuring that suitable arrangements are made and implemented for the co – ordination of health and safety measures during planning and preparation for the construction phase.
- Keep a record of the health and safety file.
- Convert the health and safety files on other projects to match Client/Owner’s electronic format.
- Carry out necessary inspections at the appropriate stages to verify that the construction of the relevant structure is carried out in accordance with the design.
- To stop any contractor from executing any construction work that is not in accordance with the relevant design’s health and safety aspects.
• Assist in the development of maintenance schedules for the Client/Owners completed structure.
• Inspect the structure on behalf of the Client/Owner once every six (6) months for the first two (2) years on completion of the structure and then yearly thereafter, to ensure the structure remains safe for continued use and records are kept of such in the structures health and safety file.

12. Competence, Training and Awareness

Each employee (including sub-contractor employees) must be suitably trained and competent, and must understand the health and safety hazards, risks and control measures associated with his work as required by the OHS Act 85 of 1993,(14)

The contractor must implement systems and procedures to ensure that:
• The necessary competencies required by employees are identified (by occupation), along with selection, placement and any training requirements;

Please Note: Specific competency profiles and selection criteria (fitness for work) must be developed for all roles where significant health or safety risk exists.

Please Note: A formal training needs analysis must be carried out based on the competency profiles and a training matrix must be developed for the project.

Roles requiring technical certification, registration or licensing are identified and documented, and these roles are filled only by suitably qualified personnel;
• Minimum core health and safety skills required by employees in leadership and supervisory roles are identified and suitable training is provided including hazard identification and risk assessment, incident investigation, and health and safety interactions (i.e. Observation and coaching techniques);
• Competency-based training is provided and it includes operational controls (procedures and work instructions), management of change, and emergency response;
• All employees hold and maintain the required competencies (including appropriate qualifications, certificates and licences) and are under competent supervision;
• A site-specific induction and orientation programme that highlights health and safety requirements, procedures, and significant hazards, risks and associated control measures is in place for all new employees and visitors (understanding must be assessed);
• Personnel are trained and / or briefed on new or amended standards, rules, safe work procedures, risk assessments, etc.;
• Refresher training is carried out as required (e.g. Re-induction following an absence from site);
• Records of education, qualifications, training, experience and competency assessments are maintained on site for all employees; and
• The effectiveness of training is reviewed and evaluated.

Prior to the commencement of any work, including mobilisation and site set-up activities, the contractor must provide, to the satisfaction of the nominated project management representative, current documentation verifying that the contractor’s employees, as well as the employees of any appointed sub-contractors, are competent and have the necessary qualifications, certificates, licences, job skills, training and experience (as
required by this specification and applicable legislation) to safely carry out the work that is to be performed.

The Contractor and sub-contractor must ensure that the following training takes place:

- health and safety induction training pertaining to the hazards prevalent on the site at the time of entry
- training for all persons required to erect, move or dismantle temporary works structures and instruction to perform those operations safely
- training of employees working from a fall risk position
- training to work or to be suspended on a platform which includes at least:
  - how to access and egress the suspended platform safely;
  - how to correctly operate the controls and safety devices of the equipment;
  - information on the dangers related to the misuse of safety devices; and
  - information on the procedures to be followed in the case of -
    o  an emergency;
    o  the malfunctioning of equipment; and
    o  the discovery of a suspected defect in the equipment;
    o  an instructions on the proper use of body harnesses.

- Training for all operators of construction vehicles and mobile plant.

A contractor must at all times keep on his or her construction site records of the health and safety induction training and such records must be made available on request to an inspector, the client, the client’s agent or the principal contractor;

Please Note: Only certified copies of certificates, licences, etc. Will be accepted.

An Employee Profile (dossier) must be completed for each employee who will be performing work on site. All documentation pertaining to an employee’s competence (i.e. certified copies of qualifications, certificates and licences as well as proof of job skills, training and experience) must be maintained in this dossier.

If it is determined through observation that an employee is not yet competent to carry out a particular task in a safe and capable manner, the employee will be required to cease work immediately and must either be reassigned or be retrained at the contractor’s expense.

The contractor must provide proof that the training institutions and trainers that are used are appropriately registered with a governing authority (a trainer’s registration certificate or registration number alone will not be adequate). The following must be made available for verification purposes:

- Proof of registration of the training institution including the training programmes that the institution is accredited to provide; and
- For each trainer, proof of competency and registration for the specific training programmes presented.

Foreign qualifications held by employees in health and safety critical roles must be verified against the requirements of local legislation.
12.1 **Induction Training**
Each employee must attend all mandatory Induction Training applicable to the project. No employee will be permitted to enter any project work site until he has attended this training. Each employee must carry proof that he has completed the induction training and may be removed from a site if such proof cannot be produced on request, this as required by the Construction regulations of 2014, regulation 7(5).

Furthermore, employees must attend (where applicable) Area-Specific Training pertaining to the particular hazards identified in the area(s) where the employees will be working. No employee will be permitted to enter a work area until he has attended the relevant area-specific training.

All visitors must receive a visitor induction briefing before entering any project work site. However, this induction does not permit a visitor to enter a site unescorted. Visitors must be accompanied at all times by an appropriately senior employee who has been fully inducted.

12.2 **Specific Training and Competency Requirements**
The following specific training and competency requirements must be complied with.

**Please Note:** An employee must be trained, assessed and found competent before he will be given authorisation to perform certain tasks or fill certain roles.

**Table 11-1: Specific Training and Competency Requirements**

<table>
<thead>
<tr>
<th>Training</th>
<th>Applicable To</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health and Safety Induction</td>
<td>All employees</td>
</tr>
<tr>
<td>Safety Observations and Coaching (Safety Interactions)</td>
<td>All employees</td>
</tr>
<tr>
<td>Risk Assessment</td>
<td>All managers and supervisors</td>
</tr>
<tr>
<td>Incident Investigation</td>
<td>All managers and supervisors</td>
</tr>
<tr>
<td>Safety Leadership</td>
<td>All managers and supervisors</td>
</tr>
<tr>
<td>Legal Liability*</td>
<td>All managers and supervisors</td>
</tr>
<tr>
<td>Health and Safety Rep*</td>
<td>All elected Health and Safety Representatives</td>
</tr>
<tr>
<td>First Aid Levels 1, 2 and 3*</td>
<td>All nominated First Aiders</td>
</tr>
<tr>
<td>Fire Fighting (Fire Extinguisher Use)*</td>
<td>All employees</td>
</tr>
<tr>
<td>Working at Height*</td>
<td>All employees using a safety harness</td>
</tr>
<tr>
<td>Confined Spaces</td>
<td>All Confined Space Entry Officers and Standby Persons</td>
</tr>
<tr>
<td>Permit to Work</td>
<td>All Authorised Persons (i.e. Permit issuers) and all Applicants (i.e. Employees who will be applying for permits)</td>
</tr>
<tr>
<td>Isolation and Lockout</td>
<td>All Authorised Persons (i.e. Persons who authorise work that requires Isolation and Lockout), all Isolation Officers, and all Applicants (i.e. Persons who request permission to work on systems or equipment requiring Isolation and Lockout)</td>
</tr>
<tr>
<td>Defensive Driving*</td>
<td>All drivers of light motor vehicles (for work purposes)</td>
</tr>
<tr>
<td>Gravel Road Driving*</td>
<td>All drivers of light motor vehicles driven on gravel roads (for work purposes)</td>
</tr>
<tr>
<td>Training</td>
<td>Applicable To</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Off Road Driving*</td>
<td>All drivers of four-wheel drive vehicles driven off road (for work purposes)</td>
</tr>
<tr>
<td>Mobile Equipment Site</td>
<td>All mobile equipment operators</td>
</tr>
<tr>
<td>Licence</td>
<td></td>
</tr>
</tbody>
</table>

Training requirements marked with an * must be arranged through accredited external training institutions by the contractor. All other training will be provided by Transnet.

13. Communication, Participation and Consultation

The contractor must establish and maintain effective communication and consultative processes (allowing for a two-way dialogue) for the duration of the project to ensure that:

- All personnel are kept up to date with regard to health and safety matters (e.g. Hazards and risks, incidents and lessons learnt, leading practices, performance against objectives, etc.);
- General health and safety awareness levels are kept high;
- Prompt feedback is given to personnel with regard to health and safety issues or concerns that they raise; and
- Relevant, and often critical, health and safety related information (e.g. Design changes, instructions, reporting of hazardous conditions or situations, etc.) is effectively disseminated.

This must be achieved as follows:

13.1 Toolbox Talks

The contractor must prepare a Toolbox Talk on a weekly basis and must share it with all personnel for which the contractor is responsible (including all sub-contractors). Toolbox Talks must address health and safety issues that are relevant to the work performed on the project site(s) and must include information and / or knowledge sharing, lessons learnt from incidents that have occurred, information concerning specific hazards and / or risks and control measures to prevent injury, etc.

Attendance records must be kept and maintained in the contractor’s health and safety file.

13.2 Daily Safe Task Instructions (DSTI’s)

A Daily Safe Task Instruction (DSTI) is a pre-start discussion amongst the members of a work team, led by the appointed supervisor, aimed at anticipating hazards and potential risks associated with the activities planned for the day or shift, and ensuring that the necessary control measures are in place to prevent incidents.

At the start of each day or shift, prior to the start of any work, each appointed supervisor must inspect the work area for which he is responsible and ensure that it is safe. He must then conduct a DSTI with his work team specifically concerning the tasks that they will be performing during the course of the day or shift. The relevant Task-Based Risk Assessment for the activity must be used as the basis for the discussion. The correct work method must be reiterated and the identified hazards, risks and control measures must be discussed with the team (each team member must be given the opportunity to contribute and participate in the discussion).
Any team member arriving late must first be taken through the information that was discussed (work method, hazards, risks and control measures) before being permitted to start working. If the work method changes after activities have already begun, the DSTI must be revisited and updated with the team, and the changes must be signed off by the relevant Contractor Health and Safety Officer.

Every member of the work team must sign the DSTI attendance register. The attendance records must be kept and maintained in the contractor’s health and safety file.

The contractor’s Health and Safety Officer must evaluate the content of the DSTI’s daily to ensure that they are task-specific. Furthermore, the Health and Safety Officer must attend at least one DSTI per day prior to the start of work. The Health and Safety Officer may not lead the DSTI discussions, as this is the responsibility of the appointed supervisor.

13.3 Suggestions

All employees must be encouraged to submit suggestions to enhance health and safety management on the project site(s). A process must be in place for documenting, evaluating, implementing (as appropriate), archiving and recognising the improvement ideas.

13.4 Meetings

13.5.1 Contractor health and safety (OHS Act Section 19)

The contractor must schedule and consistently hold monthly health and safety meetings. These meetings must be chaired by the contractor’s Project Manager and the following persons must be in attendance:

- Contractor and sub-contractor management representatives;
- Contractor and sub-contractor supervisors;
- Contractor and sub-contractor appointed Health and Safety (Employee) Representatives;
- Contractor and sub-contractor Health and Safety Officers; and
- The relevant Project Health and Safety Advisor.

The meeting must address the following as a minimum:

- New incidents for the period and corrective actions taken or to be taken;
- Implementation status of outstanding actions associated with previous incidents;
- SOC’s, PTO’s and DSTI’s carried out for the period and action required to correct trends identified;
- Results of any audits, inspections (including H&S Rep inspections) or site visits carried out;
- A look ahead to ensure that appropriate health and safety planning and preparation is done for upcoming work;
- Risk Assessments, Safe Work Procedures, etc. That are outstanding or due for review (as well as the quality of these documents); and
- Any other health and safety related matter.

The contractor must compile minutes of each meeting and attendance records must be kept. These records must be maintained in the contractor’s health and safety file.

13.5.2 Site Meetings
In addition to the Contractor Meetings, the Project will schedule monthly Site Meetings that the contractor must attend. These meetings will be chaired by the Contract Manager and the following persons must be in attendance:

- Contractor management representatives;
- Contractor Health and Safety Officers;
- Contractor Environmental Officer
- Contractor Quality Management
- The Project Health and Safety Manager;
- Project Health and Safety Advisors; and
- Client representatives (ad hoc).

The meeting will address the following as a minimum:

- Feedback from the contractor concerning health and safety performance for the period;
- New incidents for the period and corrective actions taken or to be taken;
- Implementation status of outstanding actions associated with previous incidents;
- SOC’s, PTO’s and DSTI’s carried out for the period and action required to correct trends identified;
- Results of any audits, inspections or site visits carried out;
- A look ahead to ensure that appropriate health and safety planning and preparation is done for upcoming work;
- Risk Assessments, Safe Work Procedures, etc. That are outstanding or due for review (as well as the quality of these documents); and
- Any other health and safety related matter.

### 13.5 Performance Boards

The contractor must provide and maintain a Performance Board to be approved by the nominated project management representative and to be positioned at the entrance to the contractor’s site office area. This board must display the following information as a minimum:

- The contractor’s logo;
- Current manpower (heads) on site;
- Man-hours worked for the current month and project to date;
- Lost Time Injury Frequency Rate (LTIFR);
- Dates of last injuries (FAI, MTI and LTI);
- Number of hours worked since the last recorded LTI; and
- Names and contact telephone numbers for the appointed Project Manager and the Health and Safety Officers.

### 13.6 Management Information Notice Boards

The contractor must provide, for each appointed supervisor, a portable Health and Safety Management Information Notice Board to be placed in the work area. The following information and documentation, as a minimum, must be posted on these boards:

- The relevant Method Statements, Risk Assessments and Safe Work Procedures for the work that is being performed that day;
- The DSTI for the day;
- The most recent Toolbox Talk;
• Where applicable, all required permits and permissions for the work that is being performed;
• Material Safety Data Sheets (MSDS’s) for any chemical substances being used;
• The health and safety objectives for the work team;
• Details of the last incident involving the work team;
• The most recent weekly health and safety report (refer to Section 20);
• Emergency procedures;
• A site plan indicating evacuation routes and emergency assembly point locations;
• First Aider names and contact telephone numbers; and
• The appointed supervisor’s contact details.

13.7 Involvement (Other)
The participation of all contractor (and sub-contractor) employees in activities that promote improvements in health and safety performance must be encouraged. In particular, this must include their appropriate involvement in:
• Hazard identification, risk analysis and determining control measures;
• Incident investigation; and
• Reviewing policy and objectives.
All regulations, instructions, signage, etc. Must be communicated in a language understood by all employees.
Health and safety personnel must be actively involved in planning activities so that they have the opportunity to highlight hazards and risks associated with upcoming work well in advance to ensure sufficient time to arrange and / or implement the necessary control measures.

14. Documentation and Document Control

The contractor must develop and maintain project-specific documentation required for the effective management of health and safety on the project.
All documents related to the contractor’s health and safety management system must be effectively controlled.
The document control process must:
• Provide for the review, revision and version control of documents;
• Uniquely identify documents (as appropriate) to control their use and function;
• Require approval of the documents for adequacy prior to issue;
• Clearly identify changes and record the status of any revisions to documents; and
• Provide for the effective distribution of documents to, and where necessary the timely removal of obsolete documents from, all points of issue and use.
The contractor must establish a process for the systematic control of health and safety records and related data. Controls must be in place for the creation, receipt, secure storage, maintenance, accessing, use and disposal of such records and data.

Each record must be legible, identifiable and traceable, and must contain adequate information and data for its purpose.

The confidentiality and security of records and data must be maintained in a manner that is appropriate for the nature of the records and data, and in accordance with any applicable data or privacy protection legislation.
Personal information originating
From medical surveillance and occupational hygiene monitoring must be reported in a form that respects the privacy of the individual, but enables management to fulfil their duty of care obligations to employees. The names of individuals must not be disclosed without their written authorisation.

Retention periods for all records (based on legal requirements and / or knowledge preservation considerations) must be established and documented in accordance with applicable legislation.

14.1 Contractor compliance File Requirements

The contractor must compile and maintain a file containing all necessary compliance related documentation. The client should provide construction work permit and to be kept on site at all times. The contents of the file will be audited by a Project SHE Advisor on a monthly basis.

Required documentation includes, but is not limited to, the following:

- Letter of Good Standing from the Workman’s Compensation Commissioner (where applicable) must have dol stamp;
- Proof of Public Liability Insurance;
- Scope of Work under the contract;
- List of Contacts and their Telephone Numbers;
- Health and Safety Policy;
- SHE Management Plan;
- Legal Register;
- Organisational Chart for the project;
- Appointment Letters (appointment of the contracting company, and appointments for all persons with health and safety related responsibilities);
- Notifications to the relevant authorities that construction work is in progress;
- Baseline and Task-Based Risk Assessments;
- Health and Safety Objectives, and associated Improvement Action Plans;
- Safe Work Procedures, Work Instructions and Work Method Statements;
- Planned Task Observations;
- Fall Protection Plan (for work at height);
- A dossier (Equipment Profile) for each fuel-driven vehicle or machine;
- Inspection Registers, Forms and Checklists (e.g. For portable electrical tools, ladders, safety harnesses, light vehicles, mobile equipment, lifting equipment and lifting tackle, first aid boxes, fire extinguishers, etc.);
- PPE Issue Registers;
- Material Safety Data Sheets;
- Emergency Response Procedures;
- Incident Records;
- A dossier (Employee Profile) for each employee containing:
  - A copy of the employee’s Identity Document or Passport;
  - Certificate of Fitness (Pre-Employment Medical Examination);
  - Proof of Induction Training;
  - Other Training Records;
  - Copies of Qualification Certificates and / or Certificates of Competency; and
  - Copies of Licences;
• Meeting Minutes;
• HEALTH AND SAFETY Performance Reports;
• Copies of Inspection and Audit Reports; and
• Daily Safe Task Instructions (DSTI’s) and Toolbox Talks.

The contractor must ensure that an equivalent file is compiled and maintained by each appointed sub-contractor.

15. Notification of Construction Work

A contractor who intends to carry out any construction work other than work contemplated in CR regulation 3(1), must at least 7 days before that work is to be carried out notify the provincial director in writing in a form similar to Annexure 2 if the intended construction work will—
• include excavation work;
• include working at a height where there is risk of falling;
• include the demolition of a structure; or
• include the use of explosives to perform construction work.

A contractor who intends to carry out construction work that involves construction of a single storey dwelling for a client who is going to reside in such dwelling upon completion, must at least 7 days before that work is to be carried out notify the provincial director in writing in a form similar to Annexure 2 of the CR regulations.

16. Operational Control

For project operations and activities, the contractor shall implement and maintain:
• Operational controls, as applicable to the organization and its activities;
• The organization shall integrate those operational controls into its overall OH&S Management System;
• Controls related to purchased goods, equipment and services;
• Controls related to contractors and other visitors to the workplace;
• Documented procedures, to cover situations where their absence could lead to deviations from the OH&S policy and the objectives;
• Stipulated operating criteria where their absence could lead to deviations from the OH&S policy and objectives.

16.1 Project-Specific SHE Standards

For all site health and participation specific this will serve as a guideline

Project-specific SHE standards, incorporating leading practices, legal requirements, and client requirements will be developed and implemented to manage critical risks on the project.

The contractor must comply fully with the requirements of these standards.

The Safe Work Procedures required of the contractor must be aligned with the requirements of these standards.
16.2 Safe Work Procedures
Procedures to be developed and maintained on site

The contractor must develop, document and implement Safe Work Procedures for all activities involving significant health or safety risk. These procedures must detail the control measures required to effectively manage the health and safety risks associated with the work activities.

Each Safe Work Procedure must be consistent with the Task-Based Risk Assessment completed for the activity.

Every person engaged in an activity for which a Safe Work Procedure has been developed must receive suitable training on the procedure.

Furthermore, the contractor must develop, document, communicate and implement formal procedures, work instructions and / or programmes for the operation, maintenance, inspection and testing of all plant and equipment (including protective systems and devices) brought onto the project site(s).

16.3 Management Participation and involvement CR 8

16.4 Planned Task Observations
All contractor, management supervisors must perform Planned Task Observations (PTO’s) to verify that the control measures that have been identified in Safe Work Procedures (and associated Risk Assessments) are being adhered to and are being properly implemented, and to provide guidance where deviations are noted.

Each supervisor must complete at least one PTO per day involving one or more employees in his work team.

When an unsafe act or condition is identified, the supervisor must coach the work team to correct the act or condition in line with the Safe Work Procedure.

Where valid changes to the work method are identified, the supervisor must ensure that the Safe Work Procedure and Risk Assessment are updated to reflect the current practice.

Project representatives will carry out PTO’s on contractor employees on an ad hoc basis. Should deviations from the contractor’s Safe Work Procedures be observed, the work may be stopped until these deviations are rectified.

16.5 General Rules of Conduct
All persons are required to conform to the following rules of conduct while on the site.

The following acts are prohibited:

- Engaging in practical jokes, horseplay, scuffling, wrestling, fighting, or gambling;
- Assault, intimidation, or abuse of any person;
- Insubordination towards any supervisor or manager;
- Refusing to carry out a reasonable and lawful instruction concerning health and safety;
- Entry into any restricted area (including barricaded areas), unless authorised to do so by the responsible person;
- Unauthorised use / operation of any equipment or machinery;
- Negligently, carelessly or wilfully causing damage to any property;
- Destroying or tampering with safety devices, signs, or signals;
- The use of water from fire hydrants or hose reels for any purpose other than extinguishing a fire;
• The wilful and unnecessary discharging of fire extinguishers;
• Refusing to give evidence or deliberately making false statements during incident investigations;
• Bringing alcohol, drugs, or any other intoxicating substance onto site;
• Bringing a firearm, ammunition, or any other offensive weapon onto site;
• Bringing animals onto site;
• Running, except in an emergency;
• The use of an ipod (or similar) whilst working on site;
• Sleeping on the job;
• Building fires on site, unless in a suitably constructed barbequing facility; and
• Pouring / pumping / flushing any substance (chemical / hydrocarbon / waste water) into a storm water drain, onto bare soil, or into any area where the substance is not effectively contained.

Any of the above actions may result in the temporary or permanent removal of the offending person(s) from site, as well as possible prosecution. The decision of the nominated project management representative shall be final and binding in respect of any dispute that may arise from the interpretation of these requirements.

Transnet will not get involved in contractor disciplinary rules and procedures. The contractor will simply be informed (with reasons) that the offending employee(s) will be denied access to the project site. Once the contractor has been informed, the employee(s) must be removed from the site immediately.

16.6 Site Access
The contractor may not hire any security services for the project site unless authorisation has been obtained in writing from a nominated project management representative.

16.6.1 Access Control
The contractor must comply with all access control, procedures and systems applicable to the project site.

Failure to comply with these requirements will be viewed as a serious safety breach and may result in the permanent removal of the individual(s) / contracting company from site or suspension without payment.

Access will be controlled as follows:

• The access will be strictly controlled and managed
• Contract period access – an access card valid for the full contract period will be issued to an individual once the following requirements have been met:
  • Completion of a pre-employment medical examination;
  • Completion of all required project induction training;
  • Completion of special training / licensing if applicable (e.g. Driving/operating Licence); and
  • Provision of proof of job / trade-specific qualifications, licences, training, Experience and competency (as required).

Note: No access card will be issued unless proof of identification is provided (i.e. an identity document or a valid passport). For foreign labour, an access card will only be issued if a valid work visa is produced.

Note: A driving licence will not be accepted as proof of identification.
16.6.2 Trespassing
The contractor must ensure that no employee (including sub-contractor employees) trespasses on any land lying beyond the boundaries of the project site.

If instructed by a nominated project management representative to do so, the contractor must remove any employee who fails to comply with this requirement from the project.

The contractor’s activities must be confined to the specified construction areas, and access to these areas may only be by means of specified routes.

All required barricading (fencing) must be erected and maintained by the contractor.

16.6.3 Visitors
Visitors (including reps and suppliers) must be advised in advance of the mandatory Personal Protective Equipment (PPE) requirements for the site, and must arrive with all of this PPE.

Upon arrival, all visitors must report to the Security Office where they must sign in. All visitors must undergo a visitor induction briefing before entering the site.

A visitor access card will be issued to each visitor on conclusion of the induction briefing. Whilst on site, visitors must be accompanied at all times by an appropriately senior employee who has been inducted fully. The visitor(s) must be met at the Security Office, and when the visit is over, must be escorted back to the Security Office.

When leaving the site, each visitor must return his or her visitor access card to the security personnel posted at the entrance / exit. A visitor will not be permitted to leave the site until he or she produces the access card that was issued.

Note: Visitors are not permitted to perform any work on site.

Note: Any request (typically made by a government official) to carry out a site inspection must be referred to the nominated project management representative. The contractor must not arrange any such inspection without prior approval from the nominated project management representative.

16.6.4 Alcohol, Drugs and Other Intoxicating Substances
The contractor must ensure that all personnel under his authority do not at any time enter the site or perform any work whilst under the influence of alcohol, a drug, or any other intoxicating substance.

Selling or possessing drugs, alcoholic beverages or any other intoxicating substance on the site is strictly prohibited.

A drugs and alcohol testing program will be implemented. Persons entering the site will be randomly tested. Any person who tests positive for alcohol or drug consumption will be subject to disciplinary action and shall be permanently removed from the site.

Any person have the opportunity to rather report that he/she is under the influence before accessing the project site – in these case the employee may only be send home for the day by the responsible project manager representative but will then be tested for the following five days (each day) on his return to the project site. If it is found that the same person is frequently reporting that he/she is under the influence before even accessing the project site. It shall be the responsibility of the nominated project management representative to take disciplinary action and remove such a person’s form the project site.
Should the actions and / or demeanour of an employee suggest possible narcosis or drunkenness, the employee must be removed from the site. This may be done without testing.

**Note:** All personnel involved in an incident / accident must immediately be subjected to an alcohol test and a drug test as part of the investigation.

### 16.6.5 Firearms, Ammunition and Offensive Weapons

Firearms, ammunition, and offensive weapons of any kind are strictly prohibited. No person may enter / shall not be permitted to enter the site carrying any such item.

### 16.6.6 Vehicles

All vehicles brought onto site must meet the safety requirements stipulated in Section 14.6.

Each vehicle to be used on site must be inspected and approved by the nominated project management representative before a site access permit will be issued for the vehicle / equipment.

No vehicle shall be permitted to enter the site unless it is duly authorised. Access permits are vehicle-specific and may not be transferred between vehicles.

The contractor must allow any vehicle that is brought onto site (including privately owned vehicles) to be searched at any time while on the premises, or when entering or leaving the premises.

The contractor is solely responsible for the safety and security of all vehicles (including private vehicles) that he brings onto the site.

All road-going vehicles used by the contractor on the site must be roadworthy and registered with the relevant traffic authority.

A vehicle will not be permitted to enter the site in an un-roadworthy condition. Access will be denied if, for example:

- The vehicle has a defective exhaust system;
- A serious oil or fuel leak is evident;
- The vehicle has unsafe bodywork or is carrying an unsafe load;
- The vehicle is fitted with extraneous or non-standard equipment;
- Passengers are not seated properly;
- The vehicle is not fitted with a seat belt for each occupant; or
- The vehicle has any obvious mechanical defect;
- Pre-inspection requirements are not met.

Overloaded vehicles will not be permitted to enter the site.

The driver / operator of any vehicle / mobile equipment must carry a copy of his appointment with him at all times. Each driver / operator must:

- Comply with all site / project rules and regulations pertaining to traffic and the safe operation of vehicles / mobile equipment;
- Obey all road signs;
- Obey all instructions given by security or emergency services personnel;
- Remain within the boundaries of the site; and
- Ensure that the vehicle that he is operating is never overloaded, and that loads are always properly secured.
In the interest of safety, only the minimum number of vehicles required by the contractor to complete the work under the contract will be permitted to enter the site. When not in operation, the contractor's vehicles / mobile equipment must be parked within the boundaries of his lay-down area or yard.

Parking is only permitted in designated parking areas.

All cars are parked on site at the owner’s risk.
In the event of a vehicle accident on site, the driver(s) must report the incident immediately and must remain at the scene until a nominated project management representative arrives, or until a nominated project management representative authorises him to leave (unless, of course, the driver requires medical attention).

16.7 Mobile Equipment and Light Vehicles
All Contractors must ensure all applicable legislation concerning mobile equipment and light vehicles are complied with at all times.

Each contractor must provide evidence to the nominated project management representative that all light vehicles and mobile equipment to be used on the project (including, but not limited to, lift and carry cranes (or mobi-lifts), mobile cranes, forklifts, mobile elevating work platforms (e.g. Cherry pickers), tractors, dozers, dump trucks, haul trucks, graders, excavators, loaders, back-actors, drill rigs, and road-going cars, light delivery vehicles, and trucks) comply with the requirements of all applicable legislation. This evidence must be provided prior to the equipment being brought onto the project site. The contractor remains responsible for meeting this requirement even if the equipment to be used is leased or provided by a sub-contractor (i.e. not owned directly by the contractor).

An Equipment Profile (dossier) must be compiled for each light vehicle and each item of mobile equipment to be used on the project site. All mobile equipment and light vehicles (used for work purposes) must be subject to a risk assessment compiled. The assessment must:
- Involve operators and maintenance personnel who will use and work on the equipment; and
- Address all aspects of safe operation including handling, driver vision, brake failure, tyre blow out, and access and egress for operators and maintenance personnel.

Each light vehicle and each item of mobile equipment must be serviced and maintained as prescribed by the manufacturer of the vehicle or equipment. No major repairs or services may be carried out on site. No repairs may be carried out by a driver or operator. Only suitably qualified and competent persons may carry out repair work. An appropriate pre-operation safety check based on a risk assessment must be carried out for each light vehicle or item of mobile equipment driven or operated for work purposes. For each vehicle or equipment type, an approved checklist must be in place (and must be used). The pre-operation check must include, but not be limited to, inspection and / or testing of the following safety critical features:
- Brakes (testing method must be provided);
• Wheels and tyres (including the spare);
• Lights and indicators;
• Steering;
• Seats and seat belts; and
• Windscreen and windows, including windscreen wipers and washers.

Should any critical feature be defective or damaged, the vehicle or equipment may not be operated until it has been fully repaired.

Supervisors must review the completed checklists on a daily basis to satisfy themselves that there are no major deficiencies that could place a driver or operator at risk.

No person may drive or operate any light vehicle or item of mobile equipment without authorisation.

All drivers and operators must be appointed in writing by the contractor’s Project Manager.

No driver or operator may be appointed without proof that the individual has been trained, tested and found competent, or is currently licensed.

The appointment letter must specify the type of vehicle or equipment for which authorisation is being given and must clearly confirm that the driver or operator:
• Is 18 (eighteen) years of age or older;
• Has undergone a medical examination and has been declared fit for work by an occupational medical practitioner; and
• Has received suitable training and has been found competent, or is in possession of a valid driving licence issued by a state, provincial or civil authority that is applicable to the class of vehicle or equipment that is to be driven or operated.

The principal accountability for preventing accidents and incidents lies with the driver or operator of a light vehicle or item of mobile equipment, as he is in full control of any given situation at any given time. It must be stressed to each driver and each operator that safety is his prime responsibility – this must be clearly instructed and understood.

Drivers and operators must be empowered to stop driving or operating immediately should an unsafe condition arise, and refuse to drive or operate any light vehicle or item of mobile equipment that is defective and / or has any inoperative safety features. Similarly, a supervisor must never force a driver or operator to drive or operate a defective vehicle or item of equipment.

If a driver or operator does not adhere to the site rules and regulations, his appointment must be withdrawn and he must not be permitted to continue with his duties. If necessary, site access will be denied (either temporarily or permanently) to any driver or operator who is deemed to not be adhering to site requirements.

No person may drive or operate a light vehicle or item of mobile equipment if he suffers from a medical condition that places both him and those around him at risk of injury.

A fit-for-work policy must be in place, incorporating clearly defined maximum levels of drugs (including prescribed medication) and alcohol permitted in the system of a driver or operator.

Daily alcohol testing and random drug testing must be carried out.
Supervisors must regularly check on the physical condition of drivers and operators during the course of a shift. A system must be in place to manage driver fatigue. No eating or drinking is permitted while driving or operating a light vehicle or item of mobile equipment. A mobile phone, whether hands-free or not, may only be used by the driver or operator of a light vehicle or item of mobile equipment when the vehicle or equipment is stationary and in a safe location. Behaviour-based observations and coaching must include the operation of light vehicles and mobile equipment.

A site-specific traffic management plan must be compiled and submitted to the nominated project management representative for approval. The plan must include, but not be limited to, the following:

- Segregation of pedestrians, light vehicles, and mobile equipment where possible (using barriers where feasible);
- Systems to control the movement of mobile equipment in areas accessible to pedestrians, the movement of mobile equipment into and out of workshops, and pedestrian and light vehicle movement around mobile equipment;
- Setting of appropriate speed limits for vehicle types, road surfaces and environmental conditions;
- Installation and maintenance of road traffic control signs;
- Right-of-way rules (including overtaking restrictions);
- Overtaking protocols;
- Clear communication protocols for interactions between all vehicles and equipment;
- Procedures for light vehicles and/or mobile equipment entering hazardous or restricted areas;
- Standards for safe following distances based on operational circumstances, environmental conditions and near sight (blind spot) limitations of mobile equipment;
- The minimum safe distance to be maintained between light vehicles and mobile equipment (i.e. 50 metres unless positive contact is made);
- Designated parking areas for mobile equipment and light vehicles, including parking associated with maintenance areas;
- Parking procedures (e.g. Safe parking distances, safe parking locations, requirements for reverse parking, etc.);
- Systems to control approaching, refuelling, parking, boarding and disembarking mobile equipment (a driver or operator must exit the cabin and must disembark the vehicle or equipment entirely when his direct involvement with maintenance or servicing is not required);
- Guidelines for abnormal road conditions (e.g. Heavy rain, fog, or high winds) providing “go / no go” criteria and contact details for the person(s) responsible for making the “go / no go” decisions;
- Truck loading and unloading procedures to avoid material or objects falling from the vehicle;
- Guidelines for wide or abnormal loads including offsite transport; and
- Systems to control mobile equipment use in the vicinity of overhead power lines.
The design and layout of the road system (including entrance and exit points, intersections and other potential points of interaction between pedestrians, light vehicles and mobile equipment) must be reviewed periodically.

A risk assessment must be carried out prior to any changes being made to traffic movements or road systems.

Designated walkways (both indoors and outdoors) must be provided for pedestrians, and pedestrians must make use of these walkways. Good lighting must be provided along all walkways, particularly at road junctions. Wherever possible, rigid barricading must be used to separate pedestrians from moving light vehicles and/or mobile equipment.

No pedestrians are permitted on haul roads (or as far as this can reasonably be achieved in situations where a haul road runs through an area occupied by a local community). All personnel must be transported to site and must be dropped off at a designated area. Controls must be in place to ensure the safety of people working on roads, including those working on broken-down vehicles.

High visibility clothing must be worn by all persons at all times whilst on the project site. Speed limits and traffic rules must be reviewed regularly and must be rigorously enforced. Local traffic rules must be complied with at all times.

Pedestrians and cyclists must give way to light vehicles and/or mobile equipment except at pedestrian crossings.

All light vehicles and mobile equipment must give way to emergency vehicles. Pedestrians and light vehicle drivers must be made aware of the blind spots associated with mobile equipment.

The driver or operator of a light vehicle or item of mobile equipment must stop the vehicle or equipment and sound the horn before proceeding at blind corners, where his view of the path or intended path is obstructed, and when entering or leaving a building. Whenever a light vehicle or item of mobile equipment is stopped or parked, the handbrake (if applicable) must be applied.

Measures (such as chocking or the use of ditches or trenches) must be in place for the immobilisation of parked mobile equipment. A parked light vehicle must be chocked in situations where the vehicle would roll forwards or backwards if placed in neutral with the handbrake disengaged.

No light vehicle or item of mobile equipment may be left unattended with the engine running or with a key in the ignition. No light vehicle or item of mobile equipment may be parked so as to cause an obstruction to any roadway, passage or access way.

No light vehicle or item of mobile equipment may be parked within 50 metres of a loading or off-loading point.
Light vehicles and mobile equipment must be loaded safely. All loads must be secure and must be within the load limit of the vehicle or equipment. A load must be properly secured before the vehicle or equipment is set in motion. Adequate precautions must be taken for any overhanging load.

No unauthorised light vehicle or item of mobile equipment may enter a restricted area or building.

16.7.1 Light Vehicles

All Contractors must ensure that Light vehicles have the following minimum safety features:

- Fixed seats and suitable seat (safety) belts for all occupants (i.e. Driver and all passengers);
- Roll-over protection for all vehicles intended to be driven on dirt or steep roads;
- Cargo barriers and load restraints for all vehicles designed for carrying loads (other than passengers), or that are unable to have cargo separated from the occupant-carrying space of the vehicle; and
- An air bag on the driver’s side, and where available as a manufacturer fitted item, a passenger’s air bag;
- A Reverse Alarm.

All Contractors must ensure that Light vehicles that interact with mobile equipment are equipped or fitted with:

- Systems that enable positive communication with the equipment operators (e.g. A two-way radio);
- A high visibility flag (e.g. A whip flag or buggy whip);
- An amber flashing light (revolving or strobe);
- Reflective taping; and
- High visibility signage (i.e. Vehicle call numbers) facilitating easy and positive identification from a reasonable distance.

**Note:** Call number signs and reflective tape (magnetic or adhesive) must be applied to the front, back and sides of each vehicle.

All Contractors must ensure that Light vehicles carry:

- Emergency roadside triangles or beacons (three of either);
- Chock blocks for preventing uncontrolled movement of the vehicle when parked;
- A flashlight;
- A fire extinguisher (2.5kg DCP);
- A first aid kit; and
- Survival or emergency equipment (e.g. a vehicle recovery kit) suitable for the operating environment.

A change management process must accompany all vehicle modifications, including the attachment of any equipment. Examples of changes or modifications include, but are not limited to, any change or modification:

- Made to the overall structure or design of the vehicle body;
- Made to the original manufacturer-fitted type of tyres or wheels;
- Made to the suspension system of the vehicle;
- Made to the mechanical system of the vehicle;
- That may adversely alter the centre of gravity of the vehicle;
- That alters the load carrying capacity of the vehicle; and
• That may affect the ability of the vehicle to withstand a crash (e.g. the fitment of a “bull bar”).

Vehicle selection must be based on a risk assessment where consideration is given to the tasks, the application, the environment, roll-over protection and the rating of sturdiness in the event of a crash.

All Contractors must have a formal inspection and preventative maintenance system in place to ensure that vehicles are maintained in a safe and roadworthy condition at all times and, as a minimum, are serviced in line with the vehicle manufacturer’s service schedule.

Should any safety critical feature be defective or damaged, the vehicle must be withdrawn from service until it has been fully repaired. Inspection and maintenance must be undertaken on critical features such as:
• Wheels and tyres (including the spare);
• Steering, suspension and braking systems;
• Seats and seat belts;
• Lights, indicators and reflectors;
• Windscreen and windows, including windscreen wipers and washers;
• The vehicle structure itself; and
• Other safety-related items on the vehicle body, chassis or engine, including instrumentation.

Persons may only be transported in vehicles equipped with manufacturer fitted or approved seats and seat belts.
Seat belts must be worn by all occupants of a light vehicle (i.e. the driver and all passengers) at all times.

Only the driver and one passenger are permitted in the cab (front) of a light delivery vehicle.
No personnel may be transported in the load-bin of a light delivery vehicle, even if the vehicle is fitted with a canopy. Only tools and equipment may be transported in the load-bin. Furthermore, no persons may be transported in a trailer behind a vehicle.

A pre-operation vehicle safety check and familiarisation system must be in place and must be used by the driver. An approved checklist must be used. All vehicle faults that are recorded must be attended to immediately.

All Contractors must have systems in place to ensure that risks associated with vehicle journeys are managed and controlled. The systems must include, but not be limited to:
• Formulation of journey management plans prior to the commencement of new or changed travel activities;
• Identification and monitoring of the risks associated with the various routes, intersections, etc. In order to minimise the overall exposure;
• Assessment and communication of changed environmental and road conditions at the time of travel;
• Outlining of actions required in the event of an emergency (e.g. Collision or breakdown); and
• Provision to manage driver fatigue.
Light vehicle running lights (low-beam headlights) must be switched on at all times when the vehicle is in operation.

All Contractors must have a system in place to ensure that drivers receive adequate training to ensure that the vehicle intended to be operated or driven can be operated or driven safely. As a minimum, training must include:

- Behaviour-based defensive driving principles;
- Vehicle familiarisation, taking into account the handling dynamics of the vehicle, maximum number of passengers, load limits and various features;
- Loading and restraining principles where the vehicle to be operated is designed for carrying cargo loads;
- Education and awareness concerning driving and travel risks that may be encountered within the environment where the vehicle may be operated or driven, and the requirements pertaining to traffic rules and speed limits;
- Securing (locking) equipment to prevent unauthorised use;
- Emergency crash and breakdown procedures; and
- Basic mechanical principles, including how to change a tyre and perform an adequate pre-operation check.

A system must be in place to ensure that persons operating any equipment associated with a light vehicle (e.g. Vehicle-mounted cranes and winches) are suitably trained and competent.

16.7.2 Mobile Equipment

All Contractors must ensure that Mobile equipment have the following minimum safety specifications:

- Fixed seats and seat belts for all occupants;
- Adequate lighting, including headlights, tail, turn and brake lights, and an amber flashing light (revolving or strobe);
- An identified isolation and lockout point;
- Adequate walkways, railings, steps and grab handle combinations, and boarding facilities including an alternative path of disembarking in the event of an emergency;
- Collision-avoidance technology and / or procedures;
- A reversing alarm or warning device;
- Chock blocks for preventing uncontrolled movement of rubber-tyred equipment when parked;
- A horn;
- Effective windscreen wipers;
- Effective guarding on accessible moving parts;
- A speedometer (if the mobile equipment is capable of exceeding the lowest applicable speed limit);
- High visibility signage (i.e. Mobile equipment call numbers) facilitating easy and positive identification from a reasonable distance; and
- A security system to prevent unauthorised operation.

Mobile equipment must have the following minimum safety specifications, unless a risk assessment stipulates otherwise:
• Approved or certified roll-over protection;
• Fail-to-safe brakes;
• A fire detection and suppression system capable of being activated from both ground level and cabin level (for certain types of mobile equipment, a suitably sized fire extinguisher may be adequate);
• A non-handheld two-way radio or another form of communication;
• Falling object protection (a protective structure over the operator cabin);
• An enclosed and tight-sealing air-conditioned cabin with suitable protective glass; and
• A means of moving supplies and personal items into and out of the operator cabin that enables an operator to continuously maintain three points of contact while boarding and disembarking the equipment (e.g. A backpack or shoulder strap bag).

When purchasing or hiring equipment, the ergonomics of the cabin must be considered, specifically with regard to the seating, operator controls and retrofitted devices.

Fleet and control consistency must be considered in order to minimise the possibility of operator error when changing machines.

For all new (to site) and modified mobile equipment, a formal risk-based selection and acceptance process must be followed prior to the equipment being used on site. Selection of equipment, and any modification, must be subject to a rigorous change management process.

An inspection and maintenance programme must be in place for all mobile equipment. A procedure and checklist system, including a brake functionality test, must be in place for pre-operation inspection by the operator. Registers must be maintained and audited, and must be kept on the machine.

Procedures must be in place to ensure that mobile equipment is only operated on sufficiently stable surfaces and on gradients that are within the limits of safe operation.

Seat belts must be used in all cases, by all occupants. Apart from the driver or operator, only an appointed flagman may be transported in mobile equipment (with the exception of buses) and only if the equipment is fitted with a passenger seat. No passengers are permitted on a lift and carry crane (or mobi-lift), mobile crane, forklift, mobile elevating work platform (e.g. A cherry picker), tractor, dozer, dump truck, grader, excavator, loader, back-actor, drill rig, or similar.

Risk assessments must be carried out as part of the planning process for mobile equipment operations and associated activities, and must consider the following:
• Maintenance activities;
• Risks associated with loading, unloading, towing and recovering mobile equipment; and
• The risk of fire.

Procedures must be in place for the safe isolation and lockout of mobile equipment.

Where two or more items of mobile equipment must be operated in proximity to each other, or where an item of mobile equipment must be operated in proximity to persons
on foot, a risk assessment involving all persons who will be working in the area must be conducted prior to the work commencing. The risk assessment must be approved by the nominated project management representative. In such a work area:

- No item of mobile equipment may be driven to within 5 metres of another item of mobile equipment without the operator first making eye contact with, and signalling his intentions to, the other operator who must acknowledge that he understands and that it is safe to proceed.
- No person on foot may work or be positioned within 5 metres of an item of mobile equipment that is in operation. Before approaching mobile equipment on foot, a person must make eye contact with, and clearly signal his intentions to, the operator of the equipment. The operator must cease to operate the equipment, and must indicate that he understands and that it is safe to approach.

In certain circumstances (determined through risk assessment), mobile equipment may only move and operate with dedicated flagmen in place:

- Where flagmen are used, it must be ensured that the flagmen, mobile equipment operators, and all other personnel working in the vicinity of the mobile equipment, receive suitable training with regard to signals and signalling to ensure effective communication. The training must be formal and recorded, and competency must be tested.
- A flagman and the mobile equipment operator that he is directing must maintain eye contact. The flagman must never position himself where the health and safety of the equipment operator cannot see him.
- Should a mobile equipment operator lose sight of his flagman, he must stop his activities immediately until contact has been re-established.

A tyre management system must be in place to address issues including fire, heating, explosion, electrical contact, separations, maintenance, tyre changes, etc.

Site-specific induction must be carried out prior to a mobile equipment operator starting work on site. Area-specific induction must be carried out prior to an operator starting work in a new area on site.

Operators must report conditions and practices that do not conform to procedure.

16.7.3 Training and Licensing

No person may drive a light vehicle or operate an item of mobile equipment unless he has been trained, tested and found competent, or is currently licensed to drive or operate that specific vehicle or item of equipment. The training must address hazards and risks assessed for:

- That vehicle; and
- The tasks for which it is to be used.

No person may be appointed to drive a light vehicle or operate an item of mobile equipment unless he is in possession of a valid medical certificate of fitness (issued by an occupational medical practitioner).
Each person required to drive a light vehicle or operate an item of mobile equipment on the project site must have a project-specific site licence or appointment to drive or operate that vehicle or item of equipment.

A system must be in place to ensure that the renewal of licences is based on an assessment of competency to drive and / or operate the vehicle or equipment. The frequency of assessment must either be annual, or derived from a risk assessment for each vehicle or equipment type.

No training of drivers or operators may be carried out on site unless authorised by a nominated project management representative.

Each person working on or visiting the project site must receive appropriate project-specific induction training concerning road safety and site vehicle hazards. Driver must be in position of valid certificate, licence and trained by an accredited service provider.

16.7.4 Tyre and Rim Safety

These requirements apply to tyres and health and safety with a rim diameter of 60cm (24 inches) or greater.

A Tyre Management Plan must be established and reviewed every twelve months.

Safe Work Procedures must be in place for all tyre maintenance and servicing activities and for tyre fire emergency response.

All persons who will be carrying out tyre maintenance and servicing work and / or responding (potentially) to tyre fire emergencies on site must be certified against the requirements of job-specific competency standards for the project, which must address job-specific Safe Work Procedures.

No person may approach a light vehicle or item of mobile equipment within 24 hours of:

- The vehicle or equipment being struck by lightning;
- The vehicle or equipment making contact with high voltage electricity; or
- A tyre fire.

In the event of a tyre fire, an exclusion zone of 300 metres must be established and may only be accessed by emergency services personnel who are shielded while fighting the fire.

Restricted Work Zones must be established for tyre installation, removal and handling processes.

All tyre and rim handling equipment must have fall back prevention in place prior to anyone entering the Restricted Work Zone.

Tyres with split health and safety must be deflated to zero and other tyres to a nominal pressure no greater than 5psi prior to removal of any retaining devices. In a dual assembly both tyres must be deflated.

Tyre inflation is subject to the following requirements:

- All tyre inflation must be carried out remotely;
- Where the risk of ejection of components exists, barricading must be in place;
- A tyre must not be left unattended during inflation; and
Tyres that have run at less than 80% cold inflation pressure must not be re-inflated. Both tyres in a dual assembly must be dismounted and inspected.

No hot work (e.g. Welding or cutting) may be carried out on a rim (wheel) while the rim is fitted with a tyre – whether inflated or deflated.
A periodic testing and / or inspection regime must be in place for tyres, rhealth and safety (wheels), and assemblies.

All tyres and rhealth and safety (wheels) must be made unserviceable when deemed unfit for service or before being sent off site for disposal.
A tracking system must be in place to track the lifecycle of tyres and rhealth and safety (wheels).

16.7.5  Roads

Design, inspection and maintenance requirements must be in place for all roadways. Every haul road must have two dedicated and clearly demarcated lanes so that vehicles travelling in opposite directions are safely separated (lane demarcation is not applicable to dirt roads).
Systems (such as safety berms) must be in place along roadways and around excavations, dump areas, etc. To prevent vehicles from leaving a roadway or entering a dangerous area.

A storm water management plan must be in place for the site and, in particular, for all roads. Extreme wet weather must be considered. Contractors must ensure that all roads are equipped with drainage system.

Roads with high risks activities and traffic interface shall be controlled by trained flagman. A dust control plan must be in place for the site and, in particular, for all roads. Where required, contractors must ensure that roads are wetted (using a water cart) at regular intervals and whenever instructed by a nominated project management representative. The over-watering of roads must be prevented.

No road may be closed without permission from a nominated project management representative.
Any large rocks in a roadway must be removed immediately. Any spillage in a roadway must be cleaned up immediately.

Ground pollution (e.g. Oil, diesel or hydraulic fluid spillages) must not, and will not, be tolerated. If substances are spilled on a road or any other portion of the site, the contaminated ground must be dug out and the resulting hole back-filled with clean material which must be suitably compacted. The contaminated soil must be disposed of as required by the applicable legislation.

16.8  Signs and Notices

The contractor must ensure that all required safety signs and notices are prominently displayed in accordance with the applicable legislation and good safety practice. Signs and notices must be in English as well as any other language(s) commonly spoken on the project site.

All symbolic signs must comply with the applicable national standards.
No person may deface or damage any safety sign or notice. No person may remove or alter any safety sign or notice unless authorised to do so.

16.9 **Machinery**
The contractor must ensure that all plant and equipment brought onto the site is:
- Appropriate for the type of work to be performed
- Approved, inspected, tested, numbered and tagged (if appropriate) before being brought onto site
- Properly maintained in accordance with the manufacturer’s recommendations; and
- Placed on a register and checked at least once per month or as required by the applicable legislation.

The contractor must supply, at his cost, all items of plant and equipment necessary to perform the work and must maintain all items in good working order.
Should any plant or equipment become inoperable for a period that is having or will have a significant impact on the work schedule, the contractor must, on instruction from the nominated project management representative, remove the out of service plant or equipment and replace it with similar fully operational plant or equipment at no additional cost.

No item of plant or equipment delivered to site for use on the contract may be removed from the site prior to the completion of the contract without approval in writing from the nominated project management representative.

Items of plant or equipment brought onto site by the contractor or his sub-contractors may be inspected by a nominated project management representative. Should the nominated project management representative determine that any item is inadequate, faulty, unsafe or in any other way unsuitable for the safe and satisfactory execution of the work for which it is intended, the contractor must, on instruction from the nominated project management representative, immediately remove the item from the site and replace it with a safe and adequate substitute. In such a case, the contractor or his sub-contractor shall not be entitled to additional payments or deadline extensions in respect of any delay caused.

16.10 **Barricading**
All applicable legislation concerning barricading must be complied with at all times.

Each contractor required to erect barricading on the project site(s) must develop, document and implement Safe Work Procedures that are aligned with the requirements of this standard.

Barricading must be erected to:
- Prevent persons from making contact with an identified hazard;
- Provide warning of the existence of a hazard;
- Prevent unauthorised access (by people, vehicles and mobile equipment) into an area where a hazard exists or where a hazardous activity is being carried out;
- Define the boundaries of a hazardous location and / or restricted area; and
- Allow a work team to perform hazardous tasks without persons unfamiliar with the hazard(s) accessing the area.

Although not limited to these situations, barricading must be erected or installed:
- Around excavations (trenches, pits, etc.) (refer to the Excavation Standard);
To protect openings and edges (to prevent persons from falling, all openings and edges associated with floors, stairs, and the open sides of buildings and structures during the course of construction must be protected by sturdy, rigid barriers capable of withstanding a force of at least 110 kilograms applied in any direction at any point) (refer to the Working at Heights Standard);

To prevent access into areas where overhead work is in progress;

To route vehicles safety through (or around) construction areas; and

To protect members of the public who may be in the vicinity of a work or construction site (by preventing access).

In all cases, the erection of barricading must be a temporary measure. It must only remain in place until the hazard is eliminated or the potentially dangerous situation is rectified.

A barricade must present a sturdy physical barrier to entering an area. Therefore, plastic cones, post and chain systems, “danger tape” and “snow netting” will not be accepted as barricading and may only be used for the purposes of low risk demarcation.

For example, snow netting may be used for the demarcation of lay down areas.

Acceptable forms of barricading include:

- Hoarding panels (no less than one metre in height) that can be securely fastened together to form a fence line may be used. Hoarding panels may be constructed from a variety of materials (e.g. wooden board, steel sheeting, wire mesh on a steel frame, etc.)
- Wire mesh fencing (no less than one metre in height with sturdy posts spaced at intervals of no more than 3 metres) may be used in certain circumstances, e.g. Around excavations.
- Sturdy, rigid, and securely fixed (i.e. bolted, welded, clamped, etc.) Metal guard rails may be used, particularly for protecting openings, holes and edges associated with floors, platforms, walkways, etc. The top rail must be positioned at a height of one metre above the working surface, and a mid-rail must be provided.
- Concrete Jersey barriers must be used for the routing of traffic and when work is being conducted in or alongside a roadway.

Regardless of the type of barricade used, the following requirements must be met:

- The installation, alteration and removal of barricades must be supervised by a competent person;
- The barricading must be uniformly and intelligently configured;
- The barricading must be stable, conspicuous and effective;
- The barricading must completely surround the work or hazardous area;
- General access requirements around the work or hazardous area (such as pedestrian walkways, operational access, or general thoroughfares) must be taken into consideration when erecting a barricade;
- The extent of the area that is barricaded must be kept to a minimum so as not to unnecessarily restrict access to other areas. If access routes to other areas are blocked by the barricade, alternative routes must be identified and signposted
- All barricaded areas must have properly designated points of entry and exit for persons and / or vehicles. Each pedestrian access point must be fitted with a self-
closing gate. A sign indicating, “DESIGNATED ACCESS POINT – AUTHORISED PERSONNEL ONLY”, must be fitted to each gate;

- Additional signage providing warning of specific hazards (e.g. falling objects, electricity, etc.) Including, “NO UNAUTHORISED ENTRY”, must be attached to all gates and, where required, to the barricading itself. The signage must be visible from all angles and must be large enough to be read from a distance of 10 metres;
- Barricading must be clearly visible at all times (day and night). If necessary, flashing warning lights must be used;
- Tags must be attached to the barricading displaying the name and cell phone number of the person responsible for the barricade, and specifying the reason for the barricading and the date on which it is scheduled to be removed;
- Should a person require access to a barricaded area, authorisation must be obtained from the person responsible for the erection of the barricade. The hazards that are present and the Personal Protective Equipment that must be worn within the barricaded area must be communicated to the person seeking access;
- Each barricade must be listed in a register, and each must be inspected daily to ensure that it is still intact and that its positioning is still effective;
- All barricades must be properly maintained and repaired as required;
- When the work has been completed and the hazard has been eliminated, all barricading must be removed without delay. A barricade may not be left in place if no hazard exists;
- Before a barricade is removed (allowing general access), the area must be inspected by the person responsible for the work that was carried out, to ensure that the area is once again safe. If applicable, the person accepting the area back for general use shall do so on completion of his own safety inspection;
- Authorisation to remove (or modify) a barricade may only be granted by the person responsible for the erection of the barricade.

16.11 Excavations

All applicable legislation concerning excavation work must be complied with at all times.

Each contractor carrying out excavation work on the project site(s) must develop, document and implement Safe Work Procedures that are aligned with the requirements of this standard.

All excavation work must be properly planned. Site-specific conditions and hazards must be considered, including traffic, overhead and buried utilities, proximity to nearby structures, soil properties, presence of surface and / or ground water, position of the water table, and weather conditions.

Excavation work may only be carried out under the personal supervision of a competent Excavation Supervisor who has been appointed in writing.

Before any excavation work is carried out, a Permit to Work authorising the activities must be obtained.

Similarly, no person may enter an excavation unless a Permit to Work has been issued providing authorisation for specific tasks to be carried out within the excavation.

Before issuing a Permit to Work for excavation works, the Authorised Person (i.e. Permit issuer) must verify that:
- A detailed Risk Assessment has been conducted for the work to be performed;
- A Safe Work Procedure is in place; and
- No buried services are present in the area where the excavation works are to be carried out.

As a minimum, the Risk Assessment must consider hazards and risks associated with:
- A person being trapped or buried as a result of an excavation collapsing;
- A person being struck by an object falling into an excavation;
- A person falling into an excavation;
- A person being exposed to a hazardous atmosphere within an excavation (i.e. An oxygen deficiency, explosive or flammable gases, and / or harmful concentrations of a contaminant);
- Contact with belowground services; and
- Mobile equipment and / or light vehicle movement in proximity to an excavation.

On a plan (drawing) of the work area, the contractor must accurately indicate the position and dimensions of each intended excavation in order for it to be determined whether or not buried services would (or may) be encountered, such as electrical cabling, communications cabling, gas, fuel, potable water, fire water, effluent, sewage, or storm water pipelines.

In addition to a desk top review of existing drawings, a field survey must be carried out to verify the presence or absence of buried services. The positioning of all known belowground services must be accurately demarcated in the field before any excavation work commences. Should there be any uncertainty, a pipe or cable locator must be used to determine if buried services are present, and if so, the positioning of the services.

If buried services are identified (or are suspected to be present) then the excavation plan must be altered if necessary to avoid these services. If the excavation plan cannot be altered then safe work methods (e.g. careful excavation by hand) must be specified and measures (e.g. Isolation and lockout of the service) must be put in place to minimise risk to personnel and prevent damage to the service(s).

Machinery may not be used to excavate material lying within one metre of any belowground service (i.e. Cable or pipe).

Excavation work that is carried out must be limited to what is described in the Permit to Work. All controls, precautions and restrictions identified in the Permit to Work (and Risk Assessment) must be strictly observed and fully implemented. The Excavation Supervisor must discuss these controls, precautions and restrictions with all persons who will be carrying out the work.

All excavation work must be carried out by persons who have been trained and are competent to perform the work.

All personnel working in or near any excavation must wear high visibility protective clothing.
Unexpected structures (e.g. Tanks, brick work, concrete work, etc.) Or services (e.g. Cables, pipe lines, etc.) As well as unusual conditions (e.g. inconsistent materials, voids, etc.) That are encountered during excavation work must be reported immediately. All
work must cease until the nominated project management representative provides authorisation to continue.

If an excavation is more than 1.2 metres deep and people have to enter it, then the sides of the excavation must be suitably battered, benched, or shored, unless a registered professional geo-technical engineer confirms in writing that there is no risk of the excavation collapsing (i.e. That the sides of the excavation are stable without battering, benching or shoring).

If the sides of an excavation are battered (sloped), then this must be done at an angle that is suitable for the given soil conditions (to be determined by a registered professional geo-technical engineer).

When it is not possible to batter (or bench) the sides of an excavation to a safe angle, then the sides of the excavation must be suitably shored. Shoring may only be installed, altered or removed under the personal supervision of a competent person using a predetermined safe method. Only approved shoring systems and equipment may be used. Shoring requirements must always be determined and designed by a competent person for the specific conditions encountered at the excavation site.

All material removed from an excavation (spoil) must be placed no closer than three times the depth of the excavation away from the edges of the excavation.

The profile of this spoil must be flattened out to prevent the material from being washed back into the excavation by rain water.
Scaling must be carried out on the sides of all excavations to remove loose material.
Protective shields or barriers must be erected (when required) between the sides of an excavation and the work area in order to protect employees from falling, rolling or slumping rock, soil, or materials.

Persons may not work on the faces (sides) of battered (sloped) or benched excavations at levels above other persons.

Tools, equipment and materials may not be placed within two metres of the edges of an excavation. Alternatively, a suitable retaining device may be used to prevent tools, equipment and materials from falling, rolling or sliding into an excavation.
No vehicle or item of mobile equipment is permitted near an edge of an excavation.
Mobile equipment may not operate in or near an excavation whilst persons are working within the excavation.

To ensure that adjacent structures (such as buildings, walls, or sidewalks) remain stable during excavation work, support systems such as shoring, bracing, or underpinning must be provided if required. Excavation below or near the base or footing of any foundation or retaining wall is prohibited unless:

- A support system (designed by a registered professional geo-technical or Structural engineer) is provided, such as underpinning; or
- A registered professional geo-technical engineer determines that the structure is far enough away from the excavation that no hazard exists.
To prevent persons and/or mobile equipment from accidentally falling into an excavation and to prevent unauthorised entry into an excavation, rigid barricading must be erected around every excavation that is deeper than 500mm. Warning signage must be prominently displayed and, if necessary, flashing warning lights must be used at night.

The barricading must remain in place for as long as the hazard (i.e. the excavation) exists. Sections of barricading around an excavation may only be removed (and then only temporarily) to enable excavation work to continue (refer to the Barricading Standard).

For each excavation more than 1.2 metres deep, safe means of access and egress (e.g. Ladders, steps or ramps) must be provided for persons working in the excavation. Safe entry and exit points must be located every 15 metres along the side(s) of an excavation (i.e. an exit point must not be more than 7.5 metres away from any person working in the excavation).

If a hazardous atmosphere exists within any excavation (i.e. an oxygen deficiency, the presence of explosive or flammable gases, and/or harmful concentrations of a contaminant) or if there is a possibility that a hazardous atmosphere may develop, then the excavation must be declared a confined space. Furthermore, an excavation must be considered a confined space if any risk of entrapment or engulfment exists. If an excavation is declared a confined space then all precautions and requirements pertaining to confined spaces must be implemented and complied with (refer to the Confined Spaces Standard).

Internal combustion engines may not be used in or near the edge of an excavation unless the exhaust emissions are ducted away or suitable mechanical (forced air) ventilation is used to maintain a safe atmosphere within the excavation. Any water and/or sludge present within an excavation must be removed completely before any work commences in the excavation.

Using ditches, dykes, sumps and pumps, or other suitable means, surface water must be prevented from entering an excavation and areas lying adjacent to an excavation must be adequately drained. If equipment is used to prevent water from entering an excavation or to prevent water accumulation within an excavation, then the equipment must be monitored by a competent person to ensure that it remains operational and effective.

Suitable lighting must be provided in and around any excavation in which work must be carried out at night. A high standard of housekeeping must be maintained in and around all excavations. Tools that are not in use, and materials that are no longer required, must be removed from an excavation to prevent these items from causing injury or being lost (buried). A register of all excavations must be compiled and maintained.

A competent person (i.e. an appointed Excavation Supervisor) must inspect each excavation as well as the areas around it:
- At the start of each day (or shift) before work commences within the excavation;
- After any alteration is made to the excavation or shoring;
- After rainfall;
- After any blasting activity carried out in the vicinity of the excavation; and
• After any event that may have affected the strength or stability of the excavation or the shoring.

An excavation must be inspected for collapses, signs of instability, failures or signs of overloading of protective systems and equipment, hazardous atmospheres, water accumulation, and any other hazardous condition that may arise.

The sides of an excavation as well as the surface of the ground around the excavation must be carefully inspected for signs of instability including fissures (cracks), slumping, and bulging. Shoring must be carefully inspected for signs of overloading (e.g. Distortion).

If a hazardous condition is identified, no person may enter the excavation until suitable corrective actions have been taken and/or suitable controls have been put in place to either eliminate the hazard or reduce the risks to acceptable levels.

A record of each inspection (including date, time, findings, and signature of the Excavation Supervisor who carried out the inspection) must be captured in the excavations register. Each inspection record must include a declaration as to whether the excavation is safe to work in or not.

All excavations must be monitored closely throughout each work day (or shift) by the Excavation Supervisor.

If an excavation has been declared a confined space, a safety observer (who will be able to initiate emergency response procedures if required and identify the location of any trapped or buried persons in the event of a collapse) must be stationed at ground level outside of the excavation whenever work is being carried out in the excavation.

If a hazardous condition is identified while work is being carried out in an excavation, then all persons in the excavation must be evacuated to safety without delay.

Under no circumstances may a person work alone in an excavation that is more than 1.2 metres deep without at least one other person being present in the immediate vicinity of where the work is being carried out.

Excavations must be backfilled as soon as possible, and the material used (usually the original material) must be properly compacted.

Where belowground services are present, the material used to backfill an excavation must be such that the services will not be damaged.

A layer of a material that is dissimilar to the general backfill material must be placed immediately above any buried service.

An excavated area must be restored to its original condition if at all possible.

Use of Explosives

All excavation work must be carried out without the use of explosives.

Explosives may not be brought onto the site or be used without written authorisation from the nominated project management representative.

If blasting operations are unavoidable, the contractor must:
• Provide a justification and obtain approval from the nominated project management representative;
• Strictly observe the provisions of all applicable legislation; and
• Carry out a detailed risk assessment covering the transportation, handling, storage and use of the explosives.

No explosives or detonators may be stored on site. Detonators and other explosives must never be carried in the same box.

16.12 Cranes and Lifting Equipment
All applicable legislation concerning cranes and lifting equipment must be complied with at all times.
Each contractor carrying out lifting operations on the project site(s) must develop, document and implement Safe Work Procedures that are aligned with the requirements of this standard.

16.12.1 Design, Manufacturing and Safety Features
Before any crane or hoist is operated on the project premises (i.e. New to site), it must be formally accepted (authorised) by the nominated project management representative. The acceptance process must be based on an inspection and risk assessment, and must take the crane’s or hoist’s safety features and cabin ergonomics (if applicable) into account. The same process must be followed before any crane or hoist is returned to service following any modification or repair.

Note: An Equipment Profile (dossier) must be compiled for each crane.

As a minimum, the design and manufacturing of each crane or hoist used on the project premises must comply with the requirements of the relevant ISO standard. In countries where the requirements of a national standard are more stringent than the requirements of the relevant ISO standard, the national standard must apply.
The Safe Working Load (SWL) must be clearly indicated on each crane, hoist, and item of lifting equipment.

If the safe working load (rated capacity) of a crane varies with the conditions of use (i.e. varies with the angle of the boom and the boom length) then the manufacturer’s load chart(s) indicating the crane’s rated capacity at various boom lengths and angles must be available in the crane cabin. If the crane has a single load chart, it must be displayed in a position visible to the crane operator. If the crane has numerous load charts, they must be easily accessible to the operator.

For each crane or hoist, the manufacturer’s operating manual must be available to the operator.
The load chart(s) and operating manual for a crane or hoist must be in a language understood by the operator.

All lifting hooks must be fitted with a safety latch to prevent the load from accidentally detaching.
Each crane or hoist must be fitted with a load cell (with the mass of the load displayed in the visual range of the operator) and a load limiting device to prevent the crane or hoist from being operated outside of its safe working limits.
Where practicable, each crane must be equipped with an upper hoist limit switch (or anti-two-block device) to prevent the hook block from colliding with the drum, and a lower hoist limit switch to prevent the rope on the drum from unwinding completely. These systems must provide both a visual and an audible alarm to the operator.

Under no circumstances may any limit switch or warning device be bypassed, disconnected, or adjusted in order to lift a load higher (or to lower a load lower) than the respective switches allow. Limit switches MAY NOT be adjusted to stop the hoist at a particular height under normal operating conditions – these are safety devices, and as such, should not be used as operating tools.

Under no circumstances may a load limiting device be bypassed or disconnected in order to lift a load that exceeds the rated capacity of the crane. Load limiting devices MAY NOT be used to “measure” or “test” the mass of a load – these are safety devices, and as such, should not be used as operating tools.

Each overhead travelling crane (including cranes operated using a manual chain drive) must be fitted with an audible travel alarm or an equivalent warning device. Anti-collision devices must be fitted to prevent motorised overhead travelling cranes from colliding with each other (where two or more cranes run on the same track) and from colliding with the track end stops or other structures.

For a vehicle-mounted crane, the operator control station must be located in a position protected from swinging loads and from the crane jib.

A fall protection system must be provided for the assembly, dismantling, operation, maintenance and inspection of any crane where falling from height is identified as a hazard.

Each crane should be fitted with a stability monitoring device to prevent it from toppling over.

Only items of lifting equipment (tackle) that have been designed and manufactured with adequate factors of safety may be used on site. The following minimum factors of safety (with respect to the Safe Working Load) must be met:

- Ten (10) for natural-fibre ropes;
- Six (6) for synthetic-fibre ropes or woven webbing;
- Six (6) for steel-wire ropes;
- Five (5) for steel chains; and
- Four (4) for high-tensile or alloy steel chains.

**Note:** An excavator may not be used to lift a load unless all of the requirements of this standard (as would apply to a crane) have been met, and authorisation has been granted by the relevant Project Manager and Health and Safety Manager.

**16.12.2 Planning and Risk Assessment**

For each critical lift that must be carried out on site, a documented and detailed lift plan and risk assessment must be prepared to address all associated hazards.

Only suitably qualified, competent and experienced persons (lift planners) may evaluate critical lifts and prepare lift plans.
The lifting supervisor, crane operators, riggers and spotters responsible for carrying out a
Critical lift must have input into the lift plan and risk assessment and must be consulted
before these documents are finalised.

All lift planners, lifting supervisors, crane operators, riggers and spotters (safety
observers) must be appointed in writing.
No critical lift may commence until the lift plan and risk assessment have been authorised
by the nominated project management representative and a Permit to Work has been
issued.

Critical lifts include:
- All multiple (including dual) crane lifts;
- Lifts where the operational arcs of two or more cranes can overlap;
- Lifts over operating facilities where this may endanger personnel;
- Lifts over or adjacent to power lines;
- Any lift carried out in close proximity to equipment or a vessel containing a flammable
  or toxic substance;
- Lifts where the centre of gravity of the load could change;
- Any lift where the total weight on the hook exceeds 20 tonnes;
- Lifts near the rated capacity of the crane (i.e. Exceeding 85% of the rated
  capacity at the working radius);
- Any lift when the wind speed (including gusting) exceeds 30 kilometres per hour;
- Lifts involving a man basket (safety cage);
- Lifts to and from water;
- Lifts requiring specialised equipment or involving complicated lifting or rigging
  configurations;
- Lifts requiring non-standard rigging or slinging techniques;
- Lifts involving the simultaneous use of more than one hoist on the same crane;
  and
- Any other lift deemed to be critical by the nominated project management
  representative, or assessed as critical during a risk assessment.

The lift plan for a critical lift must include:
- General Information – crane manufacturer, crane model, items to be lifted, and
  reason for lift;
- Lift Data – load weight, lifting block and hook weight, hoist rope weight, rigging
  weight, total weight, height of lift, radius of lift, surface area of load, and centre of
  gravity of load;
- Rigging Data – sling material (chain, wire rope, or synthetic), sling diameter,
  sling length, sling configuration, sling capacity, hook type, shackle size and
  capacity;
- Lift Computation – boom length, jib length, radius of lift, crane capacity as configured,
  size of outrigger footplates, and wind speed;
- Proximity to Power Lines and Process Areas – mobile cranes working in proximity to
  energised power lines must operate under a Permit to Work, which must define
  exclusion zones and spotter duties;
- Local Hazards and Controls – including the route for the crane, ground stability,
  proximity of people or equipment, and agreed communication method; and
• Diagrams (sketches) – a rigging diagram, and a crane set-up diagram illustrating the positioning of the crane(s) in relation to surrounding structures and the initial and final positions of the load (including crane boom movement).

Lifts that are not subject to detailed lift plans (i.e. Lifts that are not considered critical) must nevertheless be subject to a risk assessment, and be properly planned and executed. The use of a crane-suspended man basket (safety cage) may only be considered when all other avenues to safely perform the work (e.g. Scaffolding, mobile elevating work platform, etc.) Have been exhausted (refer to the Working at Heights Standard).

Cranes used to lift or suspend personnel must be approved as suitable for this purpose. If a crane must be operated in proximity to energised overhead power lines (or any other exposed electrical conductors) then minimum clearance distances (specified by the electrical power utility or the nominated project management representative) must be observed. Whenever possible, power lines must be de-energised and isolated while lifting operations are carried out (refer to the Electrical Safety Standard).

16.12.3 Operation
At the start of every day or shift, the operator of a crane or hoist must carry out a pre-operation safety check using a prescribed checklist.

The specific requirements of the pre-operation safety check (and associated checklist) must be based on:
• A risk assessment that addresses all aspects of safe operation of the crane or hoist; and
• The inspection recommendations of the manufacturer.

As a minimum, the pre-operation safety check must include:
• A thorough visual inspection of all wire ropes, chains, hooks and safety latches, hook blocks, sheaves, hydraulic hoses, electrical cables, and the general condition of the crane or hoist;
• Checks to confirm the serviceability of the operating controls;
• Tests to confirm the correct operation of all limit switches, emergency shutdowns, load indicators, alarms and other safety devices; and
• A thorough visual inspection of all lifting equipment (tackle) to be used.

The operator must:
• Check for any loose or missing parts;
• Make sure that the wire rope (or chain) of the hoist is properly seated in its drum and sheave grooves without any slack or overlapping;
• Operate each control to make sure it functions properly, releases immediately, and does not stick. Each control must be labelled to indicate its function;
• Listen for any unusual mechanical noises and look for any jerky movements while operating the crane and / or hoist several feet in each direction that it travels;
• Check the functionality of the upper and lower hoist limit switches (if applicable) by slowly raising and then lowering the block to trip the respective switches;
• Check all hooks. Hooks must not be cracked, stretched, bent or twisted. Each hook must have a safety latch that automatically closes the throat of the hook. If the latch is bent, has a broken spring, or is otherwise damaged, it must be repaired before use. Hooks must rotate freely in the block assembly without any "grinding" felt or heard;
• Check the wire rope by lowering the block to its lowest level and looking for the following signs of damage:
  ◦ Reduced rope diameter. This may indicate that the rope has been stretched, has lost its inner core support, or has worn outside wires;
  ◦ Broken wire strands (any number);
  ◦ Kinked, crushed, cut, or “bird caged” wiring, or wiring with heat damage.
• Check all chains for damage including wear at contact points, cracks, or distorted links (bent, twisted or stretched). All mechanical coupling links must be inspected to ensure that the linking pins are secure and in good condition. The capacity rating of each chain must be adequate for the load and the attachment method;
• Check the condition and capacity of wire rope and synthetic web slings. Capacity ratings must be legible on the manufacturer’s label. The capacity of the sling being used must be adequate for the load and the attachment method. A sling must be replaced immediately if it is excessively worn.

The operator must report any fault, defect or damage to his supervisor immediately. A crane or hoist must not be operated if any safety device is out of order or defective, or if any rope, chain, hook or other component is worn or damaged.

Completed checklists must be made available (on request) for inspection by the nominated project management representative. Wherever possible, these checklists must be kept with the crane or hoist.

All lifting operations must be supervised by suitably qualified, competent and experienced supervisors.

An effective method of communication between the crane operator and those assisting with the lift must be in place. This must be documented and approved by the nominated project management representative.

Documented Safe Work Procedures must be in place to ensure the following:
• Access into an area where lifting operations are being carried out must be restricted. Such an area (i.e. where there is a risk of a load falling and striking a person) must be barricaded and only authorised persons may enter (i.e. those directly involved with the lifting operations). Warning signage must be conspicuously displayed;
• Where a load is being moved from one location to another (i.e. The lifting operations are not being carried out in a discrete area that can be barricaded), measures must be taken to ensure that all persons in the path of the suspended load are made aware of the approaching hazard and that they move, and remain, well clear of it. All persons potentially affected must be given warning before the load is lifted;
• A lift must be directed and controlled by a single person (a suitably qualified, competent and experienced rigger);
• Dedicated spotters must be in place during lifting operations to observe and provide warning (if necessary) to prevent incidents and ensure that safety protocols are adhered to;
• Before commencing with a lift, it must be verified that the load being lifted is both within the rated capacity of the crane (or hoist) and lifting equipment and within the limits set out in the lift plan and / or risk assessment. The rated load capacities
of the crane, hoist, rope, chains, slings or other components may never be exceeded;

- Only certified lifting equipment (tackle) may be used to lift a load;
- No equipment (tackle) that has been used for towing may be used for lifting operations;
- Only an approved material box (skip box) may be used for lifting loose items or materials;
- Before commencing with a lift, it must be verified that no safety devices (including load limiting devices) have been bypassed, overridden or disconnected;
- To prevent the load from swinging as it is lifted, the hoist must be centred over the load (when using slings or chains) or positioned directly above the lifting point of the load;
- Hoisting ropes must be kept vertical. No side loading of a crane boom is permitted (i.e. A crane may not be used to make a side pull);
- Two full wraps of rope must remain on the hoisting drum at all times. If a lower hoist limit switch has been fitted, and it is working correctly, it should not be possible to lower the block below the point where less than two full wraps of rope are on the drum;
- Before commencing with a lift, it must be verified that all rigging connections are correct and secure. Slings, chains, or other lifting devices must be fully and securely seated in the saddle of the hook;
- Slack must be removed from the slings, chains and/or hoisting ropes before lifting the load. It must be ensured that multiple lines are not twisted around each other and that the hoist rope is not wrapped around the load;
- To ensure that the load is properly secured and balanced, it must initially only be lifted a few centimetres. Slings must be repositioned if required;
- Before moving a suspended load, it must be lifted high enough to clear all obstructions. The load must only be lifted to the height necessary to clear obstructions, and no higher;
- Directional movement must be made smoothly and deliberately (there must be no sudden acceleration or deceleration of the moving load). Abrupt, jerky movements of the load in any direction must be avoided;
- Tag lines must be used in situations where a load needs to be steadied or guided while suspended;
- When using tag lines to steady or guide a suspended load that is being moved using a mobile crane, personnel on foot must remain in sight of and in communication with the crane operator at all times, must never walk between the crane and the load, and must remain clear of the load and the crane at all times (at least 5 metres). The load must be moved at a slow walking speed;
- A suspended load must be monitored closely at all times;
- If a crane operator’s view of a suspended load is unavoidably obscured (completely or partially), or if a suspended load is unavoidably obscuring (completely or partially) a crane operator’s view, then suitably positioned spotters must be in place to provide guidance to the crane operator;
- A load MAY NOT be moved over, or be suspended above, any person or any occupied building. No person may walk beneath, or position himself below, a suspended load;
- No person may pass or work beneath the boom of a crane;
• No person may be positioned between a suspended load and a solid object where there is a risk of being crushed should the load swing;
• No person may be positioned within the radius of the boom of a crane unless directly involved with the lift;
• Under no circumstances may any person ride on a crane’s hook or on a load;
• No load may be left suspended unless the operator is at the controls and is monitoring the load. In such a situation, the load must be kept as close as possible to the ground or floor to minimise the possibility of injury should the load drop;
• The controls of a crane or hoist may never be left unattended while a load is suspended. If it becomes necessary to leave the controls, the operator must lower the load to the ground or floor;
• With the exception of pick-up and carry operations, no lifting may be carried out using a mobile crane unless the outriggers have been deployed and are locked in position;
• Load spreaders or packing under the outriggers must be used irrespective of the underfoot conditions;
• Before a mobile crane is moved into position to carry out a lift, the area must be inspected by a suitably qualified person who must verify that the underfoot conditions are satisfactory;
• When using a mobile crane, slewing to test the effectiveness of the outriggers must be carried out prior to commencing with a lift;
• Slew pins must be securely in place while a mobile crane is travelling;
• Unauthorised use of a crane or hoist must be prevented by removing the keys, locking the cabin, isolating the controls, etc. When lifting operations have been completed;
• When not in use, lifting equipment must be stored off the ground and must be protected from the elements (rain, harsh sunlight, etc.) And contamination (dust, solvents and other chemicals) in order to prevent damage and / or deterioration.

A crane or hoist or an item of lifting equipment may only be used for the purposes for which it was designed.

16.12.4 Inspection, Testing and Maintenance

Any crane or hoist brought onto the project premises must have a current test certificate and record of inspection as well as a suitable checklist (derived from the crane or hoist manufacturer’s inspection recommendations) for use by the operator(s) when carrying out pre-operation safety checks.

An Equipment Profile (dossier) must be compiled for each crane.
A register of all cranes, hoists and lifting equipment (tackle) brought onto the project premises must be compiled and maintained.

Each crane, hoist and item of lifting equipment must have a unique identification code or number, which must be referenced in the register.

For each crane, hoist and item of lifting equipment, the following documentation must be kept on site and must be made available (on request) to the nominated project management representative for inspection:
• Test records and certificates;
• Inspection records;
• Maintenance records; and
• Details of any modifications or repairs made.
All cranes, hoists and lifting equipment must be inspected, tested and confirmed fit for purpose (i.e. Safe for use):

- Before being operated or put into service;
- Before being returned to service following any repair or modification; and
- Periodically as follows (unless local regulations require examination more frequently):
  - Each crane or hoist (including all ropes, chains, hooks or other attaching devices, sheaves, brakes and safety devices that form an integral part of the crane or hoist) must be thoroughly examined by a competent, experienced and appointed person every 6 months;
  - Each crane or hoist must be subjected to an annual performance test (i.e. A load test) by a competent, experienced and appointed person; and
  - All lifting equipment (tackle) must be thoroughly inspected by a competent, experienced and appointed person every 3 months.

- The system of inspection and testing must provide verification that each crane or hoist is able to function to its design specifications, and must verify the integrity of:
  - Mechanical and electrical components;
  - Controls;
  - Cables and all lifting attachments;
  - Structural components including boom, hoist, brakes, wheels, hooks, baskets, outriggers, hook-blocks and rails; and
  - Load limiting devices, hoist limit switches, alarms or warning devices, and other safety devices and control systems (including independent fail-safe braking systems, devices to stop the crane or hoist such as a dead man’s switch, and emergency shut-off switches).

A preventative maintenance system must be in place to ensure that all cranes and hoists are maintained in a safe and serviceable condition.

For any crane or hoist, all inspections, testing, maintenance and repairs must, as a minimum, be carried out in compliance with the requirements and specifications of the manufacturer as well as all applicable regulatory requirements (in terms of both the frequency of inspection, testing and maintenance, and the physical condition of the crane or hoist).

Repairs to a crane or hoist may only be carried out by competent persons. After repairs have been made, the crane or hoist must be tested and recertified fit for purpose (unless the repairs did not affect the integrity of the lifting mechanism).

Any modification to a crane or hoist must be subject to the approval of the original equipment manufacturer and a rigorous change management process. Each item of lifting equipment (tackle) must be tagged following each quarterly (3-monthly) inspection. Details of these inspections must be recorded in the lifting equipment register which must be made available to the nominated project management representative on request.

The following colour coding system must be used for the tagging of all lifting equipment:

**Table 16-1 colour coding system for lifting equipment**

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Tag colour</th>
</tr>
</thead>
</table>


The tag placed on an item of lifting equipment must be traceable to an entry in the lifting equipment register where the following information concerning the inspection of that item of equipment must be recorded:

- Item description;
- Unique item identification code or number;
- Item owner;
- Item location;
- Date of inspection;
- Name and signature of competent person who carried out the inspection; and
- Any comments concerning the inspection.

Any item of lifting equipment that is found to be damaged or defective must be removed from service (and tagged, “out of service”) immediately and must then either be repaired and recertified (if possible) or destroyed to prevent further use. Similarly, any lifting equipment that is known (or is suspected) to have been overloaded must be removed from service immediately and destroyed to prevent further use. If an item of lifting equipment is removed from service or destroyed (scrapped), this must be indicated in the lifting equipment register. Any item of lifting equipment without a tag or with an out-of-date inspection may not be used.

16.12.5 Training and competency

Only suitably trained, competent and experienced persons who have been authorised in writing by the contractor’s project manager are permitted to:

- Evaluate and plan critical lifts;
- Supervise lifting operations;
- Operate cranes and hoists;
- Use lifting equipment, and rig (sling) loads;
- Provide signals for controlling lifts; and
- Inspect, maintain or test cranes, hoists and lifting equipment.

Each operator must meet the competency requirements for the particular class or type of crane or hoist to be operated. Depending on the project location and applicable legislation, operators may need to hold a certificate of competency issued by a recognised training institution.

16.13 Working at heights

All applicable legislation concerning work performed from an elevated position must be complied with at all times. Fall prevention or fall protection measures must be in place whenever the potential exists for a person to fall 2 metres or more.
16.13.1 Fall prevention

16.13.1.1 Work platforms
Wherever practical, a safe working area must be provided in the form of a work platform with fixed edge protection. This may include:
- a permanent work platform or walkway (i.e. A fixed steel structure);
- a fixed or mobile scaffold;
or
- an elevating work platform such as a scissor lift, man lift, boom lift or cherry picker.

All work platforms and walkways elevated one metre or more must have complete floors, and edge protection must be in place in the form of toe boards and sturdy guard rails properly secured (i.e. bolted, welded, clamped, etc.) To prevent accidental displacement. Safe means of access and egress must be provided.

Guard rails must be capable of withstanding a force of at least 100 kilograms applied in any direction at any point. The top rail must be positioned at a height of one metre above the working surface, and a mid-rail must be provided.

16.13.1.2 Floor openings, holes and edges
Any opening or hole (temporary or permanent) in a floor, platform or walkway must be protected by sturdy guard rails (removable if required) or a cover to prevent a person from stepping into or falling through the gap. Covers must be strong enough to support the loads that will be imposed on them and must be secured to prevent accidental displacement.

Ladder way floor openings and platforms must be protected by guard rails of standard construction and toe boards must be fitted along all edges, except at the entrance to an opening where a gate must be installed and so arranged that a person cannot walk directly into the opening.

When open, hatchways and floor openings must be protected by removable guard rails and toe boards of standard construction. When these openings are not in use, covers of adequate strength must be put in place and must be secured to prevent accidental displacement.

Where doors or gates open directly onto a stairway, a platform must be provided and the swing of the door or gate must not reduce the effective width of the platform to less than 500mm.

16.13.1.3 Wall openings
Wall openings, from which there is a drop of more than one metre, must be guarded as follows:
- When the height and position of the opening in relation to the working surface is such that standard guard rails will effectively eliminate the risk of accidentally falling through the opening, then these must be provided. The bottom edge of the opening must be fitted with a toe board. The guard rails and toe board may be removable if required;
- Alternatively, the opening may be closed using a screen. Wall opening screens must be of such construction and mounting that they are capable of withstanding
a force of at least 100 kilograms applied horizontally at any point on the near side of the screen. A screen may be of solid construction, of grillwork, or of slat work.

An extension platform outside a wall opening, onto which materials can be hoisted, must have sturdy guard rails (or equivalent edge protection) on all sides. One side of the extension platform may have removable railings in order to facilitate the handling of materials.

16.13.1.4 Stairways
Each flight of stairs having four or more risers must be fitted with handrails. Handrails must be installed on both sides of every stairway. Riser height and tread width must be uniform throughout any flight of stairs, including any foundation structure used as one or more treads.

Stairways must be free of hazardous projections, such as protruding nails. No materials, equipment or waste may be placed on or beneath any stairway. All stairways must be well lit.

16.13.2 Fall protection
Whenever there is a risk of falling 2 metres or more, whenever there is a risk of falling onto dangerous equipment or machinery even if the potential fall distance is less than 2 metres, or whenever work must be carried out within 2 metres of an opening through which (or an edge over which) a person could fall, no work may commence unless:
- a fall protection (and rescue) plan is in place (prepared by a competent person, approved by the nominated project management representative, and implemented by the contractor);
- A detailed task-specific risk assessment has been carried out;
- A safe work procedure is in place for the task to be performed;
- A permit to work has been obtained; and
- Each person has been provided with suitable fall protection equipment.

Fall protection equipment (either fall restraint or fall arrest equipment) must be used at all times whilst the work is being carried out. To prevent persons from falling, fall restraint equipment must be used whenever work must be carried out within 2 metres of an opening through which (or an edge over which) a person could fall. Fall arrest equipment must be used whenever the potential exists for a person to fall 2 metres or more.

A person has been provided with suitable fall protection equipment if he is secured by means of an approved full body harness (well fitted) with two shock absorbing lanyards or an inertia reel (when fall arrest equipment is required) or two short restraining lanyards (when fall restraint equipment is required), double or triple action snap hooks (or karabiner type rings), and secure anchorage points (a person’s lanyard may be attached either directly to an anchorage point or indirectly through the use of a variety of systems that incorporate a lifeline).

A dual lanyard system must be used to ensure that at least one connection point is maintained at all times.
Note: When selecting fall arrest equipment, care must be taken to ensure that the potential fall distance is greater than the height of the person plus the length of the lanyard with its shock absorber deployed (taking the height of attachment into account).

Anchorage points must, where practical, be above the head of the person, and must ensure that in the event of a fall the person will neither swing nor touch the ground. All permanent anchorage points must be designed and approved by a professional structural engineer.

All anchorage points must be periodically inspected and tested by a competent person to ensure that they are secure and can support the required load. A system must be in place to identify anchorage points as authorised for use. Temporary anchorage points (and lifeline systems) may only be used if a competent person has certified them safe to use.

If an elevating work platform is used, such equipment must be fitted with a fixed anchorage point for the attachment of fall protection equipment.

The use of fall protection (fall restraint or fall arrest) systems must be avoided wherever and whenever possible through design, the installation of physical barriers that protect persons from falling, and employing alternative methods of working. Only if physical barriers protecting against free falls cannot be installed must fall protection equipment be used.

Fall protection (fall restraint or fall arrest) systems are items of personal protective equipment and, if required, must be purchased, installed and provided to employees. Prior to commencing with any work at height, an assessment must be conducted to determine if the work requires the use of fall protection equipment, and if so, which fall protection system is the most appropriate for the work.

There must be a system for ensuring that fall protection equipment is:
- Tested and certified for use;
- Inspected by the user before use; and
- Destroyed following a fall or where inspection has shown evidence of excessive wear or mechanical malfunction.

All persons that are required to work at height (in order to carry out routine or non-routine tasks) must first be trained and certified competent to do so. Furthermore, each person must be in possession of a valid medical certificate of fitness specifically indicating that the person is fit to work at height.

All persons required to use personal fall protection equipment must be trained and certified competent in the correct selection, use, maintenance and inspection of such equipment.

All fall protection equipment must be thoroughly inspected on a monthly basis by competent persons appointed in writing and each item of equipment must be tagged to show when it was last inspected. All inspections must be recorded in a register. On finding defective or damaged equipment, appropriate action must be taken by the competent person (i.e. the destruction of the equipment to prevent further use).
Persons making use of personal fall protection equipment must do so in strict accordance with the instructions or requirements specified by the manufacturer or supplier of the equipment or system.
Specific pre-use inspection, maintenance and fitting protocols must be established in accordance with the manufacturer’s requirements or guidelines and these protocols must be followed by all users of the fall protection equipment.

Solvents may not be used to clean fall protection equipment. Only manufacturer-approved cleaning solutions may be used.

No person required to use personal fall protection equipment may work in isolation (a minimum of two persons working together is required). Competent supervision must be in place at all times for all work carried out at height. Supervisors must be appointed in writing.

Emergency response (rescue) procedures for the rapid retrieval of suspended persons in the event of a fall from height must be prepared and tested.

**Note:** Even though there is no risk of free fall, fall protection equipment may be required in situations where there is a risk of falling, slipping or sliding down a slope of more than 45 degrees.

**Note:** The maximum service life of fall protection equipment manufactured of synthetic fibre shall be 5 years from the date of first use and / or manufacture unless otherwise specified by the manufacturer.

A person may climb or descend a ladder without fall protection provided that he is able to use both hands and legs to do so, faces the ladder, and uses one step at a time. The ladder must be tied off or supported at its base.

Prior to any roof work being performed, or prior to persons accessing a roof, a structural engineer must verify that the roof is of sound construction and that it is capable of supporting the weight of the persons as well as any equipment that may be required. Should the engineer’s findings be to the contrary, alternative methods of performing the work must be found. Particular care must be taken when work is carried out on an asbestos cement roof or a fibreglass roof.

### 16.13.3 Risk Assessment and Permitting

The following documentation is required for any work where fall protection is required (i.e. where a risk of falling exists):

- A Fall Protection (and Rescue) Plan;
- A Risk Assessment for the task to be performed;
- A Safe Work Procedure for the task to be performed; and
- A Permit to Work.

As part of the Risk Assessment and planning processes, the following must be considered:

- Hazards relating to accessing the location at height;
- The nature of the work location;
- The nature of the work activities to be undertaken at height;
• Environmental and weather conditions;
• The presence of nearby persons who may be at risk due to falling objects (potentially) or who’s activities may be affected by the work being performed at height;
• The selection of fall protection equipment (considering fall clearances) and / or access equipment;
• The selection of anchorage points;
• The load ratings of access platforms, work areas, anchorage points, etc.;
• The condition of supporting structures such as roofs;
• The need for the work to be carried out by multiple persons and the means of communication;
• A rescue plan that addresses retrieval or rescue contingencies;
• Working above open furnaces or molten metal;
• Exposure to heat sources;
• The use of a mobile elevating work platform, man basket, suspended scaffold or boatswain’s chair; and
• Any other conditions that may affect the safe execution of the task.

16.13.4 Elevating Work Platforms
Before hiring or purchasing an elevating work platform (e.g. a scissor lift, man lift, boom lift, cherry picker or similar equipment), the certification of the equipment (with regard to suitability of design and construction) must be verified.

Before using an elevating work platform, it must be verified that the equipment is in good working order and has been serviced regularly. The service record and instruction manual must be kept on site. A system must be in place to ensure that the equipment is maintained and inspected as required by the manufacturer and / or local regulations.

Persons (operators) must be formally trained through an accredited training provider and certified competent in the operation of the equipment. Once a person has been issued with the necessary licence or qualification as required under local regulations, he must be appointed in writing to operate the equipment.

Before using an elevating work platform, the operator must inspect the equipment and a pre-use checklist must be completed.
The operator of an elevating work platform must be in the “basket” unless it can be demonstrated to the satisfaction of the nominated project management representative that this is not possible or practical.

Every person in the “basket” must keep his feet on the floor at all times.
Every person in the “basket” must be secured at all times by means of personal fall protection equipment attached to an approved anchorage point, and systems must be in place to prevent tools and equipment from falling.

A mobile elevating work platform must not be driven unless the “basket” has been lowered and secured in a stable position.
Every elevating work platform that is used must be equipped with a dead man’s switch or foot pedal at the operator controls.
An elevating work platform must only be operated on a firm surface with the outriggers extended (where fitted).
An elevating work platform must not be operated on a grade or slope beyond the capability of the machine (every mobile elevating work platform that is used must be fitted with an inclinometer which sounds an audible alarm before the maximum safe incline has been reached).

The area beneath the “basket” and the boom must be barricaded.

A second competent operator of the mobile elevated work platform to be in place on the ground level – to ensure that the elevated work platform could be lowered in case of an emergency.

A spotter must be used at all times when moving a mobile elevating work platform and when the “basket” is in an elevated position.

16.13.5 Man Baskets, Suspended Scaffolds and Boatswain’s Chairs

The use of a man basket, suspended scaffold or a boatswain’s chair may only be considered when all other avenues to safely perform the work (e.g. ladder, scaffolding, mobile elevating work platform, etc.) have been exhausted. Authorisation to use a man basket, suspended scaffold or a boatswain’s chair must be obtained from the nominated project management representative. If permission is granted, the use of such equipment must be in strict compliance with all applicable legislation.

A person working from a man basket or a suspended scaffold must remain within the basket and must keep his feet on the floor at all times.

Each person working from a man basket, suspended scaffold or a boatswain’s chair must be in possession of a valid medical certificate of fitness and must be trained (and assessed competent) in the Safe Work Procedures pertaining to the use of the equipment, as well as the Fall Protection Plan.

Each person working from within a man basket or suspended scaffold or from a boatswain’s chair must wear personal fall protection equipment at all times (i.e. an approved full body harness connected by means of a shock absorbing lanyard to an anchorage point or lifeline that does not form part of the basket or chair).

If suspended using a crane, the man basket, suspended scaffold or boatswain’s chair must be visible to the crane operator at all times. A suitable means of communication must be in place to ensure that the suspended person(s) are able to communicate with the crane operator and personnel on the ground.

The crane operator must remain at the controls at all times while the man basket, suspended scaffold or boatswain’s chair is occupied.

Where feasible (and if it is safe to do so), tag lines must be used to stabilise the man basket, suspended scaffold or boatswain’s chair.

A man basket or suspended scaffold (including the suspension system) must be designed by a qualified engineer.

Only an approved and certified man basket or suspended scaffold may be used. Regulations may require approval by an authority or certification to a national or international standard. The manufacturer’s procedures and conditions for use must be strictly complied with at all times.
Each man basket or suspended scaffold must be fitted with an information plate indicating the maximum weight and number of persons that may be lifted. Copies of the welding x-rays and engineering drawings must be kept on site.

Any work involving the use of a man basket, suspended scaffold or boatswain’s chair must be carried out under the supervision of a competent person who has been appointed in writing.
A man basket, suspended scaffold or boatswain’s chair must be thoroughly inspected (examined for damage) by a competent person prior to use (every time the equipment is used) and the results of each inspection must be recorded in a register. The crane or hoist as well as all lifting equipment (tackle) that is used to suspend the man basket, suspended scaffold or boatswain’s chair must be tested and inspected as stipulated in the Cranes and Lifting Equipment Standard.

All suspended scaffold erectors, operators and inspectors must be appointed in writing and proof of competency must be provided.

Persons carrying out welding or flame cutting work from within a man basket or suspended scaffold or from a boatswain’s chair must take precautions to ensure that they do not accidentally cut or burn through the cables or wire ropes that are suspending them.

16.13.6 Falling Objects

In the process of planning work activities, the risks associated with falling objects (i.e. materials, tools or equipment) must be assessed and appropriate control measures must be identified, implemented, and monitored taking the following hierarchy of controls into consideration:

- Preventing objects from falling – by using containment sheeting, toe boards, lanyards to secure tools (to a person or to the structure), ropes or chains to secure equipment (to the structure), lift boxes, brick cages, etc. and by properly securing loads when lifted by crane or hoist;
- Protecting people from falling objects – by establishing barricaded exclusion zones, installing catch platforms or catch nets, displaying warning signage, and posting safety watchers and / or traffic controllers; and
- Personal Protective Equipment (particularly safety helmets and safety boots) – protective equipment is a last line of defence and must be worn.

Where overhead work is being carried out, barricading must be erected around the work area (at the level at which the work is taking place and at every level below including ground level) to prevent persons from entering such an area and potentially being struck by falling objects.
Wherever hazards related to falling objects exist, appropriate warning signage (i.e. “Overhead Work In Progress” and “No Unauthorised Access”) must be prominently displayed.

No items are permitted to lie loose in elevated positions (e.g. nuts and bolts must be securely stored) and good housekeeping standards must be maintained at all times.
No tools, equipment, material, debris, waste, etc. may be dropped from height. Objects must be lowered or chuted to ground level in a safe and controlled manner.
16.13.7 Scaffolding

16.13.7.1 Training, Competency and Supervision
Scaffolding may only be erected, maintained, altered or dismantled under the strict personal supervision of a competent Scaffolding Supervisor (or Scaffolding Inspector) who has been appointed in writing.

Scaffolding may only be erected, maintained, altered or dismantled by competent and appointed Scaffolding Erectors (or Scaffolding Builders). It is the Scaffolding Supervisor’s responsibility to ensure that all persons carrying out such work are suitably trained and experienced.
A certificate of competency issued by a reputable (i.e. accredited and approved) training provider must be produced for each Scaffolding Supervisor and each Scaffolding Erector.

16.13.7.2 Erection and Dismantling of Scaffolding
Only approved scaffolding components may be used to erect a scaffold. Scaffolding must be erected, modified and used in accordance with the manufacturer’s guidelines or recommendations, and in strict compliance with all applicable legislation and standards.

A free-standing scaffold must not exceed a height of three times the smallest dimension of its base.
Scaffolds with a height to base width ratio of more than 3:1 must be restrained from tipping over by guying, tying, or bracing.
Guy wires and ties prevent scaffolding from tipping away from the building or structure, and braces are rigid supports that prevent the scaffolding from tipping into the building or structure.

Scaffolding must be secured to the structure every 6 metres vertically and every 9 metres horizontally (as a minimum). Adequate underpinning, sills or footplates must be provided for scaffolds erected on filled or otherwise soft ground (including sand or gravel).

If the scaffolding is to be load bearing (i.e. other than normal access and workplace storage) then full calculations and a design must be prepared and authorised in writing by a structural engineer. The load limits specified by the scaffolding manufacturer may not be exceeded under any circumstances.

Scaffolds must be plumb and level at all times.
All scaffolding components must be in good condition (i.e. undamaged and free of corrosion).
All scaffolding components must be properly connected or secured and scaffolding must be effectively braced (diagonal bracing).

Each person erecting, maintaining, altering or dismantling scaffolding must use fall protection at all times (i.e. a full body safety harness with two shock absorbing lanyards fitted with scaffold hooks). The work must be planned to enable every Scaffolding Erector to be securely anchored at all times. A suitable lanyard length (not exceeding 2 metres) must be selected taking the potential fall distance and height of attachment (height of anchorage point) into account. If the lanyard is too long or the anchorage point is too low, the person may hit the ground, a platform, or objects below him before the lanyard is able to break his fall.
The area around the base of a scaffold must be barricaded to prevent unauthorised access into the work area. When scaffolding is erected or dismantled on a level, platform, or floor lying above ground level and the potential exists for components to fall to levels below the level on which the scaffolding is positioned, then the area directly below the scaffolding on each of those levels must also be barricaded. Appropriate warning signage (i.e. “Overhead Work In Progress” and “No Unauthorised Access”) must be prominently displayed.

Hoists, lifts and approved material baskets must be used (where available) to lift scaffolding components to elevated positions.

Where components are passed from hand to hand during the erection or dismantling of a scaffold, each Scaffolding Erector must always stand on three boards and not directly above the person below him. During this process, each Scaffolding Erector must remain within the confines of the scaffold and must expose as little of his body as possible to minimise the risk of being struck by a falling component. Good communication between team members must be maintained at all times.

No scaffolding components, tools, or any other material may be dropped from height or thrown from one level to another. Components, tools and materials must be lowered or lifted in a controlled manner. Use may be made of a chute.

Each tool must be secured to the wrist, harness or structure by means of a lanyard. A tool bag (around the waist or over the shoulder) may be used for carrying tools up and down a scaffold structure. Tools or equipment may not be carried by hand up or down a structure, as both hands must be used for climbing. If necessary, a rope must be used for lifting or lowering tools or equipment.

While a scaffold is being erected or dismantled, no scaffolding components may be stacked on the scaffold structure unless it has been designed for that purpose. Any loading of a scaffold structure must be authorised in writing by a structural engineer.

For special scaffolding, a design must be prepared by the appointed Scaffolding Supervisor and this design must be authorised in writing by a structural engineer before the scaffolding is erected. Scaffolding may not stand on steel grating unless the grating is adequately supported from below. Scaffolding must rather stand on the structure that supports the grating.

Empty drums, crates or bricks may not be used to prop up, support or anchor scaffolding. Before scaffolding is erected in close proximity to an electrical installation or live conductors, an electrical engineer (employed by Project or the client) must inspect the area and determine whether or not the scaffolding must be earthed. Should the scaffolding require earthing, this must be done as soon as possible while the scaffolding is being erected.

Scaffolding may not be erected if it is raining or in winds stronger than 32 km/h.

A green tag (displaying the words, ”Scaffold Safe for Use”) or a red tag (displaying the words, ”Danger: Do Not Use Scaffold”) must be prominently displayed on each scaffold at all times. The tag must be positioned close to the base of the ladder or staircase provided
for safe access. The wording on the tags must be in English and any other language commonly used on site.

As a minimum, a green tag must display the Scaffolding Supervisor's name, the date that the scaffold was erected, and the date that the scaffold was last inspected. **Only an appointed Scaffolding Supervisor may attach, change, update the information on, or remove these tags.**

Scaffolding must not be:
- Left partially erected or partially dismantled except for normal work stoppages (for example, over weekends);
- Left in an unsafe condition (if scaffolding is unavoidably in an unsafe condition, barricading must be in place to prevent unauthorised access and the required red tags must be prominently displayed on the scaffold structure); or
- Moved or altered while work is in progress.

Mobile scaffolding must be equipped with brakes, which must be engaged at all times when the scaffolding is in use. A scaffold may not be moved if any person is on the structure.

16.13.7.3 Safe Access

Safe and convenient access must be provided to every scaffold platform by means of properly installed ladders or approved stairways, which must remain unobstructed at all times. Climbing up or down a scaffold on the braces or ledgers is forbidden.

All ladders used to access scaffolding must be securely attached to the scaffold structure. Hook-on and attachable ladders must be specifically designed for use with the type of scaffolding being used.

If a ladder is used to access a scaffold platform at a height greater than 1.5 metres above the ground, then the ladder must be secured internally (i.e. within the scaffold structure) and there must be an opening (closed with a trap-door) in the platform at the top of the ladder.

If the scaffold platform is at a height of less than 1.5 metres above the ground, then the ladder may be attached externally provided the guard rails around the platform are modified to allow access (the opening in the guard rails must be kept closed using a self-closing gate). No person may climb over or through the guard rails to gain access to a platform.

If a vertical ladder used on scaffolding is more than 5 metres in length it must be equipped with a ladder cage extending from a point 2 metres from the base of the ladder to a height of 1 metre above the platform (or the uppermost platform) that the ladder is providing access to.

Circular ladder cages must have an internal diameter of no more than 700mm. Square ladder cages must have internal dimensions of no more than 700mm by 700mm.

The requirement for a ladder cage may be waived if platforms are provided at height intervals not exceeding 4 metres, with the vertical ladder secured on the inside of the scaffolding framework and an opening (closed with a trap-door) in each platform.
Vertical ladders must be braced at three metre intervals (as a minimum) to prevent undue movement.

All vertical ladders providing access to a platform must be left in place for as long as the scaffold remains in place and must be inspected as part of the scaffold structure. Any deviation from the requirements stipulated above must be subjected to a risk assessment and the nominated project management representative must authorise the deviation in writing.

16.13.7.4 Scaffolding Platforms
Safe work platforms must be provided.

Every work platform must be complete (i.e. from ledger to ledger and from transom to transom without any gaps) in order to prevent personnel, materials, tools, etc. from falling through the platform.

Every work platform must be constructed from manufactured steel scaffold boards (planks) of equal thickness (height). Timber boards are not permitted under any circumstances.

Each steel scaffold board must be securely hooked (fastened) onto the ledgers or transoms that support it.

On all sides except the one facing the structure, every scaffold platform must be provided with:
- Sturdy guard rails positioned 500mm above the platform floor (the mid rail) and 1000mm above the platform floor (the top rail); and Steel toe boards that are at least 150mm high and securely attached such that no gap exists between the toe boards and the platform floor.

**Note:** Wire mesh infill panels incorporating a toe board may be used instead of a mid-rail.

Scaffold platforms must be as close to the structure as is practicable (but not closer than 75mm) except where personnel need to sit on the edge of the platform while they work in which case the distance may be increased to no more than 300mm.

Scaffold platforms must, at all times, be kept free of waste, protruding objects, and any other obstructions. Platforms must be cleaned if necessary to ensure that they are maintained in a non-slip state.

16.13.7.5 Inspection of Scaffolding
Every scaffold structure must be inspected by a competent Scaffolding Supervisor:
- Prior to use after erection, and at least weekly thereafter;
- After inclement weather (heavy rain, strong winds, etc.);
- After any incident resulting in jarring, tilting or overloading;
- After any alteration is made; and
- Before being dismantled.

On completion of an inspection, the Scaffolding Supervisor must update the information on the scaffold tag.
A record of each inspection (date and time of inspection, location of scaffolding, findings, etc.) must be captured in a register. The register(s) must be maintained by the Scaffolding Supervisor(s) carrying out the inspections.

16.13.7.6 Using Scaffolding

The user of a scaffold (i.e. the responsible supervisor) must inspect the erected structure prior to acceptance and must ensure, as far as is reasonably possible, that the scaffold is safe and fit for purpose before allowing his team to make use of the scaffold.

In particular, the user must ensure that:

- The scaffold and the platforms have been constructed to meet the loading requirements of the work that is to be carried out (the Scaffolding Supervisor must be consulted in this regard);
- The Scaffolding Supervisor has checked that adequate ties and braces are in place;
- The work platforms are in the correct positions and are complete with toe boards and guard rails;
- Safe and convenient access has been provided (ladders and / or stairways); and
- A green (“Scaffold Safe for Use”) tag has been attached to the scaffold by the Scaffolding Supervisor.

Use of an incomplete or unsafe scaffold is prohibited. Unsteady or non-rigid scaffolds must not be used and inadequacies must be reported to, and rectified by, the responsible Scaffolding Supervisor.

The user of a scaffold must ensure that every person in his team is aware that no alterations to the scaffold may be made by the team during the course of their work, and that if any alterations are required, they must be made by competent Scaffolding Erectors under the supervision of an appointed Scaffolding Supervisor.

A scaffold may not be used:

- If a red tag is displayed indicating that the scaffold is not safe to use; or
- During inclement weather, defined as wind speeds greater than 40km/h, thunderstorms, or heavy rain (in excess of 40mm/h).

**Note:** With due consideration of possible educational limitations, the contractor must ensure that all persons understand what green and red tags mean.

The area around the base of a scaffold must be appropriately barricaded to prevent unauthorised access into the work area. Appropriate warning signage (i.e. “Overhead Work In Progress” and “No Unauthorised Access”) must be prominently displayed.

Loose tools and / or materials on scaffold platforms must be secured using lanyards, wire or fibre rope, or must be placed in secured containers. Where appropriate, “catch nets” deemed may be installed as an additional safety measure to prevent materials or tools from falling to the ground.

The storage or placement of materials on scaffolding platforms must be kept to a minimum. Debris as well as tools and materials that are no longer required must be removed from all working platforms at least once per day.
Scaffolding platforms must be cleaned regularly.

A heavy load may not be placed on a scaffolding platform unless the scaffold has been designed and constructed specifically for that purpose. Any loading of a scaffold structure must be authorised in writing by a structural engineer.

Scaffolds may not be used as hoisting towers or to support piping or equipment. Each person working from scaffolding must wear fall protection (i.e. a full body safety harness with two shock absorbing lanyards fitted with scaffold hooks) and must be securely anchored at all times.

All work must be carried out from properly constructed work platforms. Standing on railings or braces in order to perform work is forbidden. Drums, boxes and other makeshift substitutes for scaffolding may not be used under any circumstances.

Where work on an electrical system is to be undertaken from a scaffold, an electrical engineer (employed by Project or the client) must determine whether or not the scaffolding structure requires bonding and earthing. The scaffolding may not be used until this has been determined, and if required, until the structure has been bonded and earthed.

16.13.7.7 Identification and Inspection of Scaffolding Components

All scaffolding components belonging to a contractor must be properly marked or uniquely coloured to enable positive identification.

Prior to erecting a scaffold, all scaffolding components must be carefully inspected by a competent Scaffolding Supervisor.

Components found to be defective during an inspection must be conspicuously marked and removed to a suitably demarcated quarantine area for destruction, repair, refurbishment or removal from site. Deformed and bent wedges must be straightened and inspected for cracks before being put back into service.

16.13.7.8 Storage of Scaffolding Components

All scaffolding components must be stored in a demarcated storage area in such a manner that they are not exposed to environmental extremes and will not cause injury to persons. Suitable barricading or fencing must be erected and warning signage must be posted (e.g. No Unauthorised Entry).

Within a storage area, scaffolding components must be stacked such that pathways (750mm in width) are maintained between the stacks. Each stack must be stable and components must be neatly placed to ensure that no ends protrude into any pathway. The various components must be stacked separately.

The weight of scaffolding components must be considered when stacking them in elevated positions.

Any storage area for scaffolding components must be positioned such that it will not interfere with any onsite activity (including the operation of any plant or equipment), block
any access way, or obstruct access to any plant or equipment. Before establishing a storage area, the location must be agreed with the nominated project management representative.

16.13.8 Ladders
All ladders used on site must be of sound construction and adequate strength. Only non-conductive ladders made of wood or fibreglass may be used for electrical work or work being performed in proximity to energised electrical equipment. Metal ladders and ladders with metal reinforcing may not be used.

The use of makeshift ladders is forbidden. All ladders must be numbered, listed in a register, and inspected by a competent person on a monthly basis (the results of each inspection must be recorded in the register). Before using a ladder, the user must inspect it for damage.

Ladders with missing, broken, cracked or loose rungs, split stiles, missing or broken spreaders (stepladders) or any other form of damage or defect may not be used. A damaged ladder must be removed from service (and tagged, “Out of Service”) without delay and must then either be repaired (if possible) or destroyed to prevent further use. Persons must receive instruction in the correct use and proper care of ladders.

Ladders may only be used as a means of access and egress. The use of ladders as working platforms is prohibited, except for inspection and carrying out minor tasks (i.e. light work and short duration) such as changing a light bulb.

Ladders may not be positioned horizontally and used as walkways or runways or as scaffolding. All portable ladders must be fitted with non-skid safety feet (or some other means to prevent the base of the ladder from slipping) and the feet must always be placed (stand) on a firm level surface. The use of bricks, stones, wood or any other material to level the stiles of a ladder is prohibited. Ladders may not be placed on movable bases such as boxes, tables, trucks, etc.

The base or foot of a ladder must always be secured to prevent it from slipping. The ladder must be held by an assistant if the base cannot be secured in any other way (e.g. tied off). A straight ladder must extend at least one metre above its support (or above the working platform that it is providing access to). The top of the ladder must be tied off (or otherwise secured to its support) to prevent accidental movement.

A straight ladder must be placed at a safe angle, i.e. tilted at a ratio of approximately 4:1, meaning that the base of the ladder must be one metre away from the wall (or other vertical surface) for every four metres of height to the point of support.

A stepladder may never be used as a straight ladder. A stepladder must be opened fully and the spreaders must be locked securely. When using an extension ladder, at least four rungs must always overlap at the centre of the ladder.
Ladders may not be joined together unless they have been specifically designed and manufactured for that purpose.

A suspended ladder (i.e. not standing on a base) must be attached in a secure manner to prevent undue swinging or swaying, and to ensure that it cannot be displaced.

A ladder may not be placed against a window, glass or any other material which is unlikely to withstand the force exerted on it by the top of the ladder.

A ladder may not be placed in front of a door or window that opens towards the ladder unless the door or window has been locked or barricaded.

When a ladder is used near an entrance or exit, the base of the ladder must be barricaded. Materials and / or equipment may not be placed in close proximity to the base or landing of any ladder.

When ascending or descending a ladder, a person must always face the ladder and use both hands (i.e. maintain three points of contact).

Nothing may be carried up or down a ladder if it prevents the person from holding on to the ladder with both hands. Tools must always be properly secured. This can be achieved by attaching them to the wrist using lanyards or placing them in a tool belt around the waist. Tools and materials may also be carried in a bag over the shoulder or hoisted to the landing using a tool bag and rope.

Only one person at a time may use (i.e. be positioned on) a ladder.

No person may stand or step above the third rung from the top of a straight ladder or above the second highest step of a stepladder.

Overreaching from a ladder is prohibited. If the target is not within comfortable reach, the person must climb down and reposition the ladder.

No person may run up or down a ladder, or jump from the lower rungs or steps to the ground.

All ladders must be properly maintained and cared for.

Ladders must be stored under cover and should be hung in a horizontal position from several brackets.

No ladder may be left lying on the ground or be left exposed to the weather. A ladder left lying on the ground presents a tripping hazard and it may be damaged by vehicles running over it.

No ladder may be left in such a position where it may fall over, be accidentally knocked over, or be blown over by the wind.

Ladders may not be painted, as the paint may conceal damage, defects, labels or other markings.

Instead of paint, clear varnish or wood oil may be used to preserve wooden ladders.

Ladders must be kept clean, as dirt may conceal damage or defects. Oil or grease accumulation on the rungs of a ladder may cause a person to slip.
Before making use of a ladder, each person must make an effort to remove mud, oil, grease, etc. from his boots.

16.14 Permit to Work

All personnel must comply with the Permit to Work system applicable to the project. A Permit to Work must be obtained before carrying out any work that involves:

- A hazardous energy source or system, including electricity, compressed fluids (e.g. hydraulics and pneumatics), chemical substances (e.g. toxic, corrosive, flammable or explosive gases and liquids), heat (e.g. steam), radiation, and machinery or materials with potential energy (gravitational and elastic) – isolation and lockout may be required;
- Confined space entry;
- Working at height;
- A critical lift;
- Hot work outside of designated workshops;
- Excavation; or
- A service (e.g. water supply, fire suppression systems, etc.).

**Note:** A Permit to Work may only be issued by an Authorised Person, and may only be received (or accepted) by an appointed Applicant (see Definitions).

Each Permit to Work that is issued must make reference to an approved Task-Based Risk Assessment for the work that is to be carried out.

The Permit to Work system that is employed must incorporate the following basic procedures:

- Prior to meeting with the Authorised Person, the Applicant must familiarise himself with all of the hazards associated with the system, plant, equipment, structure or area on or in which the work must be performed. He must also consider the risks that may arise as a result of the tasks that will be carried out. A Task-Based Risk Assessment must be in place;
- The Applicant must then request permission to carry out the work and must meet with the Authorised Person to discuss and document the scope of the work as well as the hazards, risks and associated control measures. Isolation and lockout requirements must be identified (if applicable). The isolation and lockout process must be initiated by the Authorised Person who must contact the necessary Isolation Officers.

**Note:** The Applicant must ensure his own safety and that of his team, and has the right to accompany the Isolation Officers to verify that all of the necessary locks have been fitted to all of the isolation and lockout points in accordance with the applicable plant or equipment-specific Isolation and Lockout Procedure.

- Once all of the necessary isolations have been completed and the necessary Clearance Certificates have been issued by the Isolation Officer(s) (if applicable), and the Authorised Person is satisfied that the system, plant, equipment, structure or area is safe to work on or in provided all identified precautions are observed by the Applicant, then he must issue (sign) the Permit to Work to the Applicant;
- The Applicant must accept (sign) the Permit to Work. If equipment has been isolated, the Applicant must attach his Personal Lock to the relevant Isolation Bar (or Local
Isolation Point) and must ensure that every other person working on the isolated equipment also attaches his or her Personal Lock to the Isolation Bar (or Local Isolation Point) before starting any work;

- Before commencing with any work, the Applicant must discuss the hazards, risks, control measures, precautions and limitations as stated in the Permit to Work (and associated Task-Based Risk Assessment) with all personnel who will be carrying out the work. A register must be kept and all persons must sign the register once they have been briefed by the Applicant;

- The work performed must be limited to what is described in the Permit to Work;

- When a particular employee has completed his work, he must sign the personnel register to this effect and (if applicable) must remove his Personal Lock from the Isolation Bar (or Local Isolation Point);

- Once all work is complete, the Applicant must:
  - Ensure that all machine guards have been replaced;
  - Ensure that all tools and materials have been removed from the work area;
  - Ensure that the work area is clean and tidy;
  - Ensure that all Personal Locks (including his) have been removed from the Isolation Bar or Local Isolation Point (if applicable);
  - Inform the Authorised Person that the work has been completed; and
  - Sign off the Permit to Work.

- Once the work is complete and the Applicant has signed off the Permit to Work, the Authorised Person must:
  - Ensure that the relevant Isolation Officers perform all of the necessary de-isolations (if applicable);
  - On completion of the de-isolations, sign off the Permit to Work accepting the system, plant, equipment, structure or area back for service; and
  - Inform all relevant personnel that the system, plant, equipment, structure or area is ready to use.
  - Where the work must continue over more than one shift, the Permit to Work must be reviewed at every shift change by an Authorised Person. If the scope of work has changed, the permit must be cancelled and a new permit must be issued.

If any of the original conditions or precautions pertaining to the work is not being complied with, is no longer adequate or is no longer applicable, the Authorised Person must cancel the Permit to Work and must ensure that all work stops until full compliance with either the original or amended (as required) conditions and precautions is achieved and a new permit has been issued.

The Applicant must ensure that the Permit to Work (including the personnel register) is kept where the work is being carried out (i.e. posted on a portable Health and Safety Management Information Notice Board) and that the work is monitored against the permit conditions.

All Permit to Work records must be retained and must be made available for inspection when required.
The implementation of the Permit to Work system applicable to the project must be audited on a regular basis by a nominated project management representative. Furthermore, planned task observations must be carried out periodically.

**Note:** In addition to obtaining Permits to Work as and when required for specific hazardous activities (identified in this standard), each contractor must obtain a General Work Authorisation from a nominated project management representative on a monthly basis. A General Work Authorisation is valid for one calendar month and authorises the contractor’s planned work activities. In order to obtain a General Work Authorisation, the contractor must provide a documented work plan for the month together with the necessary Task-Based Risk Assessments.

### 16.15 Isolation and Lockout

Isolation and lockout procedures that make it impossible to inadvertently energise any system, plant or equipment so isolated, must be in place for all work where hazardous energy sources exist, including electricity, compressed fluids (e.g. hydraulics and pneumatics), chemical substances (e.g. toxic, corrosive, flammable or explosive gases and liquids), heat (e.g. steam), radiation, and machinery or materials with potential energy (gravitational and elastic). These procedures must be strictly enforced. All personnel must comply with the isolation and lockout system and procedures applicable to the project.

All Isolation and Lockout Procedures must incorporate the following basic requirements:

- The issuing of a formal Permit to Work for any work that requires the isolation of any system, plant or equipment;
- The use of defined Equipment, Discipline and Personal Locks (see Definitions), and multiple lockout systems (i.e. Isolation Bars and lockout hasps);
- Clear identification of all isolation and lockout points ensuring there is no duplication;
- Isolation of the main energy source;
- The use of slip plates or the blanking off of pipelines or ducting, in addition to the chaining and locking of valves, as determined by a risk assessment;
- Suitable methods of preventing the movement of equipment; and
- Methods to test the effectiveness or completeness of the isolation.

**Note:** No work may commence on a system, plant or equipment until a Permit to Work has been issued by an Authorised Person.

**Note:** A Permit to Work may only be issued by an Authorised Person once all required Clearance Certificates have been issued by appointed Isolation Officers.

The isolation and lockout system that is employed must incorporate the following basic procedures:

- In accordance with a system, plant or equipment-specific Isolation and Lockout Procedure, an appointed Isolation Officer(s) must isolate all points that need to be isolated in order to render the system, plant or equipment safe to work on. An Equipment Lock (and a suitable, highly visible warning tag) must be attached to each isolation point;
- On completion of an isolation (and lockout), the Isolation Officer must clear the area of all persons and must then carry out tests to ensure that the isolation is effective. This may be done by pressing a start button or by asking a control room operator to try to start the equipment. Special care must be taken to ensure that the
attempted starting of the equipment has not been deactivated by another interlock forming part of the system, or by a different up-stream isolation. Alternatively, appropriate equipment may be used to test for energy (e.g. voltage verification or continuity tests).

**Note:** In the case of electrical isolation, a test for voltage must be carried out, after the switching device, to ensure the absence of voltage.

- The Isolation Officer must place the key to the Equipment Locks on an Isolation Bar (at a Lockout Station) and must then attach a Discipline Lock (to prevent the key from being removed) before issuing a Clearance Certificate;
- The Discipline Lock must remain in place when handing over to subsequent shifts. All Discipline Locks for a particular discipline (e.g. low voltage electricity) must be keyed-alike so that any Isolation Officer appointed for that discipline (and issued with a key) can open any of the Discipline Locks used for that discipline. This enables an Isolation Officer to de-isolate equipment that may have been isolated by another Isolation Officer during an earlier shift. Appointed Isolation Officers for a particular discipline are the only persons permitted to hold keys to the Discipline Locks used for that discipline.

**Note:** Local isolations do not require the use of Equipment Locks (a Discipline Lock may be attached to the Local Isolation Point by the Isolation Officer, followed by the necessary Personal Locks).

**Note:** For local isolations, if the Isolation Officer is the only person who will be working on the isolated equipment, then he must attach his Personal Lock to the Local Isolation Point.

- Once all required Discipline Locks are in place (i.e. attached to the Isolation Bar) and all Clearance Certificates have been issued, the Permit to Work may be issued by the Authorised Person;
- Each person who will be working on the isolated system, plant or equipment must then attach his or her Personal Lock to the Isolation Bar before starting any work (including the Isolation Officer, if he intends to work on the isolated unit);
- The attachment of a Personal Lock to the Isolation Bar prevents the removal of the key to the Equipment Locks even if the Discipline Lock is removed;
- When called (by an Authorised Person) to de-isolate the system, plant or equipment (on completion of the work under the Permit to Work), the Isolation Officer must ensure that all Personal Locks have been removed from the Isolation Bar before removing the Discipline Lock and the key to the Equipment Locks;
- Before removing the Equipment Locks and de-isolating the energy source, the Isolation Officer must inspect the system, plant or equipment that was worked on to ensure that it is safe to perform the de-isolation. This includes guard inspections, housekeeping, ensuring that all doors and covers are in place, and most importantly, ensuring that no persons are present;
- Once all Equipment Locks have been removed and the system, plant or equipment is safe for use, the Isolation Officer must cancel the Clearance Certificate and inform the Authorised Person that the unit has been de-isolated.
Where a system, plant or equipment is sequence interlocked and a hazard could be created through the inadvertent start up or shut down of a system, plant or equipment lying before or after the unit to be worked on, then that system, plant or equipment must also be isolated and locked out.

Redundant or out of service equipment must, in addition to being isolated and locked out using the relevant Discipline Lock, be fitted with a tag indicating why it is out of service, who performed the lockout, and the hazards associated with that equipment.

Where it is necessary to work on live equipment for the purposes of commissioning, testing, adjusting and sampling, such work must be carried out in accordance with a written Safe Work Procedure and controls must be in place to prevent unauthorised access into the work area.

The implementation of the isolation and lockout system and procedures applicable to the project must be audited on a regular basis by a nominated project management representative. Furthermore, planned task observations must be carried out periodically.

16.15.1 Personal Locks

A Personal Lock must be such that it can only be unlocked by the person to whom it belongs. Combination locks may not be used.

A Personal Lock, as well as the key(s) to the lock, must be kept under the exclusive control of the person to whom the lock belongs.

A Personal Lock must be issued to each person who requires one, and the person’s details must be clearly and permanently engraved directly onto his Personal Lock. Alternatively, a thick durable plastic identification tag may be used that clearly displays the company’s name, the employee’s name, the employee’s company number, and a contact telephone number (the tag must be securely fastened to the Personal Lock). Where the above is handwritten, it must be done using a permanent marker pen and it must be legible.

Each person issued with a Personal Lock must be trained and certified competent in the correct use of such a lock.

A Personal Lock may NEVER be removed by anyone other than the person to whom it belongs, except if the removal (cutting) of the lock is authorised by the nominated project management representative (in the absence of this person, authorisation can only escalate upwards). Furthermore, the removal of the lock must be done under the personal supervision of the nominated project management representative, and in accordance with a written procedure. The removal (cutting) of a Personal Lock may be required if the person who applied the lock is unable or unavailable to remove it on completion of the work (e.g. lost his key, failed to remove his lock before going home, etc.).

16.16 Electrical Safety

All electrical work must be carried out by competent personnel in accordance with all legal requirements, codes, design criteria and safety standards applicable to the project. Each contractor carrying out electrical work on the project site(s) must develop, document and implement Safe Work Procedures that are aligned with the requirements of this standard.

All persons who will be carrying out electrical work must be certified against the requirements of job and equipment-specific electrical competency standards for the project, which must address job and equipment-specific Safe Work Procedures.
Each person potentially exposed to electrical hazards must receive electrical hazard training at the commencement of his employment on site and thereafter on an annual basis. The training must address the equipment and conditions specific to the area where the individual will be working. The training material must be documented and training records must be kept.
16.16.1 Electrical Installations

Each electrical installation (temporary or permanent) installed or worked on by a contractor must be inspected by a nominated project management representative to ensure that the installation complies with all statutory requirements, codes, design criteria and safety standards applicable to the project.

A nominated project management representative must approve all electrical work before the installation is energised. Any installation deemed unsatisfactory by a nominated project management representative must be removed, repaired or modified by the contractor at his expense.

For every permanent or temporary electrical installation, a certificate of compliance must be issued by a competent and appropriately qualified electrician. These certificates must be available for inspection.

Single line diagrams (with supporting documentation) must be produced and maintained for all electrical installations. This information must include system fault calculations, equipment details, electrical protection discrimination curves, and cable ratings.

Work on electrical installations (new installations, and modifications or repairs to existing installations) may only be carried out by qualified and authorised personnel (i.e. electricians).

Electrical safety devices (specifically, earth leakage protection and overcurrent protection) must be installed on all distribution circuits and the settings must be established by suitably qualified personnel.

A suitable numbering and / or labelling system must be used so that each circuit breaker or earth leakage device can be clearly and readily matched with the outlet or equipment that it protects.

To ensure the safety of the user, each distribution panel must be completely enclosed, must be of the dead-front type, and must be properly constructed and earthed.

All electrical cabling must be covered (e.g. in cable trenches) or elevated (in cable trays) to protect it from damage and to eliminate tripping hazards.

All permanent and temporary electrical installations (cabling, sockets, distribution panels, transformers, switchgear, etc.) must be inspected and tested by a competent and suitably qualified electrician on a monthly basis. The testing must include a grounding (earthing) continuity test and testing of the electrical safety devices. Details of these inspections and tests must be recorded in a register which must be made available to the nominated project management representative for inspection.

A rigorous Isolation, Lockout and Permit to Work system must be applied to all electrical work (i.e. work on electrical installations, machinery or equipment). All personnel must comply with the system and procedures applicable to the project.

Before any work on an electrical installation or equipment is carried out, the installation or equipment must be de-energised.
No electrical work may be performed live, regardless of the voltage, unless written approval is obtained from the nominated project management representative (a justification as to why it is necessary for the work to be carried out with the equipment in an energised state must be provided).

For all energised electrical work, a Safe Work Procedure must be in place and, with the exception of voltage testing and where no tools are used, a Permit to Work (specifically authorising energised electrical work) must be issued.

When carrying out any energised electrical work, approved electrically insulated gloves, blankets, mats and other protective equipment must be used.

Control centres, switchgear rooms, substations, generators, transformers, capacitor banks, and other similar electrical plant and equipment must be appropriately guarded and labelled and, with the exception of emergency shut-off mechanisms, must be made inaccessible to unauthorised personnel (i.e. plant or equipment of this nature must be positioned within rooms or fenced enclosures which must be kept locked).

Appropriate warning signage must be prominently displayed within, and at all entrances to, these rooms or enclosures. The signage must indicate that unauthorised persons are prohibited from entering, that unauthorised persons are prohibited from handling or interfering with any electrical plant or equipment, the procedure to be followed in the event of a fire, and the first aid procedure to be followed should a person suffer electric shock. Suitable fire-fighting equipment must be provided in all such rooms or enclosures.

All electrical panels must be kept locked (using keyed-alike padlocks). Keys may only be issued to authorised personnel.

All un-insulated (bare) or partially insulated conductors must be enclosed and protected to prevent accidental contact therewith. Measures must be taken to prevent unauthorised access and appropriate warning signage must be conspicuously displayed.

Only authorised persons may enter rooms or enclosures housing electrical plant or equipment, and only authorised persons may access electrical panels or cabinets, and cable ducts or trenches. If any work must be carried out in such an area or on such equipment, a Permit to Work must first be obtained from the nominated project management representative.

No connection to any electrical system may be made without prior approval and a valid Permit to Work from the nominated project management representative.

No electrical equipment or apparatus may be modified without written authorisation from the nominated project management representative.

Conductive ladders may not be used in proximity to non-insulated electrically energised lines or equipment.

All permanent and temporary electrical cables, whether energised or not, must at all times be handled as if they are energised.

Only appropriately certified intrinsically safe electrical equipment may be used in flammable or potentially explosive atmospheres such as in confined spaces.
Any equipment or structure on which electric charges may accumulate (such as storage tanks) must be grounded (earthed).

Lightning protection must be provided on all tall structures and buildings. Grounding (earthing) and lightning protection systems and devices must be designed, engineered, selected and installed based on site-specific requirements. Before carrying out any excavation work, a Permit to Work (specifically authorising the excavation activities) must be obtained from the nominated project management representative. Such a permit must not be issued until it has been verified that no buried hazards or services exist where the excavation work is to be carried out (refer to the Excavation Standard).

16.16.2 Arc Flash Safety

Depending on the scope and nature of the work, a documented arc flash protection programme must be in place that specifies:

- The methodology for calculating incident energies and determining flash protection boundaries; and
- The PPE required (specific to a task and the equipment on which the task is performed) and associated procedures to mitigate the hazard.

The method of calculation must be based on regional electrical code requirements, or if none exist, the Institute of Electrical and Electronics Engineers (IEEE) Standard 1584, or the United States National Fire Protection Association “Standard for Electrical Safety in the Workplace” (NFPA 70E), or published equivalent.

An Arc Flash Hazard Assessment must be carried out based on accurate and current data. All electrical cabinets where the potential for an arc flash hazard exists must be labelled in accordance with the hazard assessment and the potential incident energies calculated.

A process must be in place for updating the Arc Flash Hazard Assessment and labelling as changes and electrical upgrades occur that might affect the available short circuit current on the system. In order to mitigate the hazard, Safe Work Procedures must be in place and all persons potentially exposed to arc flash hazards must be trained in these Safe Work Procedures and must be supplied with appropriate arc flash PPE.

16.16.3 High Voltage Power Lines

Before any mobile equipment (such as a crane, bulldozer, back-actor, boom truck or drill rig) is mobilised to a work site, an assessment must be carried out (including a thorough inspection of the work site and the access route) in order to clearly identify any overhead or underground power lines.

A system must be in place to mitigate the risks associated with working in close proximity to power lines and suitable measures must be taken to prevent personnel or equipment from coming into contact with power lines. Extreme caution must be exercised. Where possible, exclusion zones (based on minimum clearance distances specified by the electrical power utility or the nominated project management representative) must be created with rigid barriers and warning signs.

Only in exceptional circumstances, and then only after a detailed method statement and risk assessment has been approved, all necessary mitigation or control measures are in place.
place (including the use of a spotter), and a Permit to Work has been issued by the nominated project management representative, may equipment be operated within one boom length of energised overhead power lines. Suitable protective insulating barriers may need to be used.

If possible, the power lines must be de-energised and isolated while the work is carried out. All equipment operators and rigging personnel must be trained in the hazards and the applicable safe approach distances (exclusions zones) associated with overhead power lines.

A procedure must be in place for the evacuation of mobile equipment or a vehicle in the event of accidental contact with power lines. All operators must be trained in this procedure and must follow it implicitly.

Scaffolding may not be erected within 5 metres of power lines or overhead track equipment.

16.16.4 Portable Electrical Equipment

Prior to site establishment, each contractor must provide a complete inventory of all portable electrical equipment that he and his sub-contractors intend to use on the site (including plant, machines, appliances, generators, hand tools, lighting, extension cords, etc.). The nameplate data for each item of equipment must be included.

All portable electrical equipment to be used on the site must be supplied and maintained in a serviceable condition. Any electrical equipment that is in poor condition or is not in proper operating order may not be used. Any electrical equipment that a nominated project management representative deems to be unsafe or unsuitable must be removed from site.

Electrical repair work or diagnostic work on electrical equipment may only be performed by personnel who are competent and authorised to perform this work (i.e. qualified electricians). With the exception of double-insulated equipment, all electrical equipment must have an equipment grounding (earthing) conductor that connects the frame of the equipment being utilised to the grounding (earthing) conductor of the electricity supply system.

All electrical equipment and all electricity supply systems used (including generators) must be inspected and tested by a registered and competent electrician to ensure that all equipment is properly grounded (earthed).

All electrical equipment used on site must be supplied electricity through (i.e. must be protected by) an approved and tested residual current device (or earth leakage device or unit). If a socket outlet does not have a residual current device in the circuit, a portable residual current device must be used. Outlets without residual current device protection must be labelled as such. Any electrical equipment that causes an earth leakage device to trip or deactivate the circuit may not be used again until an electrician has inspected and tested the equipment and has recorded in a register that the equipment is safe to use.
Interlocks may never be removed or modified, and fuse terminals may never be bypassed to keep current flowing in any circuit.
All generators must be fitted with suitable overcurrent protective devices (i.e. circuit breakers or fuses).
All generators must be used in compliance with the manufacturer’s requirements. Any proposed modification to a generator must be authorised in writing by the manufacturer prior to the modification being made.
Each welding machine used on site must be fitted with a Voltage Reduction Device (VRD). If this is not practical (i.e. for arc welding processes other than stick welding), a dead man’s (isolation) switch in the electrode circuit (operated by a trained observer) may be used as an alternative. All welding machines must be properly grounded (earthed).

All portable electrical hand tools used on the site must be double-insulated. Electrical equipment must be disconnected or unplugged when not in use. Portable lights must be stable and each light bulb must be protected by a substantial guard. Temporary festoon lighting must be double-insulated and must be supported at least 2.5 metres above the floor, if possible.

Handheld lights must be of the all-insulated type and must be extra low voltage (i.e. not exceeding 32V). 120V or 240V handheld lights are not permitted. Any lighting used in hazardous locations (i.e. potentially explosive atmospheres, confined spaces, and damp or wet areas) must be operated at a maximum of 32 volts, unless earthed and protected by earth leakage devices.
No person may wear a watch or any jewellery, or carry any metal objects such as a lighter or keys, while working on any electrical system or equipment. No person may work on or use electrical equipment if his clothing is wet or any part of his body is in contact with water.

No person may handle electrical equipment, equipment cords or extension cords with wet hands or if the floor or ground surface is wet. Fire extinguishers filled with carbon dioxide must be used to fight electrical equipment fires (water may never be used). If possible, the electrical equipment should be de-energised before fire-fighting activities commence (refer to the Fire Protection and Prevention Standard).
When cleaning or performing maintenance work on an item of electrical equipment, the equipment must be unplugged.

Equipment may not be unplugged while that equipment is switched on. Nor may equipment be plugged into a receptacle (socket) with the equipment’s switch turned on. Electrical equipment that has a defective plug or wiring may not be used. Repair work to defective or damaged electrical equipment may only be carried out by a qualified electrician.
Extension cords may be used for temporary applications only. Permanent cabling must be installed for long-term needs.

Extension cords may not be run through doors, windows, ceilings or holes in walls. An extension cord must be uncoiled completely before it is used. An extension cord must be of sufficient current-carrying capacity to power the equipment that it is supplying electricity to. Cords must not be overloaded.
Extension cords must be unbroken and continuous (i.e. no joins or splices in the cord are permitted).

Extension cords may not be daisy-chained (i.e. one extension cord plugged into another extension cord). Extension cords and equipment cords may not be modified to fit a receptacle (socket). Two-conductor extension cords may not be used. A three-conductor extension cord (i.e. a grounded or earthed cord) must be used even if the equipment that it is supplying electricity to uses a two-prong plug.

Extension cords that are frayed, have insulation tears, cracks or abrasions, have exposed conductors, or have bent, broken or “spread” plug prongs may not be used. Extension cords that will be used outdoors must have heavy duty insulation and must be weather and UV resistant.

All electrical equipment cords and extension cords must be covered or elevated to protect them from damage and to eliminate tripping hazards. Each contractor is responsible for protecting his electrical equipment from the weather and from possible mechanical damage.

All portable electrical equipment (including generators) must be inspected, tested and tagged by a competent and appropriately qualified electrician on a monthly basis. Details of these inspections and tests must be recorded in a register which must be made available to the nominated project management representative for inspection.

The inspection and testing must include a continuity test of the grounding (earthing) conductor (as applicable) and a complete examination of the equipment or system to assure safe use. The following colour coding system must be used for the tagging of all electrical equipment:

<table>
<thead>
<tr>
<th>Table 16-2 Colour Coding System for Electrical Equipment</th>
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<tbody>
<tr>
<td>Month</td>
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<td>May</td>
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The tag placed on a piece of equipment must be traceable to an entry in a register where the following information concerning the inspection and testing of that piece of equipment must be recorded:

- Date of inspection and testing;
- Equipment description;
- Equipment owner;
- Equipment location;
- Name, signature and licence number of the electrician who carried out the inspection and testing; and
• Comments concerning the inspection and testing, and details of any repair work carried out or required.

Any item of electrical equipment that does not pass an inspection or test must be removed from service (and tagged, “Out of Service”) immediately and must then either be repaired (if possible) or removed from site.

Any item of electrical equipment without a tag or with an out-of-date inspection or test may not be used.

Any item of electrical equipment found without a tag or with an out-of-date inspection or test must be removed from service until it has been inspected and tested. If it is found that more than one item of equipment being used by a contractor has not been inspected and tested as required, all work with electrical equipment must be stopped until it can be demonstrated to the satisfaction of the nominated project management representative that the contractor’s systems and controls are adequate and fully implemented.

In addition to the formal monthly inspections and testing carried out by an electrician, electrical equipment (particularly extension cords, portable hand tools, welding machines, compressors and pumps) must be visually inspected by the user on a daily basis prior to use. Users must be trained to look for cracks in casings, loose casings, outer cord sheathing that is not being held firmly in position at the equipment, cuts or cracks in cord or cable insulation, exposed conductors, damaged plugs or sockets, and missing covers. Damage and/or defects must be reported immediately.

Personnel must immediately stop using and report any electrical equipment or machinery that is shocking, sparking, overheating or smoking. Corroded outlets, switches and junction boxes must also be reported.

16.17 Confined Spaces
Entry into a confined space occurs when a person’s whole body, upper body or head is within the confined space. This is not intended to prevent an authorised, competent person from inserting only his arm into the space to test for hazards using appropriate monitoring equipment. Precautions must be taken to prevent persons from being overcome by atmosphere escaping from the confined space.

Before any person enters a confined space, a detailed risk assessment must be carried out, including the need for an authorised person to assess such things as oxygen levels, contaminants, temperature extremes and concentration of flammable substances.

As a minimum the risk assessment shall address the following:
• Isolation and lockout procedures required for chemical substances, mechanical or electrical energy, steam, pressure, heat, gases, liquids and solids;
• Venting, purging, draining and cleaning prior to entering the confined space;
• Hazards created by carrying out particular tasks or through the use of chemical substances in the confined space. Task-Based (or Issue-Based) Risk Assessments and/or Written Safe Work Procedures must be available for work in confined spaces - in particular for abrasive blasting, welding, flame cutting, grinding, chemical/steam cleaning, rubber lining and painting;
• Entry, exit and escape routes as well as barricading;
- The electrical safety, intrinsic safety and other safety specifications of equipment to be used in the confined space (explosive atmospheres must be considered);
- The need to test for presence of toxic/asphyxiant substances, radioactivity, oxygen, temperature extremes and flammable substances prior to entry and during the performance of work;
- Provision of suitable mechanical ventilation and personal protective equipment e.g. lifejackets etc. and in particular the use of respiratory protection such as compressed air breathing apparatus; and
- A ventilation rate suitable for general use must take into account factors such as air contaminant type, rate of generation, rate of oxygen depletion, temperature, efficiency of ventilation distribution and contaminant removal from the breathing zone. Therefore each situation needs to be evaluated on its own merit by a risk assessment that will select a combination of ventilation method and respiratory protection that suits the particular circumstances. This must be achieved by consultation between competent operations personnel, engineers and a ventilation specialist.

Entry and work inside a permitted confined space must be controlled and regulated by the project Isolation / Lockout and Permit to Work control systems. The Authorised Person issuing the Permit to Work may only do so if the conditions applying to the specific confined space entry have been satisfied and documented.

As a minimum, the following must be included in the permitting process:
- Access barriers to prevent unauthorised entry;
- Isolation procedures for contaminants and other energy sources;
- The need for breathing apparatus / ventilation requirements;
- The sign-in and sign-out of all persons entering the confined space;
- Display of the permit;
- Communication procedures and/or equipment;
- Safety specifications of equipment to be taken into the confined space;
- Barricading of entrances and exits;
- Rescue plan and equipment;
- Standby person(s); and
- A completion and lock-in procedure (to ensure that space is evacuated and adequately secured).

The Permit to Work process must require competent rescue persons with suitable communication, rescue and firefighting equipment to be present where any of the following may exist:
- Compressed air breathing apparatus is required;
- There is a high risk of fires or explosions;
- The atmosphere can rapidly become unsafe for breathing purposes if the mechanical ventilation fails;
- There is a high risk of flooding or engulfment;
- Narrow tunnels or pipes are entered or where exit or escape routes cannot readily be accessed
- Work is done in remote areas; and
- A single person, who cannot be observed directly or is isolated from other workers, does the work.
Where testing for toxic/asphyxiate substances, radioactivity, oxygen, temperature extremes and other health hazards as well as for flammable substances is carried out, it may only be done by persons trained, tested and certified competent in writing to do so. The ventilation method and quantity must be adequate to ensure oxygen levels and explosive or toxic gas levels remain within acceptable defined limits. Where ventilation is required, this must be covered by an approved documented procedure.

As a minimum standard, the volume of air pumped in and circulated in a confined space needs to be equivalent to 20 times the volume of the space per hour.

Where breathing apparatus or respiratory equipment is required, the contractor’s Health and Safety Officer must be consulted with regard to the specification and selection of suitable equipment.
All persons required to use respiratory protection must be medically fit and trained in the correct use of the equipment.

Safe and convenient entry, exit and escape routes from the confined space must be provided where possible and practical. Where this cannot be achieved effectively, the risk assessment must determine if a competent rescue person must be on duty at the confined space when work is in progress.

Where a standby/rescue person is required, they will have no other duties and will be positioned outside the confined space entry point at all times while personnel are within the space.

16.18 Conveyors
The contractor must ensure that no person attempts to cross / climb over or under any conveyor. Instead, a safe passageway (a crossover or an underpass fitted with safeguards) must be used.
No person may climb onto, sit on, stand on, or walk on a conveyor at any time. Riding a conveyor belt is strictly forbidden.
No person may operate a conveyor other than trained, competent and appointed conveyor operators.
Only authorised maintenance personal are permitted to work on conveyors and only if all energy sources have been effectively isolated and locked out and a Permit to Work has been issued by an Authorised Person.
Working on an operational conveyor is strictly prohibited.
No work may be carried out within three metres of an operational conveyor.

16.19 Arc Welding
All welding machines must be fitted with voltage reducers.

The supply cable to every welding machine must be correctly rated and fitted with an approved plug to be used only with an approved matching plug socket.
The electrical circuit to every plug socket must be protected by a correctly rated circuit breaker and a supply voltage rated earth leakage unit.
Welding cables must be properly insulated and correctly rated for the welding machines on which they are to be used.

Welding cable terminals must either be covered with a properly designed, constructed and installed cover so that inadvertent human contact with the terminals is impossible, whether the cables are connected or not, or the welding cables must be fitted with insulated plugs so that inadvertent human contact with any live part is impossible when the cables are plugged into the machine. Also the plug socket should be such that when the cables are not plugged in, inadvertent contact with a live part of the socket is impossible.

Earth cable clamps and electrode holders must be of an approved type. Earth clamps and electrode holders must be fixed to welding cables with eye terminals and bolts. All welding machines and safety devices must be subjected to regular planned maintenance and a monthly electrical inspection. The inspection must include a test to ensure that the voltage reducer is functioning properly, by measuring and confirming that the open circuit output voltage is reduced.

Before using a welding machine, the welder must ensure that he is wearing all the required and approved protective clothing and equipment:

- Persons assisting the welder must also wear all of the required personal protective clothing:
  - Welding hood;
  - Leather welding gloves;
  - Safety boots with steel toe protection;
  - Flame resistant overalls; and
  - Any other clothing or equipment necessary to perform his work safely and efficiently.
- All welding machines and safety devices must be subjected to regular planned maintenance and a monthly electrical inspection.
- The inspection must include a test to ensure that the voltage reducer is functioning properly, by measuring and confirming that the open circuit output voltage is reduced.

When changing electrodes or moving the earth clamp, the welder or his helpers must wear gloves to avoid possible skin contact with live electrical parts and to prevent burns. When attaching welding cables to the terminals of the welding machine, the welder or his helpers must wear gloves, or preferably, the machine should be switched off to avoid possible electric shock.

Helpers who may be holding the work piece being welded must wear gloves and protective goggles. Where practicable the welder should place protective screens around the area where he is welding, to prevent injury to the eyes of passers-by.

The welder must ensure that the earth cable follows the shortest practical route between the welding machine and the work piece. The earth connection must be directly between the welding machine and the work piece and no building or other structure must form part of the earth return path.

As far as is practicable, the welder should avoid welding under wet or damp conditions. If this is unavoidable, the following precautions should be taken:

- Use only oil filled or other watertight type welding machine;
- Keep the electrode holder as dry as is practical;
• Keep as dry as possible. Stand on an elevated surface out of the water and wear watertight boots and a rain suit. Also ensure that the gloves are in good condition, free of holes.
• Under conditions that result in high perspiration levels, the following measures should be implemented:
  • Use an insulated electrode holder;
  • Change clothing regularly (if possible);
  • Use insulated material like rubber mats and/or timber tuck board to separate yourself from the work piece;
  • Wear dry gloves on both hands during welding;
  • Use fans and air-conditioning to reduce humidity and temperature; and
  • Use an observer capable of responding in an emergency.

When working inside metal vessels or under other conditions where parts of his body may come into contact with conducting surfaces, the welder must take precautions to insulate himself from such surfaces.

When working in confined spaces, the welder must take steps to ventilate the area to prevent inhalation of fumes, which may endanger his health and the health of any assistants.

Engine powered welding machines must not be used in any place that is not very well ventilated since the welder and his helpers may be overcome by carbon monoxide fumes.

The welder should take the necessary precautions when welding objects that may catch alight, explode or release poisonous fumes or gases.

16.20 Gas Welding and Burning

Welding or cutting torches and hoses shall not be connected to cylinders when stored. When work is stopped and equipment is unattended, all valves at the gas and oxygen cylinders shall be closed. The hoses shall be bled and a check shall be made later for possible pressure build-up. Torches shall be removed from the hoses prior to putting them into the toolbox. Smoking SHALL NOT be permitted during this stopping procedure.

Special care shall be taken during overhead cutting and welding operations to safeguard and prevent falling sparks from starting a fire.
Warning signs shall be posted around and at each level below the area of each overhead welding or burning operation. Fire extinguishers shall be available and fire blankets shall be used for protection.

When welding or cutting, adequate ventilation must be ensured / provided. Hoses shall be kept clear from passageways, ladders and stairs. When hoses are subject to damage, they shall be properly protected. Hoses shall be inspected daily. Fire extinguishers shall be ready for instant use in locations where cutting is performed.

Flash-back arrestors must be fitted to all cutting torches at the torch and at the bottle (a total of four arrestors). Lighting of the cutting and welding torches must only be done using a striker and not an open flame.
Soap Leak tests must be performed on all flash-back arrestors.

Hoses may only be secured using approved hose clips, and not by wire, cable ties or any other means. Special care shall be taken when welding with respect to piping that has been painted, as toxic fumes may be emitted in some cases. The supervisor’s advice should be sought prior to the above welding operations being carried out.

16.21 Compressed Gas Cylinders

The contractor must establish a suitable storage area for oxygen, acetylene, LPG and argon cylinders in compliance with the following requirements:

- The storage area must be located at least 10 metres away from any building, and must be well ventilated;
- The storage area must have a concrete floor;
- The storage area must be enclosed using wire mesh fencing (as this will ensure adequate ventilation). This enclosure must be kept locked. Access into the storage area must be limited and controlled;
- A protective covering or roof must be fitted to the enclosure to provide shade;
- The enclosure may not be used for the storage of any other materials / equipment, and must be kept completely free of all combustible materials at all times;
- Appropriate warning signage (i.e. “No Smoking” and “No Naked Flames”) must be prominently displayed on the enclosure;
- A 9kg dry chemical powder fire extinguisher must be mounted near the entrance to the enclosure;
- If electrical lighting is required, it must be of an approved intrinsically safe type;
- Oxygen, acetylene, argon and LPG cylinders must be stored separately in the enclosure. Furthermore, full and empty cylinders must be separated. Separate storage sections must be clearly designated within the enclosure for the different gas types, and for full and empty cylinders, i.e. oxygen – full, oxygen – empty, acetylene – full, acetylene – empty, etc.;
- When a cylinder is empty, the cylinder cap must be replaced to protect the valve. Empty cylinders must be clearly marked (there must be no need to open valves to check if cylinders are full or empty);
- All cylinders must be stored in an upright position and must be secured in this position by chaining, strapping or clamping them individually to a wall, a cylinder trolley, rack or carrier, or some other rigid structure;
- Cylinders must be stored in rows (when necessary due to the number of cylinders) with aisles between the rows to facilitate easy and rapid removal in the event of a fire;
- Oxygen cylinders may never be stored near highly combustible materials, particularly oil and grease, or near fuel gas cylinders. When in storage, oxygen cylinders must be separated from fuel gas (LPG and acetylene) cylinders by a distance of 6 metres or by a 2 metre high wall made of fire-resistant material;
- The total quantity of gases stored on site must be limited to a 2 week supply.

Compressed gas cylinders must always stand upright (i.e. when being used, stored or transported) and must be properly and individually secured to prevent them from falling over.
Cylinders must be protected from flame, heat and from being struck by moving equipment and falling objects.

When handling gas cylinders (whether full or empty), care must be taken to prevent sudden impacts. Whenever a cylinder is not in use, the protective cap must be in place to prevent the valve from being damaged.

Gas cylinders may not be carried, dragged, rolled or slid across a floor or surface. When gas cylinders are to be moved / used, they must be placed in a proper cylinder trolley fitted with a 1.5kg dry chemical powder fire extinguisher.

Gas cylinders may not, under any circumstances, be used as rollers or work supports. If transported by crane, hoist or derrick, compressed gas cylinders must be placed in a suitable cradle, net or skip box. Cylinders may NEVER be lifted using wire rope, fibre rope, a web sling or a chain sling. Before moving / transporting a gas cylinder, the regulator must be removed and the protective valve cap must be replaced.

Gas cylinders may not be taken into a confined space. Gas hoses that are run into a confined space must be removed during breaks. Gas cylinders may not be placed on scaffolding.

Cylinder valve keys must be in place. If no suitable valve key is available then the cylinder may not be used. Nothing but the manufacturer-supplied key may be used to open the valve.

A flashback arrestor and a check valve (non-return valve) must be installed between the regulator and the hose and between the hose and the torch on the oxygen line and on the fuel (acetylene) line.

Connection fittings may not be forced and safety devices associated with cylinder valves or regulators may not be altered / tampered with. Gas hoses may not be joined. Only approved hose connectors of the crimp type are permitted. Wire and jubilee clamps are prohibited. Only high quality ancillary equipment may be used. This includes flashback arrestors, hoses, clamps, spindle keys, nozzles and torches. Only trained and competent personnel may operate gas welding / cutting equipment and appliances.

When an employee opens the valve to a cylinder, he must stand to one side and open it slowly. Valves may never be left partly open – they must either be closed or be opened fully. Leaking cylinders must immediately be removed from service and the workplace (if it is safe to do so).

Suitable firefighting equipment must be at hand wherever gas cylinders containing oxygen and / or fuel gas are being used. Gas cylinders must be prevented from coming into contact with electrical circuits, e.g. welding leads. Never strike an arc on a cylinder. Oxygen may only be used for the purpose for which it is provided. Do not use oxygen in pneumatic tools or tyres, as an explosion may occur.
Empty cylinders must immediately be marked as such and must be removed to the cylinder storage area at the end of each day / shift.

16.22 Electrically Powered Tools and Equipment
All powered hand tools, such as circular saws, drills, chainsaws, percussion tools, jigsaws etc., must be equipped with a constant pressure switch that will shut off the power when the pressure is released. (Exception: this requirement does not apply to concrete vibrators, concrete breakers, powered tampers, jack hammers, rock drills, and similar hand operated power tools).

Electrical power tools must be of the approved double-insulated type. The electric cord, pneumatic or hydraulic supply line of powered tools must not be used for hoisting or lowering of the tool.

Loose clothing, jewellery or gloves that could get caught in the tool must not be worn when operating powered tools. Operators of powered tools who have long hair must keep their hair tied up.

The power source must be disconnected from the tool before making any repairs, servicing, adjustments, or replacing attachments such as drill bits.

16.22.1 Angle Grinders
The following personal protective equipment must be worn when using angle grinders:

- Safety helmet;
- Gloves;
- Safety glasses (or safety goggles) and a full face shield (i.e. double eye protection);
- Overalls with long sleeves and long pants, avoid any form of loose clothing;
- Safety boots with steel toe protection;
- Hearing protection;
- Breathing apparatus where dust or fumes may be generated;
- Where grinding machines are used, a face shield is to be worn as extra protection to the safety glasses; and
- Certain tasks may require the use of a leather apron as determined by a risk assessment.

A 230mm angle grinder may not be used for free cutting purposes. Exceptions may be approved only if alternative methods evaluated proved more hazardous or no alternative exists. The risk assessment for the task must then specifically include mitigating measures to ensure the safest possible way of performing the task.

The use of 230mm angle grinders for grinding purposes is acceptable, however should this form of grinding be required, the 115mm or 125mm grinders would be preferable.

All angle grinders must have a dead man switch incorporated, with a pressure switch in the handle.

A 230mm electrical angle grinder unit must incorporate a soft start to reduce the starting strain and a braking system to reduce run on after the unit has been switched off.

All angle grinders must have a spindle lock to assist with changing the disc or grinding wheel.

Anti-vibration handles are recommended to further reduce the stress if used for extended periods.
Angle grinders must be equipped and operated with disc guarding at all times. Angle grinder must not be stored with fitted discs, as this will lead to damaging of the discs.

Before use and mounting of discs it is essential to check the safety codes and specifications printed on the upper side of the disc. Such specifications include the following:

- Revolutions per minute (RPM). The allowable speed of the disc must be equal to or greater than the maximum achievable speed of the grinder;
- Physical dimensions of the disc must meet grinder specification; and
- The disc must be suitable for the material type to be cut / ground as indicated on the disk. Cutting discs must never be used for grinding and vice versa.

It is critical that the correct disc mounting procedure is followed:

- Check that the machine is plugged out;
- Check the machine spindle, backup washer and thread;
- Check the condition of spindle nut - ensure spanner drive holes are not elongated;
- Ensure spindle nut spanner is the tool recommended by machine manufacturers;
- Do not use a hammer, pipe or chisel to tighten the nut, or apply additional mechanical advantage to nut torque. A firm "nip" is sufficient to retain the disc;
- Ensure the spindle diameter is suited to disc bore. Excessive clearance will cause the machine to vibrate due to eccentricity;
- Check to see that the nut and backup washer do not "bottom out". This will result in the disc not being correctly clamped on the spindle;
- Ensure the spindle speed is marked on the grinder and that it is less than the allowable disc speed; and
- Fit the disc, with the metal ring or writing to the nut side.

16.23 Pneumatically Powered Tools and Equipment

Pneumatic powered tools must only be driven by filtered compressed air with an in-line lubrication system, or be lubricated prior to use if there is no in-line lubrication system. When using pneumatic powered tools the designated tool pressure must be attained by the use of a regulator.

Pneumatic powered tools must be disconnected when not in use. They must not be disconnected from the air supply until all the residual pressure has been released or contained by a shut-off device. Hoses must not be kinked as a means of containment.

Employees operating pneumatic powered tools, and any potentially affected employee in the vicinity of use, must wear suitable personal protective equipment.

All rotary compressed air tools (e.g. drills) must have the rated revolution per minute (RPM) permanently marked on the casing. Only attachments of compatible RPM must be used with these machines.

The actual RPM of the tool must be checked every three months to ensure that the speed is as rated to manufacture specifications.

Pneumatic powered tools must be secured to the air supply hose by an approved positive means to prevent the tool from becoming accidentally disconnected. Safety clips or retainers must be securely installed and maintained on pneumatic impact (percussion) tools to prevent attachments from being accidentally expelled.
All pneumatically driven nailers, staplers, and other similar equipment provided with automatic fastener feed, which operate at more than 100 kPa pressure at the tool, must have a safety device on the muzzle to prevent the tool from ejecting fasteners unless the muzzle is in contact with the work surface.

Compressed air must not be used for cleaning purposes except where reduced to less than 30 kPa, and then only with effective chip guarding and personal protective equipment in place. The 30 kPa requirement does not apply to concrete form, mill scale and similar cleaning purposes. The use of compressed air for cleaning purposes must be approved by the nominated project management representative. Compressed air must not be pointed at any part of the body or used for cleaning clothing.

Airless spray guns of the type which atomize paints and fluids at high pressures must be equipped with automatic or visible manual safety devices which will prevent pulling of the trigger to prevent release of the paint or fluid until the safety device is manually released. A diffuser nut which will prevent high pressure, high velocity release while the nozzle tip is removed, plus a nozzle tip guard which will prevent the tip from coming into contact with the operator, or other equivalent protection must be provided in lieu of the above.

Abrasive cleaning nozzles must be equipped with an operating valve, which must be held open manually to enable operation. A support must be provided on which the nozzle may be mounted when it is not in use.

16.24 Fuel Powered Tools and Equipment

Fuel powered tools must be shut down and allowed to cool before being refueled, serviced, or maintained. Fuel must be transported, handled, and stored in approved fuel containers. Where possible, diesel driven engines must be used in preference to petrol driven engines. All fuel powered tools must be included on the contractor’s Equipment Register and the register must be submitted to the nominated project management representative prior to the relevant work commencing.

When fuel powered tools are used in enclosed spaces, the space must be ventilated and the atmosphere monitored to measure toxic gas concentrations. Persons in the space must wear the necessary personal protective equipment. Confined Space Entry clearance may apply. This type of activity must only be undertaken in exceptional circumstances and requires the approval of the nominated project management representative.

16.25 Hydraulically Powered Tools and Equipment

Hydraulic powered tools must use only approved fluid that retains its operating characteristics at the most extreme temperatures to which it will be exposed. The manufacturer’s stated safe operating pressures for hoses, valves, pipes, filters and fittings must not be exceeded.

Only manufacturer approved hoses, valves, pipes, filters and fittings must be used.

16.26 Explosive Powered Tools

All operators shall be trained by the contractor. The contractor shall ascertain that the explosive charges to be used are of the correct strength for the purpose.

Projectiles from explosive powered tools shall NOT be driven into:

- Tile, terracotta, glazed brick, glass, marble, granite, thin slate or other brittle substances;
• High tensile steel, cast iron or steel hardened by heat treatment; or
• Concrete that contains aggregate that will not pass wholly through 25mm mesh screens.

Under no circumstances shall a tool be fired in such a manner as to cause the projectile to fly free.
Suitable safety glasses and hearing protection shall be worn by operators when firing an explosive powered tool.

At all times when a tool is being used, the operator shall display clearly legible signs at or near the place where the tool is in use. Sign should read: WARNING: EXPLOSIVE POWERED TOOL IN USE – KEEP CLEAR.
The operator shall warn all other employees in the vicinity of the area in which the tool is about to be used.

Tools shall never be stored in a loaded state. Cartridges and tools shall be stored separately in lockable containers.
A logbook must be kept of the number of cartridges used and returned.

16.27 Hand Tools
Employees required to use hand tools must receive training relevant to the tool and have their competency assessed in the operation, inspection and maintenance of the tool. Where necessary, additional applicable personal protective equipment must be worn when using hand tools.

Wrenches, including adjustable, pipe, end, and socket wrenches, must not be used when the jaws are sprung to a point where slippage occurs. Impact tools such as drift pins, wedges and chisels, must be kept free of mushroomed heads. The wooden handles of tools must be kept free of splinters or cracks.

Adjustable wrenches must not be used in lieu of ring or open-end type spanners, unless a risk assessment has been conducted and the use of the adjustable wrench is approved by the nominated project management representative. Wherever possible, ring spanners must be used in preference to open end spanners.

Correct hand tools for the job must be used, e.g. screwdrivers must not be used as chisels, and pliers must not be used as hammers.
All wedges and drifts that may spring, fly or fall to lower levels upon impact must be fitted with an attachment which attaches a safety “lanyard” to a solid structure to restrain the impact tool from becoming a projectile.

All hand tools used in elevated areas, that may be dropped or fall to lower levels must be fitted with safety lanyards and attached to solid structures or in the case of podges, scaffold keys etc., attached by wrist lanyard to the user.
Purpose built tools and equipment may not be used unless a risk assessment has been conducted and authorised by the nominated project management representative.

16.27.1 Stanley Knives / Utility Knives
A utility knife must be used as a last resort, when it is the safest tool to use. Always consider alternatives that pose less of a risk to the operator.
Whenever a utility knife is used, ensure that a complete risk assessment is done and that all possible hazards have been addressed. Only utility knives with retractable blades are to be used. The blade is to be retracted at all times when the knife is not in use or is being stored.

Before using the utility knife, ensure that the tool is in a good condition and the blade is secure in the holder (seated correctly and that there is no play). Ensure that the blade is always sharp and in good condition. This will prevent the use of excessive force.

Always wear cut resistant gloves and safety glasses when using a utility knife. There is always a risk of the blade breaking under tension and becoming a projectile. Always ensure that you cut away from your body, and that no part of your body is in the firing line.

Always ensure cleanliness of all equipment in use during the cutting operations.

16.28 Inspection of Equipment and Tools
All tools must be inspected by the user before, during and after use. If any faults are identified, the tool must be taken out of service and not used until repaired. Faulty tools that are not able to be repaired must be tagged “out of service” and removed from site.

16.29 Manual Handling and Vibration
Any handling or lifting task that can only be done manually must be planned and rehearsed before the task is done. If more than one person is involved in a task a communication procedure must be agreed in advance. Lowering the load must be done in a controlled manner. Dropping a load is dangerous and must be avoided.

As a guideline 25 kg is considered to be the limit of what a person can safely handle. Where there are loads exceeding 25 kg the risk of handling the load must be mitigated to assure minimal potential for any injury. When mechanical lifting aids are provided, they should be used. Extra care should be taken when lifting awkwardly shaped objects.

Position the feet correctly. The feet should be placed hip-width apart to provide a large base. One foot should be put forward and to the side of the object, which gives better balance. Bend or ‘unlock’ the knees and crouch to the load. The weight will then be safely taken down the spine and the strong leg muscles will do the work.

Get a firm grip. The roots of the fingers and the palm of the hand should grip the load. This keeps the load under control and permits it to be distributed more evenly.

The following should be considered with conducting the Risk Assessment with regards Manual Handling and also take into consideration the task factors, physical demands and tools involved in the task:

- Load weight/frequency;
- Hand distance from lower back;
- Asymmetrical trunk/load;
- Postural constraints;
- Grip on the load;
- Floor surface;
- Environmental factors;
- Carry distance; and
- Obstacles en route.

Team Manual Handling:
- Load weight;
- Hand distance from lower back;
- Vertical lift region;
- Trunk twisting/sideways bending;
- Postural constraints;
- Grip on the load;
- Floor surface;
- Environmental factors; and
- Communication, co-ordination and control.

As far as possible, exposure to vibration must be eliminated. However, if this is not possible, short-term solutions to decrease exposure include:
- Reducing the vibration levels;
- Removing the person from the vibrating equipment / tools;
- Reducing the period of time that the person works with the vibrating equipment / tools (at least 40 minutes break after 20 minutes working with a machine that vibrates excessively).

In order to reduce exposure to vibration:
- Consider buying equipment that operates effectively at lower speeds;
- Buy equipment with built-in damping materials;
- Buy lighter tools if they are available - they require less of a grip;
- Maintain the equipment;
- Make sure equipment is balanced and there are no worn parts;
- Use remote controls when they are available;
- Reduce your grip on the equipment when it is safe. The less time you actually have your hands on the equipment the better. Relax your hands during these brief breaks;
- Take scheduled breaks; and
- Do other tasks that allow you to move away from vibrating tools and equipment.

The workplace must be assessed by a competent person for compliance with good design, layout and practice, to avoid or minimise adverse health consequences due to manual handling and vibration issues.

Quantitative evaluations of vibration produced by specific equipment must include the following measurement parameters: direction of movement, frequency, intensity, and variation with time and duration, as per documented methods.

Employees and contractors must be informed of the results of assessments and instructed in appropriate manual handling techniques, where the risk assessment indicates a need. Workplace vibration sources that could contribute to the exceedance of an Occupational Exposure Limit (hence potential for impact on worker musculo-skeletal fitness) must be identified and adequately characterised.
Manual handling tasks assessed as having the potential to cause a Lost Time Injury (i.e. with potential for impact on worker musculo-skeletal fitness) must be identified and adequately characterised.

Workplace manual / materials handling tasks risk rated as “significant” must be assessed and recorded to include biomechanical factors (e.g. posture, bending, twisting, repetitive motions, working overhead, and exerting force away from the body).

16.30 Personal Protective Equipment

All applicable legislation concerning Personal Protective Equipment (PPE) must be complied with at all times.

As a minimum, the following PPE must be worn by all persons (including visitors) at all times whilst on a project site:

- Safety footwear with steel toe protection;
- Safety glasses (individuals who wear prescription spectacles must be provided with either over-spec safety glasses or prescription safety glasses);
- Safety helmet (hard hat); and
- High visibility protective clothing with reflective taping (long trousers and long-sleeved shirts with collars and cuffs).

Additional PPE requirements must be determined through hazard identification and risk assessment. This hazard-specific PPE (such as hand protection, hearing protection and respiratory protection) must be worn as required (e.g. when in a certain area, when performing a certain task, or when working with a certain substance);

- The correct PPE must always be worn:
- In accordance with site requirements (as indicated at the entrances to a project site and at the entrances to buildings and / or designated areas on the premises);
- In zoned areas (e.g. noise zones and respirator zones); or
- As required by a Safe Work Procedure, a risk assessment, or a Material Safety Data Sheet (MSDS).

Each contractor must provide each of his employees with all required PPE (at no cost to the employee). The specific PPE that is provided to a particular employee must be based on the nature of that employee’s work and the location in which the work is performed (i.e. must be based on the hazards to which the employee is exposed). PPE requirements for a particular job or for a particular area must be determined through a risk assessment for that job or area.

Any employee who does not have all of the PPE that is required for him to perform his duties safely will not be permitted to work.

Each employee must care for his PPE, maintain it in good condition, and inspect it on a daily basis.

If an item of PPE has worn out, has become damaged, or is found to be defective in any way, it must be replaced by the contractor.

PPE must be stored in accordance with the manufacturer’s requirements and / or recommendations.
Each employee must receive training in the use, maintenance and limitations of the PPE that is provided to him, and must be made aware of why the PPE is necessary as well as the consequences of not wearing it as instructed (i.e. the potential for injury and / or disciplinary action). Training records must be retained.

Any person who refuses to wear PPE as required must be removed from the site. Symbolic signs indicating mandatory PPE requirements must be prominently displayed at the entrances to a project site and at the entrances to buildings and / or designated areas on the premises where additional PPE is required. These signs must comply with the applicable national standard (if one exists).

Each contractor must appoint an employee to:

- Control the issuing and replacement of PPE;
- Keep an up-to-date register as proof that items of PPE have been issued to individuals (an employee must sign for the items that he receives);
- Ensure that there is an adequate supply of all required PPE (i.e. maintain PPE stock levels on site); and
- Carry out regular inspections to ensure that PPE is being used correctly, is being maintained in a good, serviceable and hygienic state, and is not being shared between employees.
Head Protection

A safety helmet (or hard hat) worn correctly will help protect the head in the event of:

- An employee being struck on the head by a falling or flying object;
- An employee striking his head against a fixed or protruding object; or
- Accidental head contact being made with an electrical hazard.

A safety helmet must be worn at all times on a project site, with the following exceptions:

- Vehicle and equipment operators inside enclosed cabs;
- In offices and in office or administration buildings; and
- At designated lunch and break areas (provided that no work is in progress in the immediate break area).

A safety helmet must be worn in accordance with the manufacturer’s requirements.

A safety helmet must be worn directly on the head. The wearing of a cap or other headgear beneath a safety helmet is prohibited unless the items have been specifically designed to be used in combination (i.e. the arrangement is approved by the safety helmet manufacturer).

The suspension system inside a safety helmet (that acts as a shock absorber) may not be removed.

The painting of safety helmets is prohibited.

Safety helmets may only be cleaned using a mild detergent and water. No solvents may be used.

16.30.1 Eye Protection

If an employee is carrying out, assisting with, or working adjacent to any activity where sparks or projectile particles are being generated, where chemical mists or fumes are being generated, where liquids may splash or spray, where harmful electromagnetic radiation (heat or light) is being generated, or where there is a risk of wind-blown particles entering the eyes, then suitable protective eyewear must be worn at all times (i.e. safety glasses, safety goggles, a face shield, a welding helmet, or a combination of these).

Such activities include:

- Working with rotating equipment (e.g. grinders, drills, mills, lathes, and saws);
- Welding and cutting;
- Chipping, chiselling or caulking;
- Using explosive powered tools;
- Abrasive blasting;
- Sanding; and
- Working with chemical substances (e.g. drilling fluids, acids, solvents, paints, pesticides, etc.).

For certain activities, special eye protection is required (e.g. a heat-resistant face shield is required when working near molten metal).

Double eye protection is required for activities such as:

- Grinding, cutting, chipping, chasing and reaming (employees must wear both a full face shield and safety glasses or goggles); and
- Arc welding (welders must wear both safety glasses and a welding helmet).

Screens must be erected to protect passers-by, where practical.
Safety glasses must be worn at all times on a project site, with the following exceptions:
- Vehicle and equipment operators inside enclosed cabs with the windows fully closed;
- In offices and in office or administration buildings;
- At designated lunch and break areas (provided that no work is in progress in the immediate break area); and
- When another form of eye protection is required (e.g. safety goggles).

All safety glasses used on site must have suitable permanent side protection.

In strong sunlight, dark safety glasses should be worn to reduce eyestrain and fatigue. However, caution must be exercised when employees are required to frequently move between outdoor and indoor environments. Dark safety glasses may not be worn indoors or in poor daylight conditions. Prescription spectacles with tinted lenses are prohibited inside buildings or other structures with limited illumination unless the lenses are light-sensing and adjust to changing illumination levels.

Employees who wear prescription spectacles (i.e. require corrective lenses) must make use of either:
- Prescription safety glasses (with permanent fixed side shields) that conform to the requirements of a recognised national or international standard (e.g. CSA, ANSI, or equivalent); or
- Over-spec safety glasses or goggles.

The use of contact lenses in certain areas may not be suitable because of increased risk to the eye due to dust or heat.

**16.30.2 Hearing Protection**

Local regulations concerning occupational exposure to noise and the use of hearing protection must be complied with as a minimum.

“Low noise” tools and machinery must be used wherever possible to reduce noise levels. Where noise cannot be reduced to an acceptable level through engineering and work practice controls, measures must be put in place to minimise the exposure of employees to the noise (i.e. administrative controls and personal hearing protection).

Areas where it is likely that the 95% upper confidence limit of an eight hour $L_{eq}$ mean exceeds 85dB(A), or areas where impulse noise exceeds 140dB(C), must be designated as noise zones. These noise zones must be clearly demarcated and mapped, signs must be posted, and all employees must be made aware of the requirements for working in such an area.

Suitable hearing protection must be worn in all designated noise zones and when carrying out (or working in the vicinity of) any activity where the noise level exceeds 85dB(A).

Where hearing protection is required, a hearing conservation programme (applicable to all personnel and visitors) must be implemented. The programme must include training in the correct use and proper storage of hearing protection devices as well as replacement requirements. Training must be provided when hearing protection is first issued to an employee and refresher training must be carried out at least annually thereafter. Training records must be retained.
At least two types of personal hearing protection must be made available to employees. The hearing protection devices provided must have adequate noise reduction ratings (i.e. must be able to attenuate the noise level to below 85dB(A)).

Personal hearing protection must be issued on an individual basis and must not be shared. In addition to personally issued hearing protection, suitable disposable hearing protection must be made available at the entrances to all noise zones. All Hearing Protection Devices (except for disposable hearing protection) must be properly inspected and cleaned on a regular basis.

16.30.3 Respiratory Protection

Designated areas (respirator zones) must be established where:
- It is likely that the 95% upper confidence limit of a Similar Exposure Group’s mean exposure concentration exceeds the relevant Occupational Exposure Limit (OEL) for agents resulting in chronic effects, such as total inhalable dust, respirable dust, respirable crystalline silica, PAH, fluorides, lead, mercury, asbestos or non-asbestos fibrous materials; or
- The concentration of an agent (particulate, vapour or gas) with an acute effect exceeds 50% of the relevant OEL.

Note: For a particular hazardous agent, the OEL to be adopted must be either the client’s OEL or the OEL specified in local legislation, whichever is the most stringent.

These areas must be clearly demarcated and mapped, signs must be posted, and all employees must be made aware of the requirements for working in such an area.

Suitable Respiratory Protection Devices (RPDs) must be worn in all designated respirator zones and when carrying out (or working in the vicinity of) any activity where the risk assessment has identified the need for respiratory protection.

RPD’s must be selected based on:
- The type(s) of airborne contaminants that are present (gases, vapours, and particulates and aerosols including dusts, fumes, sprays, mists, and smoke);
- The potential particulate size distribution;
- Substance toxicity; and
- The likely concentrations.

Compatibility with the work tasks and other PPE, comfort (as it affects wear-time), and the ability to communicate adequately, must also be considered.

The risk assessment and method statement for the work to be performed, the information contained in the relevant Material Safety Data Sheets (MSDSs), and the results of any air monitoring associated with the substances to be worked with or activities to be carried out, must be used to ensure that the most suitable RPD is selected.

Only RPDs certified to a recognised standard and approved by the nominated project management representative may be used.
Where respiratory protection is required, a respiratory protection programme (applicable to all personnel and visitors) must be implemented.

The respiratory protection programme must include:

- Periodic inspection of RPDs, including before each use;
- Periodic evaluation (by competent persons) of cleaning, sanitising, maintenance and storage practices;
- Performance of positive pressure and negative pressure fit checks by RPD wearers before each use to ensure that the respirator is functioning properly; and
- Training at first issue of a RPD and regular refresher training thereafter in accordance with regulatory requirements or at least once every two years (the training must cover fit testing, use, cleaning, maintenance, filter cartridge replacement, and storage). Training records must be retained.

RPDs must be used, maintained, and stored in compliance with the manufacturer's requirements as well as the respiratory protection programme.

Suitable facilities must be provided for the cleaning and sanitary storage of RPD’s.

As a minimum, qualitative and documented fit testing must be carried out (although quantitative fit testing is preferred) to ensure that the use of negative pressure RPDs (including disposable RPDs) is effective. Fit testing must be performed by a competent person when an RPD is first issued and must be repeated periodically in accordance with legal requirements or every two years as a minimum. A policy must be in place requiring a clean shaven face when using a negative or neutral pressure RPD for routine tasks (otherwise a positive pressure RPD must be used). A medical evaluation including a pulmonary function test may be required to determine whether or not an individual is medically fit to wear a respirator.

For air-supplied RPDs, breathing air must be effectively filtered and / or isolated from plant and instrument air, and isolated from sources of potential contaminants. The supplied air must be tested to determine if the air quality complies with the requirements of applicable standards for breathing air.

For nuisance dust, dust masks with a protection level of at least FFP2 must be worn.

16.30.4 Hand and Arm Protection

Gloves must be worn when handling or working with equipment, materials or substances with the potential to cause injury or illness.

Suitable gloves must be selected based on the task to be performed and the specific hazard against which the employee requires protection, such as:

- Sharp edges;
- Sharp points and splinters;
- Abrasive surfaces;
- Hazardous chemical substances (toxic, corrosive, sensitising, etc.);
- Extreme temperatures; and
- Viruses, bacteria and parasites.
16.30.5 Foot Protection
Safety boots must be worn at all times whilst on a project site, with the exception of offices or administration buildings in which closed athletic, business or similar shoes may be worn. Sandals, slops, slippers, open-toed and high-heeled shoes are not permitted on any project premises.

Safety boots must provide the following protection:
- Steel toe cap to protect against crushing (impact and compression forces);
- Leather uppers that provide resistance against water penetration and water absorption;
- Slip resistant soles;

And where a risk assessment identifies the need:
- Puncture resistant soles (i.e. steel midsoles) for protection against sharp objects;
- Chemical resistant soles for protection against spilt chemical substances (such as solvents, hydrocarbons, acids, and alkalis);
- Heat resistant soles for protection against hot surfaces or molten metal; or
- Electrical shock resistant soles for protection (insulation) against live electrical conductors.
- Gumboots with steel toe caps must be worn when working in water or very wet conditions.

16.30.6 Clothing
All employees working on a project site must wear high visibility protective clothing with reflective taping. Trousers must be long and shirts must be long-sleeved. Shirts must be buttoned at the neck and wrists.

Protective clothing must preferably be made of natural fibres. Short pants, short-sleeved shirts, sleeveless shirts, and vests are prohibited as outer garments (with the exception of a high visibility vest worn over a long-sleeved shirt).

Loose clothing may not be worn where it may become caught in moving machinery or equipment. For hot work (e.g. welding, cutting, etc.), work in the vicinity of molten metal, and any work carried out in the vicinity of an open flame, the protective clothing worn (shirt and trousers) must be made of a suitable fire retardant fabric. Underwear and socks must be made of natural fibres (preferably wool) or fire retardant fabric.

No employee may tuck his trousers into his boots when working in the vicinity of molten metal.

16.30.7 Body Protection
Suitable body protection must be provided as required to protect employees against specific hazards. A range of work activities require body protection in one form or another, including but not limited to:
- Working in extremes of temperature, such as firefighting, attending to a heating furnace, working with molten metal, working in refrigerated environments, etc.;
- Hot work (e.g. welding, burning, cutting and grinding);
- Working with hazardous chemical substances (e.g. acids, solvents, pesticides, etc.); and
• Clean up and disposal of hazardous materials and wastes (e.g. asbestos, hydrocarbons, etc.).

A wide variety of protective garments are available, such as firefighting suits, furnace suits, freezer jackets, leather aprons, leather spats, laboratory coats, chemical resistant aprons, chemical resistant (or hazmat) suits, and disposable coveralls. Suitable items must be selected to provide protection against the specific hazard(s) to which an employee is exposed. Hazards must be carefully identified and characterised to ensure that the correct protection is used.

Body protection must be sized properly to prevent tearing, the parting of seams, tripping, or restriction of movement.

16.30.8 Electrical Protective Equipment
To reduce the risk of electric shock, electrical insulating equipment appropriate for the voltage that may be encountered must be worn when working on energised electrical installations and when working within two metres of exposed energised conductors.

All rubber electrical insulating equipment (including gloves, sleeves, matting, covers, blankets, and line hoses) must be inspected for damage prior to and after each use, and immediately following any incident that can reasonably be suspected of having caused damage.

Rubber insulating equipment with any of the following defects and / or damage may not be used:
• A cut, rip, tear, hole, or puncture;
• Ozone cutting or ozone checking (i.e. the cutting action of ozone on rubber under mechanical stress causing a series of interlacing cracks);
• An embedded foreign object;
• Chemical deterioration (texture changes) such as swelling, softening, hardening, or becoming sticky or inelastic; or
• Any other defect that damages the insulating properties.

Rubber insulating gloves must be electrically tested before first issue and every 12 months thereafter as a minimum. Insulating gloves must also be given an air test along with the daily inspection. Essentially, this involves filling a glove with air and checking for any holes or leakage.

Insulating equipment that fails an inspection or electrical test may be repaired only as follows:
• Rubber insulating line hose may be used in shorter lengths with the defective portion(s) cut off;
• A rubber insulating blanket may be repaired using a compatible patch that results in the patched area having electrical and physical properties equal to those of the blanket;
• A rubber insulating blanket may be salvaged by cutting the defective area off the undamaged portion of the blanket;
• Rubber insulating gloves and sleeves with minor physical defects, such as small cuts, tears, or punctures, may be repaired by applying compatible patches. The
patched areas must have electrical and physical properties equal to those of the surrounding material.

**Repairs to gloves are permitted only in the area between the wrist and the reinforced edge of the opening.**

Repairs to gloves are permitted only in the area between the wrist and the reinforced edge of the opening. Repaired insulating equipment must be retested before it is put back into use. Insulating equipment must be cleaned as required to remove foreign substances (using a mild detergent).

Insulating equipment must be stored in such a location and in such a manner so as to protect it from light, temperature extremes, excessive humidity, ozone, and other damaging substances and conditions.

Leather protective gloves must be worn over rubber insulating gloves to provide mechanical protection against cuts, abrasions, and punctures.

Suitable arc flash PPE (e.g. voltage rated gloves, fire retardant clothing, arc rated face shield, arc flash hood, arc flash suit, etc.) must be worn whenever an employee is potentially exposed to an arc flash hazard. The appropriate level of PPE must be worn depending on the task and the potential energy exposure. These PPE requirements must be clearly specified as part of a project-specific arc flash protection programme (refer to the Electrical Safety Standard).

### 16.30.9 Jewellery

Necklaces, dangling earrings, and bracelets may not be worn on a project site. No ring or watch may be worn where there is a risk that it may become caught in machinery or equipment. No jewellery or other conductive apparel (such as a key chain or watch) may be worn when carrying out energised electrical work.

### 16.30.10 Hair

Scalp hair that is longer than the top of the shoulders must be tied up and restrained within the person’s safety helmet or within the collar of his or her overalls, shirt or jacket.

For negative or neutral pressure Respiratory Protection Devices, facial hair must not cause the seal between the respirator and facial skin to be broken (or prevent a seal from being formed in the first place).

### 16.30.11 Task-Specific PPE

In addition to the standard PPE required for a project site (including a safety helmet, safety glasses, safety boots, and high visibility protective clothing), the following task-specific PPE must be used as a minimum by any person carrying out or assisting with such a task:

- **Arc Welding** – safety glasses and welding helmet (i.e. double eye protection), respiratory protection against the specific airborne contaminants being generated (fumes, gases, dusts, etc.), leather welding gloves, leather apron, leather spats, leather yoke (for work above shoulder height), and knee pads for welders in kneeling positions;

- **Gas Welding, Cutting or Brazing** – gas cutting or welding goggles with shade 4 filter lenses and full face shield (i.e. double eye protection), respiratory protection against the specific airborne contaminants being generated (fumes,
gases, dusts, etc.), leather gloves (long cuff for welding and cutting, short cuff may be used for brazing), leather apron, leather spats, and leather yoke (for work above shoulder height);

- Grinding – safety glasses or goggles and full face shield (i.e. double eye protection), hearing protection, respiratory protection where dust or fumes may be generated, leather gloves, leather apron, and leather spats;
- Abrasive Blasting – respiratory protection (air-supplied hood), hearing protection, leather gloves, and leather apron;
- Spray Painting – respiratory protection (air-supplied hood for confined spaces), safety goggles (if the respirator design does not provide this protection), hearing protection (where air compressors are used), chemical resistant gloves, and chemical resistant disposable coveralls.

### 16.31 Sun Protection

The contractor must ensure that all personnel are protected in sunlight through the use of long sleeve shirts, long trousers, brach and safety to safety helmets and UV factored sunscreen. Shade structures must also be made available to all employees.

The contractor must conduct training and awareness sessions with his employees, advising on the risks associated with working in the heat (including dehydration) and the precautions to be taken (e.g. ensuring adequate fluid intake).

### 16.32 Fuel / Flammable Liquid Storage and Refuelling

No fuel (diesel, petrol, paraffin, etc.) or any other flammable liquid (paints, solvents, etc.) may be stored on site unless approved in writing by the nominated project management representative.

If the on-site storage of a fuel or a flammable liquid is approved, the contractor must ensure the following:

- The quantity of fuel / flammable liquid to be stored on site must be kept to the minimum that is required;
- The storage area must be located in a well ventilated area at least 10 metres away from any building, drain, boundary or any combustible material;
- If more than 200 litres of fuel / flammable liquid is to be stored, the tank must be installed / the containers must be positioned within a bund (see Definitions);
- If the fuel / flammable liquid are to be stored in bulk tanks / vessels, then the minimum capacity of the bund must be 110% of the volume of the largest tank / vessel. If many small containers (e.g. 210 litre drums) are to be stored, the bund must be able to contain 25% of the total volume of the stored products;
- The bund must be impermeable. It must have a solid concrete floor and the walls must be constructed out of brick and must be plastered on the inside;
- The bund must be fitted with a lockable drain valve (for draining away rainwater), which must remain locked in the closed position. The valve may only be opened under supervision and in accordance with a written procedure;
- The fuel / flammable liquid storage area may not be used for the storage of any other materials / equipment, and must be kept completely free of all combustible materials (including rubbish, brush and long grass) at all times;
- Access to the storage area must be controlled (wire mesh fencing and gate);
- Appropriate warning signage (i.e. “Flammable Liquid”, “No Smoking” and “No Naked Flames”) must be prominently displayed at the storage area. The contents and volume of each tank must be indicated;
In order to contain spillages, the offloading / refuelling bay at the fuel / flammable liquid storage area must have a solid concrete base surrounded by bund walls, ramps or humps and / or spill trenches (covered with steel grating) that lead into a sump;

Fuel dispensing pumps must be protected against impact damage;

All fuel / flammable liquid storage tanks and dispensing equipment must be electrically bonded and properly earthed;

All electrical installations and fittings must be of an approved intrinsically safe type;

Two 9kg dry chemical powder fire extinguishers must be mounted in an easily accessible position near the entrance gate to the fuel / flammable liquid storage area. Depending on the size of the storage area, additional fire extinguishers may be required to ensure that an extinguisher is no further than 15 metres away from any point on the perimeter of the storage area;

A fire extinguisher must be at hand wherever refuelling is carried out;

Smoking or open flames within 10 metres of a fuel / flammable liquid storage / refuelling area is strictly prohibited;

No petrol or diesel powered vehicle or equipment may be refuelled while the engine / motor is running;

Cellular phones must be switched off in fuel / flammable liquid storage / refuelling areas;

Spill clean-up kits (containing a suitable absorbent fibre product) must be provided;

Any spillages must be cleaned up immediately and all contaminated cleaning materials must be disposed of in accordance with the applicable legislation;

If a flammable liquid is spilt or is leaking from a container / vessel, the area must be cordoned off and appropriate warning signage must be displayed to keep unauthorised personnel away from the affected area. Every effort must be made to contain the spillage. All hot work in the vicinity must be stopped immediately.

If the spilt product is volatile and the possibility exists that a vapour cloud may form, or if the leak or spillage cannot be contained or stopped, then appropriate emergency response procedures must be activated (refer to Section 14) including the evacuation of all persons in the vicinity. Suitable firefighting equipment must be positioned ready for use should the spilt product ignite;

The manual decanting of fuel or a flammable liquid from a large container should only be done using a stirrup pump (or similar) or a purpose-made frame which allows the container / drum to tilt for decanting and then return to the upright position;

Drip trays must be used wherever required;

All tanks, drums, cans, etc. containing flammable liquids must be tightly closed and properly sealed except for when a container is being filled or when a product is being decanted;

The transport or storage of corrosive or flammable liquids in open containers is strictly prohibited

Daily-use quantities of fuel (up to a maximum of 20 litres) must be handled in an approved safety can with a flash arresting screen, spring closing lid and spout cover that will safely relieve internal pressure if the can is exposed to fire;

Where safety cans may be impracticable, only approved metal containers with screw caps may be used. Each container must be clearly labelled to indicate its contents;
• Only small quantities of flammable liquids (paints, solvents, etc.) may be stored within a building. Each product must be kept either in its original container or in an approved container which must be properly sealed. Each container must be clearly labelled to indicate its contents. When not in use, all such containers must be stored in a well-ventilated steel cabinet which must be kept locked to prevent unauthorised access;

• Not even small quantities of flammable liquids may be stored or dispensed in buildings or places of public assembly, in general warehouses, or in buildings containing sources of ignition such as space heaters, cooking devices, open electric motors, motor vehicles, or where welding, cutting, or grinding activities are being carried out;

• Safe Work Procedures must be compiled for the transportation (including delivery), offloading, storage, handling and use of any fuel / flammable liquid on site;

• All personnel that will be required to work with or may come into contact with a flammable liquid must be made aware of the hazards associated with the product and must be thoroughly trained in the safe transportation, use, handling and storage thereof.

16.33 Fire Protection and Prevention
The contractor must compile a Fire Protection and Prevention Plan for the work that will be carried out on site.

The contractor must assess / survey his area of responsibility and identify locations where the risk of fire is high. Cognisance must be taken of the fact that certain locations may need to be designated as high risk due to the presence of large quantities of flammable or combustible materials / substances. For all high risk areas, the contractor must ensure that additional precautions are taken to prevent fires and strict control is exercised over any hot work (i.e. welding, cutting, grinding, etc.) that is carried out.

The contractor must supply and maintain all required firefighting equipment. The type, capacity, positioning, and number of firefighting appliances must be to the satisfaction of the nominated project management representative and must meet the requirements of the applicable legislation. Fire mains, hydrants and hose reels will rarely be available on site, so use must primarily be made of portable fire extinguishers.

Firefighting equipment, fixed and portable, must be strategically located with a view to being able to rapidly deploy the equipment in order to bring potentially dangerous and destructive fires under control while still in their infancy.

All fire extinguishers (and any other firefighting equipment) placed on site must be:
• Conspicuously numbered;
• Recorded in a register;
• Visually inspected by a competent person on a monthly basis (the results of each inspection must be recorded in the register and the competent person must sign off on the entries made); and
• Inspected and serviced by an accredited service provider every six months (the nominated project management representative may require that this frequency be increased depending on the environmental conditions (e.g. high dust levels, water, heat, etc.) to which the fire extinguishers are exposed).
Any fire extinguisher that has a broken seal, has depressurised, or shows any sign of damage must be sent to an accredited service provider for repair and / or recharging. Details must be recorded in the register.

Firefighting equipment may not be used for any purpose other than fighting fires. Disciplinary action must be taken against any person who misuses or wilfully damages any firefighting equipment.

Access to firefighting equipment, fixed or portable, must be kept unobstructed at all times. Approved signage must be in place to clearly indicate the location of each permanently mounted fire extinguisher, fire hose reel, etc.

The contractor must ensure that all persons working in / entering his area of responsibility are made aware of where all firefighting appliances and alarm points are located. The contractor must ensure that his employees (and those of any appointed subcontractors) are trained in firefighting procedures and the use of firefighting equipment.

The contractor must compile an emergency response procedure detailing the actions that must be taken in the event of a fire or a fire / evacuation alarm (see Section 14). All personnel working within the contractor’s area of responsibility must be trained, and all visitors must be instructed, on this procedure. Copies of the procedure must be prominently displayed in the workplace in all languages commonly used on the site.

A person discovering a fire must extinguish the fire if he can do so safely, and then immediately report the incident to his supervisor. If the person cannot extinguish the fire, he must raise the nearest alarm and then report the fire as quickly as possible to his supervisor, the person responsible for the area, and / or Security. On hearing a fire / evacuation alarm, all persons must make any operational plant or equipment safe, and then proceed to the nearest emergency assembly point and await instructions.

All incidents of fire (including the use or misuse of any firefighting equipment) must be reported to the nominated project management representative immediately. Used fire extinguishers must be replaced by the contractor without delay.

No hot work (i.e. welding, cutting, grinding, etc.) or any other activity that could give rise to a fire may be performed outside of a designated workshop without a Permit to Work having been issued.

Wherever hot work is being carried out, a fire extinguisher must be at hand. Where the risk assessment determents that it is necessary, a fire watch must be stationed.

Supervisors must carry out workplace inspections regularly to ensure adherence to fire prevention measures and procedures.

At the end of every working period (i.e. before each tea / lunch break and at the end of every shift / day), the workplace must be thoroughly inspected to ensure that no material is left smouldering and no condition / situation exists that could give rise to a fire.

The contractor must ensure that all supervisors and all employees carrying out or assisting with any hot work or any other activity that could give rise to a fire have been trained in firefighting procedures and the use of firefighting equipment. The training must be conducted by an accredited training provider.
When using electrical equipment, all cables must be in good condition and the nearest convenient socket must be used. No power socket may be loaded beyond its rated capacity through the use of adaptors, etc. Makeshift electrical connections are not permitted under any circumstances. Water-based firefighting equipment must not be used on electrical equipment or burning liquids. Refer to Section 13.16 – Electrical Safety.

Each vehicle used on site for work purposes and each item of mobile equipment with a diesel or petrol engine must be fitted with a permanently mounted fire extinguisher. Smoking is only permitted in designated smoking areas. Cigarette ends / butts must be properly stubbed out in the ashtrays provided and never thrown into waste bins.

The contractor must ensure that good housekeeping practices are enforced, as this is crucial to the prevention of fires. All combustible waste materials must be removed from the workplace on a daily basis (at the end of each shift) and placed in waste receptacles located at least 5 metres away from any structure. The accumulation of waste materials in out-of-the-way places is prohibited. Offices, desks, cabinets, etc. must always be kept tidy and uncluttered. Waste paper bins must be emptied regularly.

The storage of combustible materials under stairways or in attics is prohibited. The storage of any materials against the exterior of a building or any other structure is prohibited. All walkways, passages and stairways must be kept clear (i.e. must be unobstructed) at all times, as they may need to be used as a means of escape. The areas around and the routes to all exits, fire escape doors, fire hydrants, fire hose reels and fire extinguishers must be kept clear (i.e. must be unobstructed) at all times. "No Smoking" signs must be conspicuously displayed in and around all storage areas / rooms. Waste may not be burned under any circumstances.

No flammable liquid (such as petrol, acetone, alcohol, benzene, etc.) may be used for starting fires or as a solvent for cleaning clothes, tools, equipment, etc. Only solvents approved by the nominated project management representative may be used for cleaning purposes.

Whenever any work is carried out involving the use of a flammable substance / material, the area must be cordoned off and appropriate warning signage (i.e. "No Unauthorised Entry", "No Smoking" and "No Naked Flames") must be displayed. Refer to Section 13.32 – Fuel / Flammable Liquid Storage and Refuelling.

16.34 Smoking
The contractor must not permit smoking on site except within designated smoking areas selected in accordance with the applicable legislation. Such an area must be clearly demarcated and the required signage must be displayed.
Any person found smoking or discarding a cigarette butt outside of a designated smoking area may be removed (temporarily or permanently) from site. In all designated smoking areas, adequate non-combustible commercial ashtrays and / or cigarette butt receptacles (butt cans) must be provided.

Ashtrays and other receptacles provided for the disposal of smoking materials must not be emptied into rubbish bins or any other container holding combustible materials. "No Smoking" signs must be strictly observed.

16.35 Housekeeping

The contractor must maintain all work areas in a tidy state, free of debris and rubbish. Unless directed otherwise, the contractor must dispose of all debris, rubbish, spoil and hazardous waste off site in a designated and authorised area or facility. The contractor must familiarise himself with the waste management plan for the site including collection and disposal arrangements, and must align his waste management activities accordingly.

In cases where an inadequate standard of housekeeping has developed and compromised safety and cleanliness, a nominated project management representative may instruct the contractor to cease work until the area has been tidied up and made safe.

Neither additional costs nor contract deadline extensions will be allowed as a result of such a stoppage. Failure to comply will result in a clean-up being arranged through another service provider at the cost of the non-complying contractor.

The contractor must carry out housekeeping inspections on a weekly basis to ensure maintenance of satisfactory standards. The contractor must document the results of each inspection. These records must be maintained and must be made available to the nominated project management representative on request.

The contractor must implement a housekeeping plan for the duration of the contract ensuring that the site housekeeping is maintained. Furthermore, at the end of every shift, the contractor must ensure that all work areas are cleaned, all tools and equipment are properly stored, and construction rubble is removed.

Where the contractor fails to maintain housekeeping standards, the nominated project management representative may instruct the contractor to appoint a dedicated housekeeping team for the duration of the project at the contractor’s expense. Littering is prohibited.

16.36 Waste Management

Waste may not be disposed of unless the disposal of that waste is authorised by law. The contractor must therefore ensure that all waste that is generated is handled, stored, transported and disposed of in accordance with the requirements of the applicable legislation / local authority.

No waste may be removed from the project site to a waste storage or disposal facility unless that facility has been approved for use by the nominated project management representative. An adequate number of waste bins and skips must be provided by the contractor and suitable arrangements must be made to ensure that these bins and skips are emptied regularly.
Hazardous wastes must be kept separate from general wastes.

Waste disposal service providers must be approved by the nominated project management representative before any waste is removed from site. These service providers must be audited on a two-yearly basis (or more frequently if deemed necessary based on risk) in order to ensure compliance with legislation and to help ensure that no liabilities accrue to the project.

16.37 Stacking and Storage

All irregular shaped items will be stacked at floor / ground level in designated stacking areas on a level, firm base capable of withstanding the weight of the commodities being stacked and stacked in such a manner that the items do not topple over or change position due to subsidence or weight transfer when being moved.

Where these commodities are stacked on shelves or racks, the shelves or racks must be designed to carry the weight of the commodity being stacked.

All racks or shelves where heavy material or commodities are stacked will have a weight carrying limitation clearly marked on the structure and have a safety factor of at least +10% of maximum total carrying capacity.

All materials, commodities or articles, which could be damaged due to inclement weather, must be stored under cover.

Waste material that is combustible must not be allowed to accumulate in sufficient quantities to create a hazard.

No commodities or equipment may be stacked or stored within 500mm of rolling stock tracks or where mobile equipment travels.

The storage of material, small equipment, tools, files and general items in cupboards and on shelves must be neat and controlled at all times. Incompatible substances must not be stored in or on the same cupboard or shelf.

No equipment, tools, files or documents may be stored or stacked on top of cupboards which are higher than 1.5 metres in height.

16.38 Demarcation

No demarcation of floors is required inside offices, training centres and the like.

Where it is impractical to paint floors, yellow lines will be deemed adequate e.g. where heavy traffic necessitates the continual painting of floors.

Temporary demarcation in the form of hazard tape (red and white) may be used to demarcate areas where there is, for relatively simple reasons, restricted access.

Where hazards exist and entry must be specifically excluded for safety or health reasons, hazard tape in any form must not be used in isolation. A robust and substantial barrier of timber, rope or other material must be used in conjunction with barrier tape, to prevent entry to unauthorised persons.

Outside storage areas where it is impractical to use floor demarcation, demarcation may take the form of creosote poles and wire rope or similar. Spans between uprights should be painted yellow.
16.39 Facilities
Sanitary conveniences must be provided and maintained at a rate of at least one shower facility for every 30 workers, at least one toilet facility for every 20 workers, separate male and female changing facilities and sheltered eating areas. (Check SANS 10400 Part F).

Where chemical toilets are provided, one toilet for every twenty five employees must be allocated.
All toilets must be cleaned daily, disinfected and provided with toilet paper.
All employees making use of these facilities have the responsibility to help keep the facilities neat, clean and hygienic.

Washing facilities, including soap and towels, must be made available for use by the contractor’s employees.

Drainage from all washing / toilet facilities must be properly designed and constructed to prevent employee exposure to waste water (and the associated biological hazards). Waste water may not accumulate or stand in pools at any location on the project site.
Change rooms must be provided and must be kept clean and free from odours at all times.
No chemicals, except those normally used for domestic cleaning of these facilities, may be stored in the facilities.

No equipment or items (other than those normally associated with hygiene facilities) may be stored in the facilities.

All entrances must be constructed in a way to afford privacy to users.
Drinking water must be provided.
A sheltered (covered) area must be set aside on site to be used as a dining facility (eating area). Adequate seating must be provided for the maximum number of employees. The facility must be kept clean and tidy.

A suitably sized, impervious receptacle (bin) must be provided for the disposal of waste food and other refuse generated at the dining facility. This bin must be emptied and cleaned regularly (i.e. promptly after meal times).

Food may only be consumed in authorised sheltered areas.
Adequate refrigerated storage must be provided to the contractor’s employees for the storage of food and drinks. Fridges must not be overstocked and must maintain sufficiently low temperatures.

16.40 Occupational Hygiene
The contractor must ensure that the exposure or potential exposure of his employees to any of the following stressors is assessed and measured (a baseline survey must be carried out by an Approved Inspection Authority - this services to be provided by TCP):
- Noise;
- Thermal stress (heat and cold);
- Particulates (dust);
- Silica (free crystalline silica);
- Asbestos;
- Gases or vapours;
- Lead;
- Chemicals;
• Ionising radiation;
• Non-ionising radiation;
• Vibration (hand / arm vibration and whole body vibration);
• Ergonomics; and
• Illumination.

If it is determined that exposure levels for a particular stressor are unacceptable, then a monitoring and control plan must be implemented to manage any risk of overexposure.

**Note:** Where chemical substances are to be used as part of the construction process, the contractor must ensure that the chemical composition of each substance is known.

Carcinogenic (cancer-causing) ingredients must be specifically identified with due understanding that no chemical known to cause cancer will be permitted for use on site (an alternative will need to be sourced).

**16.41 Lighting**

For all work areas and access ways, if the natural lighting available is inadequate it must be supplemented by artificial lighting to meet the minimum levels required. A lighting survey to determine luminance must be conducted for all work areas, at least once every two years and prior to work commencing for the first time in any area. Emergency lighting must be provided in all indoor workplaces that do have adequate natural lighting or in which persons work at night. The emergency sources of lighting that are provided must be such that, when activated, an illuminance of not less than 0.3 lux is obtained at floor level, to enable employees to evacuate safely.

Where it is necessary to stop machinery or shut down plant or processes before evacuating the workplace, or where dangerous materials are present or dangerous processes are carried out, the illuminance must be not less than 20 lux.

Windows and translucent sheeting must be kept adequately clean and clear of obstructions as far as reasonably practicable. Light fittings, i.e. lenses and reflectors must be kept clean.

If a light intensity meter is used, a valid calibration certificate must be available.

Neon lights must not be installed in areas where moving parts of machinery or equipment cannot be fully guarded, i.e. lathes, bench grinders, etc. in order to eliminate the stroboscopic effect.

No person may use a portable electrical light where the operating voltage exceeds 50 volts, unless:

- It is fitted with a non-hydroscopic, non-conducting handle;
- All metal parts which may become live are protected against accidental contact;
- The lamp is protected by means of a guard firmly attached to the handle; and
- The cable can withstand rough use.

No person may use a portable electric light in damp or wet conditions or in closely confined spaces, inside metal vessels or when in contact with large masses of metal, unless:

- The lamp is connected to a source incorporating an earth leakage; and
- The operating voltage of the lamp does not exceed 50 volts. Hearing Conservation
A hearing conservation program must be implemented and protection against the effects of noise exposure must be provided when the noise exposures equal or exceed an 8-hour time-weighted average sound level of 85 decibels measured on the A-weighted scale of a standard sound level meter at slow response.

For the hearing conservation program to be effective it must include as a minimum:

- Monitoring of the workplace to determine the representative exposure of employees to excessive noise levels;
- An audiometric testing program for employees, which must include:
  - A baseline audiogram for all employees exposed to noise levels equal to or in excess of the standard;
  - Annual audiograms for each overexposed employee;
  - Analysis of audiogram results with retesting and/or referral to an otolaryngologist or qualified physician when a significant threshold shift (STS) occurs; and
  - Written employee notification of the STS.
- A training program for all employees exposed to noise;
- Provision of personal protective equipment to all affected employees when administrative or engineering controls fail to reduce sound levels to within the levels of the standards.

Monitoring of employee exposures to noise shall be conducted by an Approved inspection Authority.

The monitoring requirement may be met by either area monitoring or personal monitoring that is representative of employee exposures. Personal monitoring is preferred, and may be required based on the type(s) of noise sources.

For purposes of the hearing conservation program, employee noise exposures shall be computed in accordance with local legislation. A person-task specification shall be available for every job category and shall be submitted with an employee for audiometric testing.

Audiometric testing and an annual audiogram shall be provided as part of the regular medical examinations. Audiometric test results obtained from the pre-employment medical examination for a new employee shall be used as the baseline audiogram.

Testing to establish a baseline audiogram shall be preceded by at least 14 hours without exposure to workplace noise.

Hearing protectors shall not be used as a substitute for the requirement that baseline audiograms be preceded by 14 hours without exposure to workplace noise. Employees shall be notified of the need to avoid high levels of non-occupational noise exposure during this 14-hour period.

Record-keeping for the audiogram shall include:

- Name and job classification of the employee;
- Date of the audiogram;
- The examiner's name;
- Date of the last acoustic or exhaustive calibration of the audiometer;
• Employee's most recent noise exposure assessment.

Audiometric test results shall be maintained in the employee's medical file. To control noise exposure, its three basic elements shall be examined, i.e. source of the sound, travel path, and effect on receiver or listener. Solution of a given noise problem might require alteration or modification of any or all of these three basic elements.

2) Controlling noise at the noise source can be achieved by the following:
• Select quiet equipment initially. In selecting quiet equipment the following features shall be considered:
  • Low-noise certification;
  • Advertisement of "quiet" operation, evidence of noise control design;
  • Evidence of "lower" and "slower" operating characteristics;
  • Side-by-side noise testing of equipment; and
  • "On-site" or "in operation" inspection of mechanical equipment before purchase.
• Reduce operating noise by considering the following control measures:
  • Reduce impact or impulse noise by reducing weight, size, or height of fall of impacting mass;
  • Reduce speed in machines and flow velocities and pressure in fluid systems;
  • Balance rotating parts – to control machinery noise and vibration of fans, fly wheels, pulleys, cams, etc.
  • Reduce frictional resistance between rotating, sliding or moving parts in mechanical systems: frequent lubrication, proper alignment of moving parts; static and dynamic balancing of rotating parts; correction of eccentricity or "out-of-roundness" of wheels, gears, rollers, pulley, etc.;
  • Reduce resistance in air or fluid systems: use of low flow velocities, smooth boundary surfaces of duct or pipe systems, and long-radius turns and flared sections in pipes, etc., to reduce turbulence noise;
  • Isolate vibration elements in machinery; install motors, pumps, etc. on most massive part of machine; use belt or roller drives in place of gear trains; use flexible hoses and wiring instead of rigid piping and stiff wiring, etc.
  • Apply vibration damping materials such as liquid mastic; pads of rubber, felt, foam or fibrous blankets; or sheet metal visco-elastic laminates or composites to vibrating machine surfaces; and;
  • Reduce noise leakage from the interior of machines such as compressors by sealing or covering all openings or applying acoustical materials to machine interiors.

3) Controlling noise in the transmission path can be achieved by the following:
• Separate the noise source and receiver as much as possible;
• Use sound-absorbing materials on ceiling, floor or wall surfaces as close to the machine as possible;
  • Use sound barriers and deflectors in the noise path;
  • Use acoustical lining on inside surfaces of such passageways as ducts, pipe chases, or electrical channels;
  • Use mufflers, silencers or snubbers on all gasoline or diesel engines, regardless of size; and particularly on equipment when large quantities of high-pressure, high-velocity gases, liquids, steam or air are discharged into the open air; and
• Use vibration isolators and flexible couplers where the noise transmission path is structure borne in character.
4) Protection for the receiver – when engineering controls fail to reduce the levels to within the levels specified in local legislation, the following measures shall be implemented:

- Personal protective equipment shall be provided and replaced as necessary at no cost to employees;
- Supervisors shall ensure that hearing protective devices are worn by all employees who are exposed to a time-weighted average of 85 decibels or greater and who have experienced a significant threshold shift;
- Employees shall be given the opportunity to select their hearing protectors from a variety of suitable protectors; and

Noise zones shall be indicated by means of signs at every entrance to such zones.
When noise levels exceed 100 dB(A), a combination of earplug and earmuff may be required to achieve protection of the worker.
It is important to note that using double protection will add only 5 to 10 dB of extra attenuation above that of a single Hearing Protection Device.
Where an earmuff and earplugs are used together, OSHA recommends using this simple calculation: Take the higher rating of the two devices, and add five.
Hearing Protection Devices should be worn for the full noise exposure period.

Where an audiometry programme is required, it must meet the following standards:
- All testing must be by pure tone audiometry in an audiometry booth or quiet room, with measured noise levels less than 40 dB(A);
- The initial audiogram must be taken prior (minimum of 24 hours) to exposure to significant noise. Further audiograms must be taken periodically; annually where exposures are over 85 dB(A) Leq or where continued deterioration to hearing is occurring;
- Testing must be performed by trained and competent personnel;
- Audiometers must be calibrated according to the manufacturer’s guidelines. As a minimum these will be a weekly biological calibration using an employee unexposed to noise, or a bio-acoustic simulator, and an annual quantitative check. All results must be documented; and
- Audiograms must be read by trained persons who will identify any increasing hearing loss and then determine if this is noise induced. Any employee with a significant downward shift in one or both ears (measured as an average non-age-adjusted loss from baseline of 10 dB at 2, 3 or 4 kHz) must be retested following removal from noise for a minimum of 24 hours, usually after a days-off period. If the downward shift persists the employee must be reviewed by a physician and improved hearing protection considered.

16.42 Particulate and Gas / Vapour Exposures

Designated areas must be created where:
- It is likely that the 95 per cent upper confidence limit of a Specific Exposure Group’s (SEG) mean exposure concentration for agents resulting in chronic effects (such as total inhalable dust, respirable dust, respirable crystalline silica, PAH, fluorides, lead, mercury, asbestos or non-asbestos fibrous materials) exceeds the relevant OEL; and
Agents with an acute effect, such as particulate hazards, or gases (e.g. CO, SO2, NH3, HF, etc.), or vapours exceed 50 per cent of the relevant OEL. Designated areas must:

- Be identified and mapped, signposted or otherwise clearly communicated to employees working in the area. Signposting, where necessary, must use appropriate wording or symbols on signs to identify the hazard;
- Have a documented respiratory protection programme based on suitable risk assessment and standards, which is applied to employees, contractors and visitors;
- Have regular monitoring of SEGs working in the area; and
- Have a formal review of the practicality of engineering controls at least every two years, or less where it is a critical control for a significant risk.

Particulate and gas / vapour monitoring must be appropriate to the exposure conditions and toxicants, and based on the use of equipment approved by local regulatory authorities, as per documented methods.

Where risk assessment indicates the possible presence of levels of gas or vapour sufficient to cause health effects in less than one shift (e.g. confined space entry), continuous monitoring is required as long as the potential for harm exists.

Employees and contractors must be covered by a medical surveillance programme when:

- Their Specific Exposure Group TWA mean exposure to respirable crystalline silica, total inhalable dust, respirable dust, lead or asbestos is greater than 50 per cent of the relevant OEL;
- The medical adviser considers that it is advisable; or
- There is a legal requirement for medical monitoring.

Where risk assessment indicates a risk of a respiratory condition, assessment programmes must include chest x-rays and / or lung function tests. The test or tests chosen must enable the earliest detection of adverse effects from the exposure of concern. Where indicated, they must meet the following standards:

- High quality chest x-rays will be taken every five years, unless local legislation requires these to be more frequent;
- All chest x-rays for pneumoconiosis surveillance will be read to International Labour Organisation (ILO) standards by an ILO B reader, wherever possible, and if not, by a competent radiologist using verifiable quality criteria;
- Any progression of more than one step on the ILO extended scheme to a reading above 1/0 will be reviewed by a physician;
- Any reading suggesting active lung disease will be reviewed by a physician; and
- All spirometry will be performed by trained staff following the American Thoracic Society guidelines or equivalent and be offered at a frequency determined by the likely rate of detectable change in lung function.

Controls must be of an adequate standard such that surfaces are adequately cleaned to avoid:

- Dust generation due to material dislodgment (e.g. windblown), where practicable; or
- Fume generation from accumulated dust during welding / heating or cutting operations.

Where risk assessment indicates the need to reduce exposures to toxic substances for employees or their families, good personal hygiene must be enforced. The programme must include:

- No smoking, eating or drinking in designated hazard areas;
- Washing of hands and face prior to drinking, eating or smoking;
• Showering at work post shift or after exposure to ‘dirty’ conditions; and
• Laundering of contaminated clothing by the contractor.

Abrasive blast cleaning must be conducted so as to protect worker health and minimise dust emissions. Substitutes must be used whenever practicable for abrasives containing crystalline silica. However, if such abrasives are used, workers must be aware of the hazards and exposure monitoring conducted. The hazardous properties of alternative materials must be considered before use.

Where required, training in the recognition of signs and symptoms of hazardous particulate and gas / vapour exposure, emergency procedures and preventative measures must be provided.

16.42.1 Respiratory Protection Devices

The selection of Respiratory Protection Devices (RPD’s) must be based on:
• The potential particulate size distribution, gas / vapour types, substance toxicity and likely concentrations;
• Compatibility with the work tasks and other PPE; and
• Comfort (as it affects wear-time) and allowance for adequate communication.

Only RPD’s approved by the nominated project management representative may be used. Suitable facilities must be available for cleaning and sanitary storage of RPD’s.

Half-mask and full-face air-purifying respirators must NOT be used where:
• The atmosphere is oxygen deficient (< 19.5 per cent);
• The atmosphere is immediately dangerous to life or health (e.g. in areas where CO concentrations are > 1500 ppm, HF > 30 ppm or NH₄ > 300 ppm);
• Gases and vapours are more than ten times their OEL or greater than 1000 ppm for half-mask respirators, or more than 100 times their OEL for full-face respirators; or
• Particulates are more than five times their OEL for half-mask respirators, or more than 50 times their OEL for full-face respirators.

For atmospheres that are oxygen deficient, or contain unknown hazards, or have concentrations of gases and vapours that are unknown, or could potentially exceed levels that are immediately dangerous to life or health, an air-supplied type respirator must be worn.

For effective use of negative pressure RPD’s (including disposable RPD’s), fit testing must be qualitative and documented as a minimum, although quantitative fit testing is preferred. Fit testing must be performed by a competent person when RPD’s are first issued and must be repeated periodically according to legal requirements or two-yearly as a minimum frequency. There must be a policy requiring a clean shaven face when using a negative or neutral pressure RPD for routine tasks, or the use of a positive pressure RPD will be required. A pulmonary function test and medical evaluation may be required to determine whether or not an individual is medically fit to wear a respirator.

For air-supplied RPD’s, breathing air must be effectively filtered and / or isolated from plant and instrument air, and isolated from sources of potential contaminants. The quality of the breathing air must be checked for conformance with applicable standards.
The respiratory protection programme must include:

- Periodic inspection of RPD’s, including before each use;
- Periodic evaluation of cleaning, sanitising, maintenance and storage practices by competent persons;
- Performance of positive and negative fit checks before each use by RPD wearers to ensure that the respirator is functioning properly; and
- Training at first issue of a RPD and regular refresher training thereafter in accordance with regulatory requirements or at least once every two years.

16.42.2 Asbestos and Non-asbestos Fibrous Silicates

This section applies to asbestos and bio-persistent non-asbestos fibrous silicates that may display asbestos-like toxicity, related to fibre diameter and length. Local regulations must be followed as a minimum. The following requirements must be met:

- A management program must be in place and actively pursued;
- No new products containing these materials may be purchased;
- Installed materials of this type must be identified and assessed annually for current safety. Where ‘safe in place’, it should not be removed, unless there is an opportunity for removal during renovation or construction of buildings or equipment;
- Work areas must be barricaded off and signposted to restrict entry; and
- Contaminated material must be promptly placed in appropriate marked plastic disposal bags or covered containers for disposal to an approved landfill.

All workers exposed to these materials must be on a register. “Exposed” means working on or near such material that has been disturbed, abraded or cut. The register must contain details of their annual medical examination and the results of occupational hygiene monitoring.

Asbestos contractors must be competent, registered and have adequate equipment, procedures and monitoring.

Where required, the asbestos / bio-persistent non-asbestos fibrous silicates management programme must cover work practices, training, monitoring, medical surveillance, and waste handling and disposal.

Maintenance operations must be made aware of potential cristobalite exposure hazards when disturbing non-asbestos fibrous silicates that have undergone high temperature conditions. The potential for occurrence of naturally occurring asbestiform materials in exploration or mining production activities must be assessed, the risk of exposure determined and appropriate control measures implemented where required.

16.43 Hazardous Chemical Substances

No chemical substance may be brought onto site unless it has been approved for use by the nominated project management representative and it appears on the Approved Chemical Substances Register which will be made available to all contractors. The register will contain the following information:

- Trade name / product name of substance;
- Manufacturer / supplier of substance;
- Maximum inventory;
- Storage requirements and precautions;
• Inventory of special emergency items held for handling spillages, fires, etc. (e.g. reagents to neutralise spillages, firefighting foam, etc.); and
• Approved disposal methods.

If the contractor wishes to make use of a chemical substance that does not appear on the register, then the contractor must provide the following information to the nominated project management representative for review PRIOR to bringing the substance onto site:
• A detailed 16-point Material Safety Data Sheet (MSDS) issued by the manufacturer / supplier of the substance;
• The reason for wanting to bring the substance onto site (i.e. the intended use of the substance);
• The proposed method of transportation;
• The proposed arrangements for the safe storage of the substance;
• The quantity to be stored on site;
• The proposed methods for handling / using the substance (including PPE);
• The proposed method of disposal of the waste;
• Proof that the contractor is able to readily provide the necessary first aid measures as specified in the MSDS; and
• A risk assessment covering the transportation, use, handling, storage and disposal of the substance with specific reference to the substance’s compatibility with other chemicals.

This information must be provided at least five (5) working days prior to the date on which the contractor intends to bring the substance onto site for use. Any chemical substance brought onto site without adherence to the requirements stipulated above shall be removed from site immediately.

If the nominated project management representative approves the substance for use, the contractor must ensure that all necessary precautions are taken concerning the transportation, use, handling, storage and disposal of the substance, and that all required PPE and first aid materials / equipment (as stipulated in the MSDS) are readily available on site.

The contractor must ensure that a Material Safety Data Sheet (MSDS) is obtained for each chemical substance brought onto site. A file, or files, containing all of the MSDS’s must be maintained and must be readily available to all personnel on site (particularly first aiders) as well as other potentially affected parties (e.g. emergency services personnel, persons from the local community, etc.). The MSDS’s must be in the language(s) commonly used on site.

The contractor must appoint a trained and competent Hazardous Chemical Substances Coordinator who understands and is able to evaluate the risks associated with a wide variety of substances. This person shall be responsible for:
• Assessing the hazardous properties and risks associated with all chemical substances brought onto site by the contractor and appointed sub-contractors (using the MSDS’s);
• Determining precautions and safe practices for transportation, use, handling, storage and disposal (including PPE requirements) (using the MSDS’s);
• Determining first aid and emergency response requirements / procedures (using the MSDS’s);
- Maintaining the MSDS file;
- Managing and monitoring the consumption of inventory; and
- Providing an "as needed" service to site personnel and suppliers.

The risks associated with the transportation, use, handling, storage and disposal of all hazardous chemical substances brought onto site must be assessed and managed by the contractor through a process that incorporates risk reduction using the hierarchy of controls as described in Section 6.

Whenever a task-based risk assessment is carried out, consideration must be given to the use of chemical substances (e.g. greases, solvents, etc.).

The contractor must provide Safe Work Procedures for the transportation, use, handling, storage and disposal of all hazardous chemical substances to be used on site.

The contractor must provide his employees with all of the Personal Protective Equipment that is necessary to prevent exposure / injury while handling / using the hazardous chemical substances that they will be required to work with. Appropriate PPE must be selected with consideration given to the potential hazards, permeability, penetration, resistance to damage and compatibility with the work tasks.

The contractor's employees must be trained in the safe transportation, use, handling, storage and disposal of the hazardous chemical substances that they will be required to work with or may come into contact with. The training must specifically address PPE requirements (including the correct selection, fitment and use thereof). All personnel must be trained to understand the potential health effects associated with exposure to hazardous chemical substances and therefore the importance of Safe Work Procedures and PPE. All personnel must be trained on emergency response procedures and first aid measures. Behaviour-based observations and coaching must include the use / handling of hazardous chemical substances.

An appropriate occupational exposure monitoring and medical surveillance programme must be in place for all personnel potentially exposed to hazardous chemical substances which have the potential to cause immediate or long-term harm.

Emergency showers and eyewash stations must be provided where required by law, or where a risk assessment indicates a need. The emergency showers and eyewash stations must be appropriately located, signposted, and regularly tested and maintained. Employees must receive training on the location and use of the showers / eyewash stations.

An emergency response plan for incidents involving hazardous chemical substances must be in place. Regular and appropriately staged emergency drills (possibly involving external spill response and ambulance support services) must be held and lessons learnt must be incorporated into the emergency response plan.

The contractor must provide appropriate storage facilities for all hazardous chemical substances to be used on site. The storage facilities must be secure and protected from damage. They must also be designed for easy access for firefighting purposes. Where
applicable, the storage facility must protect chemical containers from physical damage due to temperature extremes, moisture, corrosive mists or vapours, and vehicles.

The inventory of hazardous chemical substances stored on site must be kept to a minimum. The quantity of each chemical stored must be justifiable.

Storage and segregation requirements for all hazardous chemical substances to be used on site must be based on:
- The quantities of the substances stored;
- The physical state of the substances (solid, liquid or gas);
- The degree of incompatibility; and
- The known behaviour of the substances.

Access to areas where hazardous chemical substances are stored and handled must be limited and controlled.

Every chemical substance container must be adequately and clearly labelled to identify its contents, to indicate precautionary requirements for the substance, and to indicate the date of expiry (if applicable). Pipes used to transfer / convey / distribute chemical substances must be clearly identified (e.g. colour coding). Directional flow must be indicated where practical.

Before any item, equipment or empty container containing a chemical residue is disposed of as general waste, it must be properly decontaminated (where applicable). Before being disposed of, empty chemical containers must also be rendered unusable for carrying water (by puncturing, cutting or crushing them).

Hazardous chemical substance waste (i.e. redundant / expired hazardous chemical substances, containers containing residues, contaminated items / materials, etc.) must be disposed of in accordance with the applicable legislation.

Maintenance, inspection and testing schedules and procedures must be in place for critical equipment associated with hazardous chemical substances.

A system must be in place to ensure that the risks are assessed before any changes are made to equipment and / or processes for the transportation, storage, handling, use or disposal of a hazardous chemical substance.

A programme must be in place to continually investigate possibilities / opportunities for replacing hazardous substances with safer alternatives.

16.44 Radiation

The risks associated with ionising (from naturally occurring radioactive minerals (NORM), radon, and man-made sources), ultra violet (UV) and electromagnetic field (EMF) radiation exposure must be assessed by a competent person.

There must be an inventory of all radiation sources that have the potential to cause adverse health effects. For each radiation source, the type of radiation (e.g. radioisotope, radon, x-ray, EMF, laser, etc.), the strength of the radiation, and the location must be recorded.

Where risk assessment indicates the need, a documented radiation management
programme must be developed such that:

- All types of radiation sources are adequately characterised and described;
- Exposures are eliminated or reduced to as low as reasonably practicable (ALARP);
- A clearly defined chain of responsibility (with duties) is provided; and
- Education is provided for employees regarding radiation safety, including the radiation management programme elements.

The ionising radiation management programme must meet all applicable regulatory requirements, and as a minimum must include the following elements (as applicable):

- Surveyed radiation areas and quantification of exposure sources / levels;
- Exposure and medical monitoring programmes based on established investigation levels;
- Transport of radioactive materials in compliance with international radiation transport regulations, when no local regulations are in place;
- Waste monitoring and disposal programmes;
- Feedstock and equipment checks for naturally-occurring ionising radiation;
- Clearance and control procedures for all contaminated materials and equipment leaving or arriving at site (including scrap);
- Leak (wipe) tests on sealed radioactive containment equipment;
- Lock-out procedures for vessels and equipment containing radioactive sources and radon decay product measurement prior to entry;
- Emergency procedures;
- Environmental impact risk assessment (air, water, waste, foods, etc.);
- Product / waste life cycle control; and
- Dose assessment for employees and critical exposure groups, according to documented methods and by a competent person.

Areas with ionising radiation with annual doses greater than 5 milli Sieverts (mSv) must be designated as restricted access or controlled areas. These areas must be identified and mapped, signposted or otherwise clearly communicated to employees working in the area.

Each person whose potential exposure exceeds 5 mSv per annum or who is a designated radiation worker must undergo periodic personal radiation monitoring and medical surveillance designed to show continued fitness for radiation work.

All sources of ionising radiation must be managed in use and when they are either disposed of or securely stored in accordance with local regulations. Each operation where individual worker’s exposures could exceed 5 mSv per annum must have a trained radiation protection adviser or ready access to a trained protection consultant.

There must be documented procedures for the inspection, assessment and maintenance of the controls, and emergency procedures to deal with incidents involving ionising radiation sources (including fire and explosions). All controls must be reassessed annually to ensure their continued effectiveness and that operating practices are in accordance with written procedures.

16.45 Thermal Stress

Hot areas or activities where employees have experienced or could experience excessive fatigue, muscle cramp, dehydration, dizziness and other symptoms of heat stress must be identified and described.
Where a risk of thermal stress is determined, a competent person must conduct monitoring surveys on site, in consultation with workers.

For defined extreme thermal conditions and job activities, medical examinations must include information about the operator’s physiological and biomedical aspects, and an assessment of fitness for the working conditions. Cold areas or activities where employees have experienced or could experience pain or loss of feeling in extremities, frostbite, severe shivering, excessive fatigue and other symptoms of cold stress must be identified and described.

Workplace thermal stress levels (temperature, air movement, humidity, etc.), activities (work level, etc.) and conditions (clothing, health, etc.) that have the potential to exacerbate thermal stress effects must be adequately characterised and described. Workplace exposure assessment must be repeated according to regulatory requirements or whenever there is a change in production, work organisation, process or equipment which may impact thermal stress levels.

Detailed heat stress assessment of identified tasks or jobs must be tiered to:
- Commence with the use of a simple heat stress index as a screening tool; then, if necessary;
- Use rational heat stress indices in an iterative manner to determine the ‘best’ control methods for alleviating potential heat stress; and
- Undertake physiological monitoring when exposure times are calculated to be less than 30 minutes, or where high level PPE that limits heat loss must be worn.

Detailed cold stress assessment of identified tasks or jobs must be conducted according to current appropriate guidelines that incorporate a cold stress index, to determine the ‘best’ control methods for alleviating potential cold stress.

When a risk of thermal stress is identified, the following exposure controls must be implemented:
- An acclimatisation period for new workers and those returning from extended leave or sickness;
- Training in the recognition of signs and symptoms of heat or cold stress, emergency procedures and preventative measures;
- Protective observation (buddy system or supervision); and
- A requirement for self-paced working.

The following exposure controls must be considered by a competent person:
- Work / rest regimes and job rotation based on measurements conducted;
- Suitable rest areas with a provision of cool drinking water and cool conditions for high temperatures, or provision of warm drinks and warm conditions for cold temperatures;
- Selection of appropriate clothing or other PPE for extreme temperature conditions;
- The use of engineering controls; and
- Undertake hot / cold tasks during a cooler / warmer time of the day.

Where thermal stress is assessed to be a risk, the operation must develop a suitable emergency response plan.
16.46 Fitness for Work

The contractor must develop and implement a programme to manage employee fitness for work. All employees working on site for whom the contractor is responsible (i.e. direct employees of the contractor as well as the employees of any appointed sub-contractors) must be subject to this programme.

All safety critical jobs (i.e. roles where fatigue or other causes of reduced fitness for work could lead to serious injury, illness or death to employees, significant equipment / plant damage, or significant environmental impact) must be identified and the risks associated with reduced fitness for work in these roles must be assessed.

A programme to manage these risks must be implemented, and it must include:
- Mechanisms for managing fatigue, stress and lack of fitness;
- An alcohol and other (including prescription, pharmaceutical or illicit) drugs policy that includes testing;
- An Employee Assistance Programme providing confidential access to resources and counsellors; and
- Training and awareness programmes.

Each employee has an obligation to present health and safety if fit for work at the start of the day / shift, and to remain fit for work throughout the work period. Reporting for work under the influence of alcohol or any other intoxicating substance will not be tolerated. Any transgression concerning the alcohol and other drugs policy applicable to the project may result in the offending employee’s access to the project premises being temporarily or permanently withdrawn.

Alcohol and drug testing on the project premises will be carried out randomly (as employees report for duty and during the course of the day / shift), following significant incidents (all persons involved), and whenever there is reasonable suspicion. Alcohol and drug testing may also be carried out as part of a Pre-Employment Medical Examination.

Sleep deprivation during shift work or from excessive working hours is a known cause of fatigue. Fatigued employees are at increased risk of accidents. Shift system design must consider:
- The effect on worker fatigue;
- The effects of activities carried out during scheduled and overtime hours;
- The impact on sleep cycles of activities such as commuting to and from site; and
- The monitoring and control of working hours.

The contractor is responsible for the administration of the working hours of his employees as well as the employees of any appointed sub-contractors. The maximum working hours per day and the minimum rest times between shifts must be specified in the contractor’s Health and Safety Management Plan and must comply with all applicable legislation.

All employees engaged in safety critical jobs must undergo fitness assessments (medical examinations) which must be carried out prior to the commencement of employment on the project, prior to a change in role, periodically based on an employee’s individual risk profile, and on termination of employment on the project:
- **Pre-Employment Medical Examination** – to assess the physical suitability of the person for the role and environment in which he will work (carried out prior to the commencement of employment on the project and prior to induction);
- **Periodic (Surveillance) Medical Examination** – to assess the ongoing physical condition of an employee to determine if his role is impacting on his health and whether the employee’s fitness level is still adequate for the role he holds (these medical examinations are “risk driven” – the specific protocol followed and the frequency of the examinations will depend on the applicable legal requirements and the employee’s individual risk profile as determined by his personal fitness, the nature of his role / duties, and the environment in which he works / occupational health hazards to which he is exposed). The periodic medical assessment programme must include:
  - The identification of modifiable risk factors that may impact fitness for work;
  - Education and support to maintain health or address identified risk factors; and
  - Education and support to help employees regain their fitness for work.
- **Role Change Medical Examination** – to assess an employee’s physical suitability for a different role and work environment (carried out prior to a change in role / duties);
- **Exit (Post-Employment) Medical Examination** – to determine the total physical impact of the work the employee performed (carried out on termination of employment on the project if the employee worked on the project site for more than six months).

**Note:** The results of an Exit Medical Examination from previous employment will not be accepted as a Pre-Employment Medical Examination.

**Note:** The medical examinations described above may only be carried out by an occupational medical practitioner (i.e. a medical doctor who holds a qualification in occupational medicine).

A detailed job (role) description and an exposure profile (noise, dust, heat, fumes, vapours, etc.) must be provided for each employee or group of employees. The medical examinations that an employee undergoes must be based on (i.e. the employee’s fitness must be assessed against) the information contained in these documents as well as the baseline risk assessment for the work. This information must be made available to the occupational medical practitioner performing the medical examination.

For each role, the medical criteria for fitness must be documented and these must be based on an evaluation of the physical and medical requirements for the role. Depending on the circumstances, certain vaccinations may need to be provided to employees.

The medical examinations carried out for all drivers and operators must include testing / assessment for medical conditions that could affect the safe operation of vehicles or equipment.

Specific testing / questioning must be carried out to determine if an individual:
- Suffers from epilepsy or any other medical condition deemed to be a risk by the occupational medical practitioner;
- Makes use of chronic medication that could affect performance;
- Is colour-blind; or
• Has poor day or night vision.

The medical examinations carried out for employees that are required to work at height must include testing / questioning to determine if an individual suffers from epilepsy, hypertension (high blood pressure) or any other medical condition deemed to be a risk (with regard to working at height) by the occupational medical practitioner. Electricians must be tested for colour-blindness.

With regard to the placement of new employees:
• Prospective employees must be referred to a suitable occupational medical practitioner (doctor) for a "Pre-Employment Medical Examination";
• If an individual is found to be medically "unfit for placement", the doctor will indicate which work activities cannot be performed by the person;
• The individual may still be employed on the project if his medical restrictions can be accommodated and provided that no legislation is transgressed.

A process must be established to manage medical restrictions that may be placed on an employee. For every employee with a medical restriction, regular follow up visits with the occupational medical practitioner must be arranged to ensure that each case is proactively managed.

An employee in a safety critical job must report (to his supervisor) any condition that might impair his ability to safely perform the duties associated with his role. A mechanism must be in place for such reports to be referred to an occupational medical practitioner to determine if the employee is fit to continue with his work.

Proof of all medical examinations (i.e. certificates of fitness signed by an occupational medical practitioner) must be kept on site and these records must be readily available for inspection by the nominated project management representative.

An employee's certificates of fitness must be included in his Personal Profile (dossier). If an Employee Personal Profile (dossier) hasn't already been compiled for a particular employee, then this must be done without delay following the employee’s Pre-Employment Medical Examination.

No employee in a safety critical role may commence work on site without proof that he has undergone a Pre-Employment Medical Examination.

Occupational medical examinations and data interpretation may only be carried out by medical practitioners that are appropriately qualified and certified to do so.

Occupational medical data contained in reports to management must be grouped and summarised to ensure that the confidentiality rights of each individual employee are maintained.

All occupational medical data and records must be retained for at least 40 years.

16.47 Legionnaires Disease

All equipment with the potential for generating Legionella (such as cooling towers and associated equipment, air-handling systems, hot water services and showers) must be identified and the risks of contamination and aerosol generation assessed.

Where there is an assessed risk that Legionella could grow in the system and cause harm, a programme must be in place such that:
• All such equipment is identified on a register. The register must contain details of the regular maintenance, cleaning and checking programmes;
• Control measures are in place to minimise aerosol emissions;
• There must be a documented water treatment programme, including procedures for inspection, assessment and maintenance of the controls; and
• New or retrofitted equipment is designed and constructed to minimise the risk of Legionella growth.

Where available, the Legionella plate count test should be used if more effective methods are not available.

Good maintenance procedures must be followed to minimise the risk of significant contamination of equipment with other bacteria and microbial organisms.

Adequate procedures must be available for disinfecting systems if significant concentrations of Legionella bacteria are present. Once disinfected, systems must be retested to confirm effectiveness of treatment.

16.48 HIV / AIDS
The contractor must assess the risks posed by HIV. Appropriate mitigation strategies must be implemented as required.
Discrimination towards employees on the basis of actual or perceived HIV status is forbidden.
All information on the HIV status and condition of employees and community members, including that relating to counselling, care and treatment and receipt of benefits, must be maintained in medical confidence.

HIV / AIDS screening may not be a requirement for recruitment or a condition of employment.

17. Occupational Hygiene
These services are to be provided by TCP):
• Chemical agents =Gases, vapours, solids, fibres, liquids, dusts, mists, fumes, etc.
• Physical agents =Noise, Vibration, Heat, Cold, Electromagnetic fields, lighting etc.
• Biological agents =Bacteria, fungi, etc.
• Ergonomic factors =Lifting, stretching, and repetitive motion.
• Psychosocial factors =Stress, workload and work organisation

TCP Occupational health must provide the contractor with the health risk assessment in respect of existing Occupational Health Risk on Sites

Additionally an Occupational Health Program for monitoring the existing Occupational health Risk will be given to the Contractor

The contractor must conduct an Occupational Health Risk Assessment in respect of their trade.
The contractor must appoint an Approved Inspection Authority (AIA) for Occupational Hygiene to conduct the identified Occupational hygiene Surveys.
17.1 Lighting
- Should be measured once-off within 6 months of new installations prior to work commencing for the first time in any area
- The installations should be placed on a maintenance/ repair/ replacement schedule by management. Proof of this should be available
- Lighting and ventilation shall comply with the National Building Regulations (SANS 10400-O: Lighting and Ventilation) before occupancy is established
- Measurements do not need to be conducted by an Approved Inspection Authority for Occupational Hygiene

17.2 Particulate and Gas/ Vapour Exposures (page 127)
The concentration of an HCS in the air is, or maybe, such that the exposure of employees working in that workplace exceeds the recommended limit without the wearing of respiratory protective equipment, is zoned as a respirator zone

17.3 Thermal Stress
Hot areas or activities where employees have experienced or could experience excessive fatigue, muscle cramp, dehydration, dizziness and other symptoms of heat stress must be identified and described.
Where a risk of thermal stress is determined, a competent person must conduct monitoring surveys on site, in consultation with workers.
For defined extreme thermal conditions and job activities, medical examinations must include information about the operator's physiological and biomedical aspects, and an assessment of fitness for the working conditions.

Cold areas or activities where employees have experienced or could experience pain or loss of feeling in extremities, frostbite, severe shivering, excessive fatigue and other symptoms of cold stress must be identified and described.
Workplace thermal stress levels (temperature, air movement, humidity, etc.), activities (work level, etc.) and conditions (clothing, health, etc.) that have the potential to exacerbate thermal stress effects must be adequately characterised and described.
Workplace exposure assessment must be repeated according to regulatory requirements or whenever there is a change in production, work organisation, process or equipment which may impact thermal stress levels.
Detailed heat stress assessment of identified tasks or jobs must be tiered to:
- Commence with the use of a simple heat stress index as a screening tool; then, if necessary;
- Use rational heat stress indices in an iterative manner to determine the ‘best’ control methods for alleviating potential heat stress; and
- Undertake physiological monitoring when exposure times are calculated to be less than 30 minutes, or where high level PPE that limits heat loss must be worn.

Detailed cold stress assessment of identified tasks or jobs must be conducted according to current appropriate guidelines that incorporate a cold stress index, to determine the ‘best’ control methods for alleviating potential cold stress.
When a risk of thermal stress is identified, the following exposure controls must be implemented:
- An acclimatisation period for new workers and those returning from extended leave or sickness;
• Training in the recognition of signs and symptoms of heat or cold stress, emergency procedures and preventative measures;
• Protective observation (buddy system or supervision); and
• A requirement for self-paced working.

The following exposure controls must be considered by a competent person:
• Work / rest regimes and job rotation based on measurements conducted;
• Suitable rest areas with a provision of cool drinking water and cool conditions for high temperatures, or provision of warm drinks and warm conditions for cold temperatures;
• Selection of appropriate clothing or other PPE for extreme temperature conditions;
• The use of engineering controls; and
• Undertake hot / cold tasks during a cooler / warmer time of the day.

Where thermal stress is assessed to be a risk, the operation must develop a suitable emergency response plan.

17.4 Measuring and Monitoring
The workplace exposure (or potential exposure) of persons to occupational health stressors must be measured and monitored to determine the effectiveness of control measures as well as compliance with legal and other requirements, particularly Occupational Exposure Limits.

All such measuring and monitoring must be carried out by an Approved Inspection Authority (i.e. a specialist service provider that is appropriately registered with a governing authority).

A plan for measuring and monitoring occupational exposure must be developed and it must include:
• Detail of what must be measured and monitored, based on a risk assessment and / or identified legal or other requirements;
• The frequency of measurement and monitoring;
• A description of the necessary equipment;
• Data quality requirements and controls (including details on the sample size for statistical validation and any rejection criteria);
• The sampling and analysis method(s) including any laboratory certification requirements; and
• The competency requirements for persons carrying out workplace monitoring.

Each instrument and item of equipment used for occupational exposure measurement and / or monitoring must be:
• Properly maintained to ensure compliance with legislative requirements;
• Controlled and safeguarded from unintentional adjustments;
• Suitably stored and protected from damage; and
• Calibrated or verified against a traceable standard at specific intervals (calibration records must be retained).
Each analytical laboratory service that is used must have implemented a credible quality assurance or quality control programme. All monitoring results obtained must be analysed on a regular basis to:

- Identify trends and potential exceedances of legal or other requirements (such as Occupational Exposure Limits);
- Identify inconsistent or unusual results;
- Evaluate the effectiveness of existing control measures;
- Measure performance against stated objectives; and Identify continual improvement opportunities.

Each exceedance of a specified requirement or limit must be recorded, investigated and reported. Appropriate corrective actions must be identified and implemented.

18. **Temporary works**

A contractor must appoint a temporary works designer in writing to design, inspect and approve the erected temporary works on site before use.

A contractor must ensure that all temporary works operations are carried out under the supervision of a competent person who has been appointed in writing for that purpose. A contractor must ensure that all temporary works structures are adequately erected, supported, braced; and A contractor must ensure that, all temporary works structures are adequately erected, supported, braced and maintained by a competent person so that they are capable of supporting all anticipated vertical and lateral loads that may be applied to them, and that no loads are imposed onto the structure that the structure is not designed to withstand;

All temporary works structures are done with close reference to the structural design drawings, and where any uncertainty exists the structural designer should be consulted; detailed activity specific drawings pertaining to the design of temporary works structures are kept on the site and are available on request to an inspector, other contractors, the client, the client's agent or any employee;

All persons required to erect, move or dismantle temporary works structures are provided with adequate training and instruction to perform those operations safely; all equipment used in temporary works structure are carefully examined and checked for suitability by a competent person, before being used;

All temporary works structures are inspected by a competent person all temporary works structures are inspected by a competent person immediately before, during and after the placement of concrete, after inclement weather or any other imposed load and at least on a daily basis until the temporary works structure has been removed and the results have been recorded in a register and made available on site;

No person may cast concrete, until authorization in writing has been given by the competent person; if, after erection, any temporary works structure is found to be damaged or weakened to such a degree that its integrity is affected, it is safely removed or reinforced immediately; adequate precautionary measures are taken in order to—
• secure any deck panels against displacement; and
• prevent any person from slipping on temporary works due to the application of release agents;
• as far as is reasonably practicable, the health of any person is not affected through the use of solvents or oils or any other similar substances;
• upon casting concrete, the temporary works structure is left in place until the concrete has acquired sufficient strength to safely support its own weight and any imposed load, and is not removed until authorization in writing has been given by the competent person contemplated in paragraph (a);
• The foundation conditions are suitable to withstand the loads caused by the temporary works structure and any imposed load in accordance with the temporary works design.
• provision is made for safe access by means of secured ladders or staircases for
• a temporary works drawing or any other relevant document includes construction sequences and methods statements;
• the temporary works designer has been issued with the latest revision of any relevant structural design drawing;
• a temporary works design and drawing is used only for its intended purpose and for a specific portion of a construction site; and
• The temporary works drawings are approved by the temporary works designer before the erection of any temporary works.

No contractor may use a temporary works design and drawing for any work other than its intended purpose.

19. Structure
A contractor must ensure that,
all reasonably practicable steps are taken to prevent the uncontrolled collapse of any new or existing structure or any part thereof, which may become unstable or is in a temporary state of weakness or instability due to the carrying out of construction work;

No structure or part of a structure is loaded in a manner which would render it unsafe; and
all drawings pertaining to the design of the relevant structure are kept on site and are available on request to an inspector, other contractors, the client and the client’s agent or employee.
An owner of a structure must ensure that;
Inspections of that structure are carried out periodically by competent persons in order to render the structure safe for continued use;
That the inspections contemplated in paragraph (a) are carried out at least once every six months for the first two years and thereafter yearly;
The structure is maintained in such a manner that it remains safe for continued use;
The records of inspections and maintenance are kept and made available on request to an inspector.

20. Emergency Preparedness and Response
The contractor must develop, implement, test and maintain an Emergency Response Plan (incorporating emergency evacuation procedures) that focuses specifically on the contractor’s team and work activities. The plan must be risk-based and must detail the procedures that must be followed when responding to all potential emergency scenarios
such as a medical emergency (including first aid response), a fire, an explosion, a hazardous substance spill, flooding, rescue from height, rescue from a confined space, etc.

The contractor’s Emergency Response Plan must be aligned with the Emergency Response Plan developed for the project. Potential off-site emergency scenarios must be included (e.g. emergency scenarios related to the transport of personnel, the transport of hazardous materials, and personnel performing work in remote locations).

Consideration must be given to neighbours, and to the availability and capability of local emergency services. Details of any arrangements with external emergency response service providers must be included. The Emergency Response Plan must satisfy and comply with all applicable legal requirements. The plan must be adequately resourced to ensure effective implementation. These resources must include appropriate personnel, external emergency response service providers, emergency response equipment, and warning devices. All equipment and warning devices must be identified, maintained and tested to ensure availability at all times.

Accountability for the Emergency Response Plan must be clearly defined. An Emergency Response Team (ERT) responsible for the implementation, management and execution of the Emergency Response Plan must be established. The roles and responsibilities of each team member must be clearly defined in the plan. Each team member must receive appropriate training to ensure that each role is performed competently.

The process for managing incident communication, notification, and reporting must be incorporated into the Emergency Response Plan. The responsible person(s) must be clearly identified, and the protocols for communicating with internal and external stakeholders must be defined. Emergency evacuation procedures must be developed and included in the Emergency Response Plan. A copy of the plan must be provided to the nominated project management representative for approval prior to site establishment. The Emergency Response Plan must be formally reviewed (and amended if necessary) on at least an annual basis, and following any emergency situation, to ensure that it remains appropriate and effective.

At each project work site:
- A suitable evacuation alarm (siren) must be provided. If work is to be carried out in proximity to an existing operational plant, the alarm provided by the contractor must be distinctly different (in terms of the sound that it generates) to any alarm installed in the operational plant. All persons working in an area where an evacuation alarm is sounded must respond to it immediately.
- Suitable fire-fighting equipment must be provided and maintained, and personnel must be trained in fire-fighting procedures and the use of fire-fighting equipment.
- Suitable first aid equipment and supplies must be provided and maintained, and an adequate number of appropriately trained First Aiders must be in place (refer to Section 14.2).
- Emergency assembly points positioned in safe locations away from buildings, plant and equipment must be designated (and conspicuously signposted). In the event of an evacuation, all persons (i.e. personnel and visitors) must assemble and be accounted for at these emergency assembly points.
- All personnel must receive awareness training on the applicable emergency response procedures, and all visitors entering the site must be properly instructed in these procedures.
- The emergency response procedures must be displayed on each notice board.
- A diagram (site plan) indicating evacuation routes, emergency assembly point locations, and the positioning of emergency equipment (fire extinguishers, first aid boxes, etc.) must be prominently displayed in all buildings and plants, in all offices, on all notice boards, and in other locations on the site as may be required.
- An up-to-date list of emergency telephone numbers must be compiled and maintained. A copy of this list must be posted at each site entrance, in each office, near each telephone, and on every notice board.
- Emergency response drills must be conducted to test the effectiveness of the emergency procedures and equipment, as well as the knowledge and proficiency of the response personnel. Where appropriate, drills must include liaison with and the involvement of external emergency response service providers. A variety of emergency scenarios must be tested including, but not limited to, medical emergencies, fires, rescues, and hazardous substance spills. A drill must be carried out one month after site establishment and six-monthly thereafter.

Each drill must be monitored and the outcomes (highlights and shortcomings) must be documented. Corrective actions must be identified and implemented to address the shortcomings, and the Emergency Response Plan and associated procedures must be amended as required.

20.1 Fire Fighting
The contractor must ensure that Fire Fighting requirements are met

20.2 First Aid
The contractor must ensure that First Aiders are trained and appointed as described in (Section 9.5)

20.2.1 First Aid Kits
A suitable first aid kit (i.e. appropriate to the level of training) must be readily available to each First Aider. All kits must be provided and maintained by the contractor.

Taking into account the type of injuries that are likely to occur in the workplace, each first aid kit must contain suitable equipment and supplies. First aid equipment and supplies required by applicable legislation must be provided as a minimum.

The contents of each first aid kit must be kept clean and dry. Each kit must be contained in either a portable weatherproof case / bag or a steel box mounted to a fixed structure. Access to first aid equipment / supplies must be limited to train First Aiders only. Access to portable kit bags must be controlled and steel first aid boxes mounted in the workplace must be kept locked. Approved signage must be in place to indicate the locations of the first aid boxes / bags. A record of each treatment administered must be kept in a suitable register.
The first aid kits must, as a minimum, contain the following equipment and supplies:

Table 20.2.1-1 Minimum Requirements to be included when equipping first aid boxes

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Wound cleaner/ antiseptic – 100ml;</td>
</tr>
<tr>
<td>2</td>
<td>Swabs for cleaning wounds;</td>
</tr>
<tr>
<td>3</td>
<td>Cotton wool for padding – 100g;</td>
</tr>
<tr>
<td>4</td>
<td>Sterile gauze – minimum quantity 10;</td>
</tr>
<tr>
<td>5</td>
<td>1 x Pair of forceps – for splinters;</td>
</tr>
<tr>
<td>6</td>
<td>1 x Pair of scissors – minimum size 100mm</td>
</tr>
<tr>
<td>7</td>
<td>1 x Set of safety pins;</td>
</tr>
<tr>
<td>8</td>
<td>1 x Roll of elastic adhesive – 25mm x 3m;</td>
</tr>
<tr>
<td>9</td>
<td>1 x Non-allergenic adhesive strip – 25mm x 3m;</td>
</tr>
<tr>
<td>10</td>
<td>1 x Packet of adhesive dressing strips – minimum quantity 10 assorted sizes;</td>
</tr>
<tr>
<td>11</td>
<td>4 x First aid dressings – 75mm x 100mm;</td>
</tr>
<tr>
<td>12</td>
<td>4 x First aid dressings – 150mm x 200mm;</td>
</tr>
<tr>
<td>13</td>
<td>2 x Straight splints;</td>
</tr>
<tr>
<td>14</td>
<td>2 x Pairs large and 2 x pairs medium disposable latex gloves;</td>
</tr>
<tr>
<td>15</td>
<td>2 x CPR mouth pieces or similar devices.</td>
</tr>
</tbody>
</table>

Additional items / supplies may need to be provided depending on the nature of the workplace (specific hazards) and the level of training of the first aider in position of the kit.

21. Management Review

A review of the contractor’s Health and Safety Management System must be completed annually to ensure that the system continues to be effective in managing health and safety performance and meeting project requirements.

The review must evaluate if there is any need for change and must identify actions to improve the system.

The review must be led by senior management and the following must be considered:

- The suitability of the policy adopted for the project;
- The impact of changing legislation;
- The management of risk;
- Health and safety objectives and performance indicators;
- Changing expectations and requirements of relevant stakeholders;
• Changes to the contractor’s scope, schedule, designs, etc.;
• Changes to the contractor’s organisational structure;
• Communication and feedback (particularly from employees, Project representatives, and client representatives);
• The effectiveness of the management of change process;
• Workplace exposure monitoring and medical surveillance;
• The status of corrective actions;
• Performance statistics, including an annual summary of safety statistics, and occupational hygiene monitoring and medical surveillance results;
• Non-conformances (findings) from completed audits;
• Follow up on actions from previous management reviews; and
• Recommendations and opportunities for improving the effectiveness of the management system.

A record of each completed management review must be retained and it must include all decisions and identified actions concerning alterations, modifications or improvements to the management system that demonstrate a commitment to continual improvement.

For occupational hygiene: **Approved Inspection Authority (AIA) for Occupational Hygiene**

22. **Management of Change**

To ensure that proposed changes do not give rise to unacceptable health or safety risk, the contractor must develop and implement a process for identifying and managing change in the workplace (e.g. changes to scope, schedule, procedures, work methods, site conditions, designs, plans, plant and equipment, materials, processes, etc.) that may impact on health or safety performance.

The management of change process must take into consideration that changes may be planned or unplanned, sudden or gradual, temporary or permanent.

The process must aim to ensure that:
• Changes are identified and assessed before they are implemented;
• Careful consideration is given to managing the risks associated with any change;
• Due diligence can be shown to have taken place;
• The number of unsatisfactory or unnecessary changes is minimised;
• The right people are involved in the change process; and
• All statutory requirements are met.

All risks associated with a proposed change must be evaluated and ranked. The risks that are ranked as moderate or higher must be managed to prevent serious injury or illness.

It must not simply be assumed that a change will not result in significant risks. All proposed changes must be formally evaluated. The evaluation or review must include:
• An appropriate level of technical expertise;
• The involvement of the workforce potentially affected by the proposed change; and
• Approval of the change by a person with at least the same level of authority as those who control the existing process or item being changed.
23. **Sub-contractor Alignment / Stakeholder management**

Processes must be in place to ensure that the health and safety risks associated with the procurement of materials, equipment, services and labour are identified, evaluated and effectively managed.

A process for evaluating a sub-contractor’s (or supplier’s) ability to provide materials, equipment, services and labour that meet defined specifications must be in place. A prospective sub-contractor’s health and safety management expertise, experience and capability (including previous health and safety performance) must be formally assessed prior to any contract or purchase order being awarded.

Each appointed sub-contractor must develop and implement a detailed Health and Safety Management Plan based on the requirements of the contractor’s Health and Safety Management Plan and the Health and Safety Specification for the project. This plan must be reviewed and approved by the contractor prior to the commencement of any work.

The properties of all materials provided to the project must be adequately understood, documented and integrated into operating procedures where exposure to these materials presents a significant health or safety risk.

Procedures, commensurate with the evaluated risk, must be in place for the receiving, storing, dispatching and transporting of all equipment and materials.

Before work commences on any contract, all sub-contractor personnel must receive comprehensive orientation and induction training (refer to Section 11). All work carried out by a sub-contractor must be managed (activity supervised) throughout the contract period and performance must be reviewed (audited) on a regular basis (refer to Section 21).

24. **Measuring and Monitoring**

The workplace exposure (or potential exposure) of persons to hazardous substances or agents must be measured and monitored to determine the effectiveness of control measures as well as compliance with legal and other requirements, particularly Occupational Exposure Limits. All such measuring and monitoring must be carried out by an Approved Inspection Authority (i.e. a specialist service provider that is appropriately registered with a governing authority).

A plan for measuring and monitoring occupational exposure must be developed and it must include:

- Detail of what must be measured and monitored, based on a risk assessment and / or identified legal or other requirements;
- The frequency of measurement and monitoring;
- A description of the necessary equipment;
- Data quality requirements and controls (including details on the sample size for statistical validation and any rejection criteria);
- The sampling and analysis method(s) including any laboratory certification requirements; and
- The competency requirements for persons carrying out workplace monitoring.
Each instrument and item of equipment used for occupational exposure measurement and/or monitoring must be:

- Properly maintained to ensure compliance with legislative requirements;
- Controlled and safeguarded from unintentional adjustments;
- Suitably stored and protected from damage; and
- Calibrated or verified against a traceable standard at specific intervals (calibration records must be retained).

Each analytical laboratory service that is used must have implemented a credible quality assurance or quality control programme.

All monitoring results obtained must be analysed on a regular basis to:

- Identify trends and potential exceedances of legal or other requirements (such as Occupational Exposure Limits);
- Identify inconsistent or unusual results;
- Evaluate the effectiveness of existing control measures;
- Measure performance against stated objectives; and
- Identify continual improvement opportunities.

Each exceedance of a specified requirement or limit must be recorded, investigated and reported. Appropriate corrective actions must be identified and implemented.

25. **Incident Reporting and Investigation**

The contractor must establish a procedure for the management of all health and safety incidents. This procedure must define the responsibilities, methodologies and processes that must be followed for:

- Reporting an incident;
- Investigating an incident;
- Analysing an incident to determine the root cause;
- Identifying and implementing corrective actions to prevent a recurrence; and
- Communicating information concerning an incident to relevant persons and/or groups.

**Please Note:** Arrangements must be in place to ensure that proper medical care is provided to any contractor (or sub-contractor) employee that suffers an occupational injury or illness (refer to Section 15). These arrangements must be described in the contractor’s Health and Safety Management Plan.

An incident may have multiple impacts. For each impact, the Actual Consequence and the Maximum Reasonable Outcome must be evaluated. Each impact must be evaluated independently, with the most significant classification forming the primary rating of the incident.

A Near Hit is an incident. All Near Hits must be reported.

The Maximum Reasonable Outcome (MRO) is based on a risk evaluation of the maximum reasonable consequence of an impact and the likelihood of the event occurring again given...
a reasonable failure of existing controls. Using the matrix referred to above, each impact must be evaluated and classified as:

- Low;
- Moderate;
- High; or
- Extreme.

An incident must be reported on the same work day or shift on which it occurs and preliminary details must be recorded. Depending on the Actual Consequence and Maximum Reasonable Potential Outcome of the impact(s), the relevant internal and external parties must be notified in accordance with specified protocols and timeframes, and legislative requirements.

In the event of a significant incident (i.e. an incident with an Actual Consequence of Moderate, Major or Catastrophic, or a Maximum Reasonable Potential Outcome of High or Extreme, work must cease and must only resume once the necessary actions (including the re-evaluation of any relevant risk assessments) have been taken to eliminate or reduce the risk of recurrence. Work must only be permitted to recommence once formal authorisation has been granted by the Project Construction Manager. In the case of incidents with an Actual Consequence of Major or Catastrophic, work must not be permitted to recommence until authorisation has been granted by the relevant government authorities (i.e. the South African Police, the Department of Labour or the Department of Mineral Resources).

The Contract Manager must ensure that an investigation is completed for each incident that occurs, and that appropriately senior personnel participate in, and authorise the outcomes of, each investigation. Incident investigations must be facilitated by competent and experienced persons who have been trained in the appropriate methodology.

All significant incidents (i.e. incidents with an Actual Consequence of Moderate, Major or Catastrophic, or a Maximum Reasonable Outcome of High or Extreme must be investigated using the approved Transnet investigation methodology. Such an investigation must be facilitated by a trained project representative within 7 calendar days.

For all other incidents (i.e. incidents with an Actual Consequence of Insignificant or Minor, or a Maximum Reasonable Outcome of Low or Moderate other methodologies approved by the Project Health and Safety Manager must be used.

Each incident (including Near Hits) must be investigated to a level of detail that is appropriate for the Maximum Reasonable Potential Outcome of the incident.

Each incident must be analysed to determine the root cause, and corrective actions must be identified and prioritised for implementation to eliminate or reduce the risk(s) in order to prevent recurrence of the incident.

For each corrective action, a responsible person must be designated and an appropriate timeframe (target date) for completion of the corrective action must be specified. Progress on implementing corrective actions (i.e. closing incidents) must be monitored and reported on. The implementation of corrective actions must be verified during monthly audits by
the Project Health and Safety Advisors but also no later than 30 calendar days after the conclusion of the incident investigation.
The contractor must document the results of each investigation and a report must be submitted to the nominated project management representative within five working days of the incident occurring.

As a minimum, each incident report must include:

- The date, time and location of the incident;
- A detailed description of the incident, including photographs;
- The names of any injured persons;
- Injury details (if applicable);
- A summary of the first aid and / or medical treatment provided (if applicable);
- The current status of any injured persons;
- The root causes of the incident; and
- Detailed corrective actions, including responsible persons and target dates for implementation.

Each significant incident must be summarised for its lessons learnt following the investigation. This information must be reviewed by the contractor’s Project Manager to assure completeness, accuracy and relevance before it is shared with (communicated to) all project personnel.

26. **Non-conformance and Action Management**
The contractor must establish a process for identifying and recording corrective actions arising from:

- Incident investigations;
- Hazard identification and risk assessment;
- Measurement and monitoring;
- Improvement plans and suggestions;
- Managing change;
- Audits and inspections; and
- Safety observations and coaching (safety interactions).

The contractor must establish a procedure for managing actions that addresses:

- Identification, categorisation and prioritisation of actions;
- Formal evaluation and approval of actions (management of change process);
- Assignment of responsibilities, resources and schedules for implementation;
- Implementation of actions;
- Tracking and reporting on implementation status; and
- Monitoring and verifying the effectiveness of the actions.

27. **Performance Assessment and Auditing**
The contractor must establish and maintain programmes for measuring and monitoring HEALTH AND SAFETY performance on a regular basis. Metrics must include leading and lagging indicators, and be based on qualitative and quantitative data.

27.1 **Reporting on Performance**
Reports summarising the contractor’s health and safety performance on the project must be compiled on a weekly and a monthly basis.
The contractor must be prepared to discuss the content of these reports at scheduled health and safety meetings.

The reports must contain the following information:

- Number of contractor and sub-contractor employees on site;
- Total hours worked on site by contractor and sub-contractor employees (by company);
- Number of incidents by category (i.e. Near Hit, FAI, MTI and LTI);
- Lost Time Injury Frequency Rate (LTIFR) (project to date and 12-month rolling);
- Details of all new incidents for the reporting period and the corrective actions taken or to be taken;
- Feedback (progress updates) on all open incidents and outstanding corrective actions;
- Status and feedback on any employee that may have been injured and has not yet returned to work;
- Details of all health and safety training carried out during the reporting period;
- Number of SOC's (Safety Observations and Coaching) carried out during the reporting period;
- SOC trends identified and proposed action for the coming week or month to maintain positive trends and / or address negative trends;
- Details of all audits, inspections and site visits carried out during the reporting period, and the corrective actions taken (or to be taken) to address all non-conformances;
- Feedback (progress updates) on all open non-conformances and outstanding corrective actions;
- Number of Toolbox Talks conducted during the reporting period (monthly);
- Number of Planned Task Observations (PTO's) carried out during the reporting period (monthly);
- Details of all active risk assessments and Safe Work Procedures highlighting those that are due for review in the coming month (monthly);
- A look ahead (to the coming week, month or quarter) to ensure that appropriate health and safety planning and preparation is done for upcoming work;
- Challenges faced with regard to health and safety; and
- Any other health and safety related information specific to the project that may be required.

Leading indicators (e.g. audit findings, observations, etc.) must be analysed, and any negative trends identified with regard to unsafe behaviour or conditions must be appropriately addressed to prevent incidents.

Lagging indicators (e.g. injuries, illnesses, near hits, etc.) must be investigated in detail to determine the root causes. Corrective actions must be identified, implemented and integrated into Safe Work Procedures to prevent recurrences.

27.2 Audits and Inspections

On a monthly basis, the health and safety management system and workplace activities of the contractor will be audited by a Project Health and Safety Advisor to assess compliance with the project health and safety requirements. Any deviation from these requirements (i.e. non-conformance) that places the health or safety of any person in immediate danger will result in the specific activity being stopped until the non-conformance is corrected.
For each non-conformance determined during any audit, the contractor must identify and implement appropriate corrective actions.

For each corrective action, a responsible person must be designated and an appropriate timeframe (target date) for completion of the corrective action must be specified. Progress on implementing corrective actions (i.e. closing non-conformances) must be monitored and reported on. The implementation of corrective actions will be verified during the monthly audits.

Should it be determined that the contractor’s level of compliance is unsatisfactory, all work being performed by the contractor on the project site may be stopped (at the contractor’s expense) until an investigation into the reasons for the poor performance has been carried out, a corrective action plan has been developed, and corrective actions have been implemented.

In addition to the audit carried out by the Project Health and Safety Advisor, the contractor must carry out an internal audit on a monthly basis to assess compliance with the project health and safety requirements (including the requirements of this specification and the contractor’s Health and Safety Management Plan). Furthermore, the contractor must ensure that each appointed sub-contractor is audited and measured to the same standard. Copies of these audit reports must be submitted to the Project Health and Safety Advisor on a monthly basis.

The contractor must carry out internal health and safety inspections as follows:
- General site health and safety inspections on a daily basis; and
- Inspections of plant, tools and equipment prior to establishment or use on site, and at least monthly thereafter.

All audits and inspections must be carried out by competent persons who have been appointed in writing.

A schedule of planned audits and inspections must be compiled and maintained ensuring that:
- All work areas and all activities are covered at regular intervals;
- All applicable legal requirements are complied with; and
- Areas or activities with significant associated hazards or risks receive greater attention.
Transnet Port Terminals
Standard Operating Procedures

SOP: Safety Health Environment and Quality Standard

Document and Record Control

Policy Reference: TPT SHEQ RS STD 001

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COMPILLED BY
Raymond v Rooyen
Executive Manager Environment and Quality

RECOMMENDED BY
Raymond v Rooyen
Executive Manager Environment and Quality

AUTHORISED BY
Zephi Ndlou
GM: Risk, Safety, Security & Corporate Affairs

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Vumile Gumede
Corporate Governance and Policy Committee

NEXT REVIEW DATE: 11 OCTOBER 2018
<table>
<thead>
<tr>
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<td>01</td>
<td>Cosmetic changes throughout document, including: changing “BUE” to “TM”</td>
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<td></td>
<td>• Amendments to Abbreviations and Definitions</td>
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<td></td>
<td>• Addition of Clause 6.13.5.1.b</td>
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<td>• Addition of Clause 6.17.3.8</td>
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1  PURPOSE:
The purpose of this Standard is to define the requirements for the Integrated SHEQ/RS Management System for all elements of the Occupational Health and Safety, Environmental, Quality and Railway Safety Management System and to satisfy the requirements as defined in the SHEQ/RS Management System Standard, TPT SHEQ/RS STD 001 and Railway Safety Management System Manual, SHEQ MAN 0010; Environmental Management System ISO 14001; Quality Management System ISO 9001; Occupational Health and Safety Management System OHSAS 18001 and the NOSA Integrated SHE Management System for the Transnet Port Terminals.

2  SCOPE:
Transnet Port Terminals.
Exclusions : SANS 9001:2008 Clause 7.3 Design and development
Reason for Exclusion: Transnet Port Terminals does not design and manufacture products.

3  ABBREVIATIONS AND DEFINITIONS:
3.1  Abbreviations:
3.1.1  (cc): Closed Corporation.
3.1.2  EXCO: Executive Committee.
3.1.4  O & MP's: Objectives and Management Programmes.
3.1.5  OHASMS: Occupational Health and Safety Management System.
3.1.6  OHSAS: Occupational Health and Safety Assessment Series.
3.1.7  OPCO: Operations Committee.
3.1.8  TPT: Transnet Port Terminals
3.1.9  PRO: Procedure.
3.1.10  QMS: Quality Management System.
3.1.11  Rev: Revision.
3.1.12  RSMS: Railway Safety Management System.
3.1.14  SANS: South African National Standards – A Division of the SABS.
3.1.15  TM: Terminal Manager
3.1.16  TPT: Transnet Port Terminals.
3.1.18  STD: Standard.
3.2  Word and Concept definitions:

3.2.1  Accident  Undesired event giving rise to death, ill-health, injury, damage or other loss to operations as well as negative impact to the environment.

3.2.2  Acceptable Risk  is a risk/impact that has been reduced to a level that can be tolerated by the organisation having regard to its legal obligations and its own SHEQ Policy

3.2.3  Aspect:  An element of the terminal’s activities, operations or processes that can interact with SHEQ/RS.

3.2.4  Audit  A systematic and wherever possible independent examination to determine whether activities and related results conform to planned arrangements and whether these arrangements are implemented effectively and are suitable to achieve the organisations policy and objectives.

3.2.5  Auditor  person with the competence to conduct an audit

3.2.6  Container Terminal:  The area where containers are loaded/off-loaded, transported, stored and checked.

3.2.7  Continual Improvement:  Recurring process of enhancing the SHEQ/RS management system in order to achieve improvements in overall SHEQ/RS performance in line with the TPT National SHEQ Policy.

3.2.8  Corrective Action  an action to eliminate the cause of a detected non-conformity or other undesirable situation.

3.2.9  Correction  an action to rectify the situation

3.2.10  Document  information and its supporting medium

3.2.11  Environment:  surrounding in which an organisation operates including:

3.2.11.1  the land, water and atmosphere of the earth;

3.2.11.2  micro-organisms, plant and animal life;

3.2.11.3  any part or combination of (3.2.10.1) and (3.2.10.2) and the interrelationships among and between them;

3.2.11.4  the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well being as well as the work place environment.

3.2.12  Environmental Aspect  element of an organisation's activities or products or services that can interact with the environment
3.2.13 Environmental Impact
any change to the environment whether adverse or beneficial, wholly or partially resulting from an organisation's environmental aspects

3.2.14 Environmental performance
measurable results of an organisation's management of its environmental aspects

3.2.15 Environmental target
detailed performance requirement, applicable to the organisation or parts thereof, that arises from the environmental objectives and that needs to be set and met in order to achieve those objectives

3.2.16 EXCO:
A committee meeting that includes all managers reporting to the BUE.

3.2.17 Hazard:
A source or a situation with a potential for harm in terms of human injury or ill-health, damage to property or operations, damage to the workplace environment, or a combination of these.

3.2.18 Hazard Identification:
The process of recognising that a hazard exists and defining its characteristics.

3.2.19 Ill health
identifiable, adverse physical or mental condition arising from or made worse by a work activity and/or work related situation

3.2.20 Impact:
Any negative change(s) to SHEQ/RS whether adverse or beneficial, wholly or partially resulting from any terminal's activities, operations or processes.

3.2.21 Incident:
An unplanned, undesired or unexpected event that could result in a negative impact to safety and health of personnel and/or contractors, operations/quality and/or have a negative impact on any element of the environment.

3.2.22 Interested and Affected Parties:
Individual or group interested/concerned with or affected by the SHEQ/RS performance of TPT or Transnet.

3.2.23 Interface:
Area, point, or location where two or more operators' activities meet and where either activity has the potential to affect one another.

3.2.24 Internal audit
systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which the SHEQ/RS Management System audit criteria set by the organisation are fulfilled
3.2.25 Non-conformity: non-fulfilment of a requirement, standards, practices, procedures, regulations, performance etc. that could either directly or indirectly lead to personal injury or illness, property damage, damage to the workplace environment, or a combination thereof.

3.2.26 Objectives: The goals, in terms of SHEQ/Rs performance and SHEQ Policy that an organisation sets itself to achieve and which should be quantified wherever practicable.

3.2.27 Occupational Health and Safety: Conditions and factors in the workplace which affect the wellbeing of employees, temporary workers, contractor personnel and others.

3.2.28 OPCO: A committee where all operation managers meet.

3.2.29 Operator: A network operator, train operator or station operator or a combination of two or all three of them.

3.2.30 Organisation: A company, operation, firm, enterprise, institution or association or part thereof whether incorporated or not, public or private, that has its own functions and administration. For organisations with more than one operating unit, a single operating unit may be defined as an organisation.

3.2.31 Performance: The measurable results of the SHEQ/Rs Management System, related to the organisations control of SHEQ/Rs risks/aspects, based on its policy and objectives. Performance measurement includes measurement of SHEQ/Rs management activities and results.

3.2.32 Preventative Action action to eliminate the cause of a potential non-conformity or other undesirable potential situation

3.2.33 Prevention of Pollution use of processes, practices, techniques, materials, products, services or energy to avoid, reduce or control (separately or in combination) the creation, emission or discharge of any type of pollutant or waste, in order to reduce adverse environmental impacts

3.2.34 Procedure specified way to carry out an activity or a process

3.2.35 Rail Safety Management System: Formal Framework for integrating Rail Safety into a Management system.

3.2.36 Record document stating results achieved or providing evidence of activities performed
3.2.37 Regulator:
The Railway Safety Regulator, as established in terms of the National Railway Safety Regulator Act, 2002 (Act no. 16 of 2002).

3.2.38 Risk:
The combination of the likelihood of an occurrence of a hazardous event or exposure and the severity of injury or ill health that can be caused by an event or exposures.

3.2.39 Risk Assessment:
Process of evaluating the risk arising from a hazards taking into account the adequacy of any existing controls and deciding whether or not the risk is acceptable.

3.2.40 Safety:
Freedom from unacceptable risk of harm.

3.2.41 Target:
A detailed performance requirement, quantified wherever practicable, pertaining to TPT that arises from the objectives and that needs to be met in order to achieve those objectives.

3.2.42 SHEQ Policy
Overall intention and directions of an organisations related to its SHEQ/RS performance as formally expressed by top management.

3.2.43 Terminal (work place):
Is a location at the end/beginning of a transportation line including servicing and handling facilities. In the case of TPT this would indicate an assigned area(s) along the quayside where cargos for import/export are handled and/or stored. E.g. Container Terminal

4 REFERENCES AND APPLICABLE DOCUMENTS:

4.1 Referenced Documents:

4.1.1 TPT SHEQ/RS STD 002:
Documentation Standard.

4.1.2 GRM SHEQ STD 010
Incident Investigation and Notification Standard

4.1.3 TPT SHEQ/RS DIR 001
SHEQ/RS Management System Directive

4.1.4 TPT SHEQ/RS GDL 001
Management System Training Guideline

4.1.5 TPT SHEQ/RS GDL 001
Guideline to Develop Specifications for New Projects and Modifications

4.1.6 TPT SHEQ-RS PRO 001
Risk Assessment Procedure

4.1.7 TPT SHEQ-RS PRO 002
Objectives and Management Programs

4.1.8 TPT SHEQ-RS PRO 003
Management of SHEQ-RS Legal Register

4.1.9 TPT SHEQ-RS PRO 004
Resources, Roles, Responsibility and Authority

4.1.10 TPT SHEQ-RS PRO 005
Communication Procedure

4.1.11 TPT SHEQ-RS PRO 006
First Aid Box Management Procedure

4.1.12 TPT SHEQ-RS PRO 007
Emergency Procedure

4.1.13 TPT SHEQ-RS PRO 008
Internal Audit Procedure
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### 4.2 Applicable Documents:

5 STANDARD REQUIREMENTS:

5.1 INTEGRATION OF SAFETY, HEALTH, ENVIRONMENT, QUALITY AND RAILWAY SAFETY MANAGEMENT SYSTEMS:


5.1.2 The document to follow i.e. TPT SHEQ/RS STD 001 will encompass the requirements of OHSAS 18001: 2011, ISO 14001: 2004, ISO 9001: 2008, SANS 3000-1: 2007 and NOSA CMB 253N.


5.1.4 For the purpose of this SHEQ/RS Management System the term “product” can also mean a “service”.

5.2 GENERAL REQUIREMENTS:

5.2.1 TPT shall establish, document, implement and maintain a SHEQ/RS Management System and continually improve its effectiveness in accordance with the requirements of this Standard (TPT SHEQ/RS STD 001).

5.2.2 TPT shall:

5.2.2.1 Identify the processes needed for the SHEQ/RS Management System and their application throughout TPT,

5.2.2.2 Determine the sequence and interaction of these processes,

5.2.2.3 Define the interfaces between TPT, TNPA and TFR.

5.2.2.4 Determine criteria and methods needed to ensure that both the operation and control of these processes are effective,

5.2.2.5 Ensure the availability of resources and information necessary to support the operation and monitoring of these processes,

5.2.2.6 Monitor, measure and analyse these processes, and

5.2.2.7 Implement actions necessary to achieve planned results and continual improvement of these processes and prevention of pollution.
5.2.2.8 The nature, scale and SHEQ/RS impacts of the terminal’s activities and operations are appropriate.

5.2.2.9 Communicate to all employees and persons working for or on behalf of them with the intent that they are made aware of their individual obligations.

5.2.2.10 Make this information available to interested and affected parties.

5.2.2.11 Provide the framework for setting and reviewing SHEQ/RS objectives and targets.

5.2.2.12 Periodically carry out reviews to ensure it remains relevant and appropriate.

5.2.3 TPT shall commit to at least comply with current applicable legislation of the Safety, Health, Environmental, Quality and Railway Safety requirements to which it subscribes.

5.2.4 These processes shall be managed by TPT in accordance with the requirements of this Standard (TPT SHEQ/RS STD 001).

5.2.5 TPT may outsource any process that affects operation conformity with requirements; TPT shall ensure control over such processes. Control of such outsourced processes shall be identified within the SHEQ/RS Management System.

5.2.6 The TPT National SHEQ Policy is applicable and binding and TPT’s SHEQ/RS Management System must satisfy the principles and objectives of the National SHEQ Policy.

5.3 DOCUMENTATION REQUIREMENTS:

5.3.1 General:

5.3.1.1 The SHEQ/RS documentation shall include

5.3.1.1.1 Documented statements of a SHEQ Policy and TPT SHEQ/RS objectives, targets and programmes,

5.3.1.1.2 A quality manual (TPT SHEQ- RS STD 001)

5.3.1.1.3 Documented procedures.

5.3.1.1.4 Documents required by TPT to ensure the effective planning, operation and control of its processes that relate to its significant SHEQ/RS Aspects, and Impacts

5.3.1.1.5 Records required by this Standard.

5.3.1.1.6 Description of the main elements of the SHEQ/RS Management System and their interaction, and reference to related documents.

5.3.1.1.7 Documents, including records, required by this Standard (TPT SHEQ/RS STD 001).

5.3.1.1.8 Documented Work Instructions

5.3.2 Quality Manual

5.3.2.1 The SHEQ/RS quality manual (Management Standard TPT SHEQ- RS STD 001) shall include:
5.3.2.1.1 Scope of the quality management system, including details of and any
justification of any exclusions
5.3.2.1.2 Documented procedures on the established quality management
system
5.3.2.1.3 A description of the processes between the process of the
management system (insert the interaction number)
5.3.3 Control of documents:

5.3.3.1 Documents required by the SHEQ/RS MS shall be controlled.

5.3.3.2 Records are a special type of document and shall be controlled according to the requirements of the Documentation Standard (TPT SHEQ/RS STD 002).

5.3.3.3 A documented procedure shall be established, implemented and maintained to define the controls needed:

5.3.3.3.1 To approve documents for adequacy prior to issue,
5.3.3.3.2 To review and update as necessary and re-approve documents,
5.3.3.3.3 To ensure that changes and the current revision status of documents are identified,
5.3.3.3.4 To ensure that the relevant versions of applicable documents are available at points of use,
5.3.3.3.5 To ensure that documents remain legible and readily identifiable,
5.3.3.3.6 To ensure that documents of external origin are identified and their distribution controlled, and
5.3.3.3.7 Prevent the unintended use of obsolete documents and apply suitable identification to them if they are retained for any purpose.
5.3.3.3.8 Archival documents and data retained for legal and knowledge preservation purposes or both are suitably identified.

5.3.3.4 TPT shall establish and maintain information in a suitable medium such as paper and/or electronic form; to:

5.3.3.4.1 Describe the core elements of the SHEQ/RS Management System and their interaction; and
5.3.3.4.2 Provide direction to related documentation.

5.3.4 Control of records:

5.3.4.1 Records shall be established and maintained to provide evidence of conformity to requirements and of the effective operation of the SHEQ/RS Management System.

5.3.4.2 A documented procedure shall establish, implement and maintain procedure(s) for the identification, storage, protection (against damage, deterioration or loss), retrieval, retention and disposal of records as well as the results of audits and reviews.

5.3.4.3 The records shall be legible, identifiable and traceable to the activities involved.
6 MANAGEMENT RESPONSIBILITY:

6.1 MANAGEMENT COMMITMENT:

6.1.1 EXCO shall provide evidence of its commitment to the development and implementation of the SHEQ/RS Management System and continually improving its effectiveness by:

6.1.1.1 Communicating to TPT employees, staff and/or contractors the importance of meeting customer as well as statutory and regulatory requirements,

6.1.1.2 Contribute to the establishment of the SHEQ Policy,

6.1.1.3 Ensuring that SHEQ/RS objectives, targets and programmes are established and communicated monitored for compliance,

6.1.1.4 Conducting management reviews, and

6.1.1.5 Ensuring the availability of resources

6.2 CUSTOMER FOCUS:

6.2.1 EXCO shall ensure that customer requirements are determined and are met with the aim of enhancing customer satisfaction.

6.3 SHEQ POLICY

6.3.1 Head Office shall define and authorise the organisations SHEQ Policy and ensure that within the defined scope of its SHEQ/RS Management System it:

6.3.1.1 Is appropriate to the nature and scale of the organisation's SHEQ/RS risks and impacts

6.3.1.2 Includes commitment to prevention of injury and ill health and continual improvement in SHEQ/RS management and performance

6.3.1.3 Includes commitment to at least comply with applicable legal requirements and with other requirements to which the organisation subscribes that relate to its SHEQ/RS hazards and aspects

6.3.1.4 Provides the framework for setting and reviewing SHEQ/RS objectives

6.3.1.5 Is documented, implemented and maintained

6.3.1.6 Is communicated to all persons working under the control of the organisation with the intent that they are made aware of their individual SHEQ/RS obligations

6.3.1.7 Is available to interested parties, and

6.3.1.8 Is reviewed periodically to ensure that it remains relevant and appropriate to the organisation.
6.4 PLANNING

6.4.1 SHEQ/RS ASPECTS, HAZARD IDENTIFICATION, RISK ASSESSMENT AND DETERMINING CONTROL:

6.4.1.1 TPT shall establish, implement and maintain a procedure(s):

6.4.1.1.1 To identify the SHEQ/RS aspects of all its activities, operations and processes as defined within the scope of this SHEQ/RS Management System that it can control, or be expected to have an influence on, taking into account planned or new developments, or new or modified activities, operations and processes.

6.4.1.1.2 To conduct SHEQ/RS Risk Assessments on all identified aspects, and the significance of these risks shall be evaluated and ranked to determine different levels of significance.

6.4.1.2 TPT shall document this information and keep it up-to-date.

6.4.1.3 TPT shall establish and maintain procedures for the ongoing identification of hazards, the assessment of risks and the implementation of necessary control measures. These shall include:

6.4.1.3.1 Routine and non-routine activities.

6.4.1.3.2 Activities of all personnel having access to the workplace.

6.4.1.3.3 Human behaviour, capabilities and other human factors.

6.4.1.3.4 Identify hazards originating outside the workplace capable of adversely affecting the health and safety of persons under the control of the organisation within the workplace.

6.4.1.3.5 Hazards created in the vicinity of the workplace by work-related activities under the control of the organisation.

6.4.1.3.6 Infrastructure, equipment and materials at the workplace, whether provided by the organisation or others.

6.4.1.3.7 Changes or proposed changes in the organisation, its activities or materials.

6.4.1.3.8 Modifications to the SHEQ/RS Management system, including temporal changes and their impacts on operations, processes and activities.

6.4.1.3.9 Any applicable legal obligations relating to risk assessment and implementation of necessary controls.

6.4.1.3.10 Design of work areas, processes, installations, machinery/equipment, operating procedures and work organisation, including their adaptation to human capabilities.

6.4.1.4 TPT shall ensure that the results of these assessments and the effects of these controls are considered when setting its SHEQ/RS Objectives.

6.4.1.5 TPT shall document and keep this information up to date.
6.4.1.6 The TPT methodology for environmental aspect, hazard identification and risk assessment shall:

6.4.1.6.1 Be defined with respect to its scope, nature and timing to ensure it is pro-active rather than reactive;

6.4.1.6.2 Provide for the classification of risks and identification of those that are to be eliminated or controlled

6.4.1.6.3 Be consistent with operating experience and capabilities of risk control measures employed;

6.4.1.6.4 Provide input into the determination of facility requirements, identification of training needs and/or development of operational controls;

6.4.1.6.5 Provide for the monitoring of required actions to ensure both effectiveness and timeliness of their implementation.

6.4.2 LEGAL AND OTHER REQUIREMENTS:

6.4.2.1 TPT shall establish, implement and maintain a procedure(s)

6.4.2.1.1 To identify and have access to the applicable legal requirements and other requirements to which TPT subscribes, related to its SHEQ/RS aspects.

6.4.2.1.2 To determine how these requirements apply to its SHEQ/RS aspects.

6.4.2.2 TPT shall link these requirements to the identified aspects.

6.4.2.3 TPT shall keep this information up-to-date and communicate relevant information to employees and other relevant and interested parties.

6.4.2.4 TPT shall ensure that these applicable legal requirements and other requirements to which TPT subscribes are taken into account in establishing, implementing and maintaining its SHEQ/RS Management System.

6.4.3 SHEQ/RS Objectives, Targets and Programme(s):

6.4.3.1 TPT shall establish, implement and maintain documented SHEQ/RS objectives, targets and programmes at relevant functions and levels within TPT.

6.4.3.2 The SHEQ/RS objectives, targets and programmes shall be measurable where practicable and consistent with the SHEQ policy, including commitment to prevention of pollution, to compliance with applicable legal requirements and with other requirements to which TPT subscribes, and to continual improvement.

6.4.3.3 When establishing and reviewing its objectives, targets and programmes, TPT shall take into account the legal and SHEQ/RS requirements to which it subscribes, and its significant SHEQ/RS aspects.
6.4.3.4 TPT shall also consider its technological options, its financial, operational and business requirements and the views of interested parties.

6.4.3.5 TPT shall establish, implement and maintain a SHEQ/RS Management programme(s) for achieving its objectives, targets and programmes. This Programme(s) shall include:

6.4.3.5.1 Designation of responsibility for achieving objectives, targets and programmes at relevant functions and levels of the organisation, and

6.4.3.5.2 The means and time-frames by which they are to be achieved.

6.4.3.6 The SHEQ/RS Management programme(s) shall be reviewed at regular and planned intervals.

6.4.3.7 Where necessary the SHEQ/RS management programme (s) shall be amended to address changes to the activities, products, services or operating conditions of the organisation.

6.4.4 SHEQ/RS Management System planning:

6.4.4.1 EXCO shall ensure that:

6.4.4.1.1 The planning of the SHEQ/RS MS is carried out in order to meet the requirements given in 5.2, as well as the SHEQ/RS objectives, targets and programmes and

6.4.4.1.2 The integrity of the SHEQ/RS MS is maintained when changes to the SHEQ/RS MS are planned and implemented.

6.5 RESPONSIBILITY, AUTHORITY AND COMMUNICATION:

6.5.1 Responsibility and authority:

6.5.1.1 EXCO shall ensure that responsibilities and authorities are defined and communicated within TPT.

6.5.2 Management Representative, Resources, Roles, Responsibilities and Authority:

6.5.2.1 The TM or assistant TM shall appoint a member of management who, irrespective of other responsibilities, shall have responsibility and authority that includes:

6.5.2.1.1 Ensuring the processes required for the SHEQ/RS Management System are established, implemented and maintained,

6.5.2.1.2 Reporting to EXCO on the performance of the SHEQ/RS Management System for review including recommendations for improvement, and

6.5.2.1.3 Ensuring the promotion of awareness of customer requirements throughout TPT.
6.5.2.1.4 The identity of the top management appointee shall be made available to all persons working under the control of the organisation.

6.5.2.2 EXCO shall ensure the availability of resources essential to establish, implement, maintain and improve SHEQ/RS elements. Resources include: human resources and specialised skills, organisational infrastructure, technology and financial resources.

6.5.2.3 Roles, responsibilities and authorities shall be defined, documented and communicated in order to facilitate effective SHEQ/RS management. This includes the amendment of all SHEQ/RS appointment letters/job descriptions to include their responsibilities regarding rail safety and the other requirements as set out in this standard.

6.5.2.4 The HR department of the Terminal must ensure that a list of the personnel positions that are safety-related and safety-critical are defined and that systems and procedures are put in place to ensure that employees engage in such work.

6.5.2.5 All systems and procedures must ensure all employees/contractors have:

6.5.2.5.1 The physical and mental fitness and competence, including the communication and technical skills, experience and knowledge to do the work, and

6.5.2.5.2 Is qualified and authorised to do the work safely and effectively.

6.5.2.6 All those with management responsibility shall demonstrate their commitment to the continual improvement of the SHEQ/RS Management System.

6.5.2.7 The organisation shall ensure that all persons in the workplace take responsibility for aspects of SHEQ/RS over which they have control, including adherence to the organisation’s applicable SHEQ/RS requirements.

6.5.3 Communication:

6.5.3.1 EXCO shall ensure that appropriate communication processes are established within TPT and that communication takes place regarding the effectiveness of the SHEQ/RS Management System.

6.5.3.2 With regard to TPT’s SHEQ/RS aspects and the SHEQ/RS Management System, TPT shall establish, implement and maintain a procedure(s) for:

6.5.3.2.1 Internal communication among the various levels and functions of TPT.

6.5.3.2.2 Communication with contractors and other visitors to the workplace.

6.5.3.2.3 Receiving, documenting and responding to relevant communication from external interested parties.
6.5.3.3 TPT shall decide whether to communicate externally about its significant SHEQ/RS aspects, and shall document its decision.

6.5.3.4 If the decision is to communicate, TPT shall establish and implement a method(s) for this external communication.

6.5.4 **Safety and Health specific communication and Consultation with employees:**

6.5.4.1 The organisation shall have procedures for ensuring that pertinent Occupational Health and Safety, environmental aspects and Railway Safety information is communicated to and from employees and other interested and affected parties.

6.5.4.2 Employee involvement and consultation arrangements shall be documented and interested parties informed.

6.5.4.3 Employees shall be:

6.5.4.3.1 Involved in the development and review of policies and procedures to manage risks;

6.5.4.3.2 Involved in hazard identification, risk assessment and determination of controls

6.5.4.3.3 Consulted where there are any changes that affect workplace health and safety and environment;

6.5.4.3.4 Represented on health, safety and environmental matters; and

6.5.4.3.5 Informed as to who is their employee Occupational, Health and safety representatives and specified management nominee.

6.5.4.3.6 Consultation with contractors where there are changes that affect SHEQ/RS matters

6.5.5 **Interface Management:**

6.5.5.1 It is the responsibility of all operators to ensure that their network meets with another operator and which part(s) of their network is/are used is/are to be used by more than one operator.

6.5.5.2 It is the responsibility of all operators involved in the management of interfaces to prepare, implement and maintain the necessary systems, procedures and processes that provide for safe railway operations in accordance with the SHEQ/RS aspects as laid out in this standard.

6.5.5.3 It is the responsibility of the TPT terminals to manage the interface and zones of responsibility between operating divisions.
6.6 MANAGEMENT REVIEW:

5.6.1 General:

6.6.1.1 EXCO or a specific convened Management Review meeting shall review TPT’s SHEQ/RS Management System, at planned intervals according to each SANS standard, to ensure its continuing suitability, adequacy and effectiveness.

6.6.1.2 The management review process shall ensure that the necessary information is collected to allow management to carry out this evaluation.

6.6.1.3 This review shall include assessing opportunities for improvement and the need for changes to the SHEQ/RS Management System, including the SHEQ policy and SHEQ/RS objectives.

6.6.1.4 Reviews shall be documented and Records from management reviews shall be maintained.

6.6.2 Review Input:

6.6.2.1 The input to management reviews shall include information on:

6.6.2.1.1 Results of audits and evaluation of compliance with legal and SHEQ/RS requirements,

6.6.2.1.2 Customer feedback,

6.6.2.1.3 Communication(s) from external interested parties, including complaints.

6.6.2.1.4 SHEQ/RS performance of the organisation

6.6.2.1.5 Process performance and operation conformity,

6.6.2.1.6 Status of preventative and corrective actions,

6.6.2.1.7 Follow-up actions from previous management reviews,

6.6.2.1.8 Changes that could affect the SHEQ/RS Management System,

6.6.2.1.9 The extent to which objectives, targets and programmes have been met, and

6.6.2.1.10 Changing circumstances, including developments in legal and other requirements related to its SHEQ/RS aspects.

6.6.2.1.11 Recommendations for improvement.

6.6.3 Review Output:

6.6.3.1 The output from the management review shall include any decisions and actions related to:

6.6.3.1.1 SHEQ/RS performance
6.6.3.1.2 Improvement of the effectiveness of the SHEQ/RS Management System and its processes,
6.6.3.1.3 Improvement of operation related to customer requirements,
6.6.3.1.4 Resource needs, and
6.6.3.1.5 Any decisions and actions related to possible changes to the TPT SHEQ/RS Policy, objectives, targets and other elements of the SHEQ/RS Management System, consistent with the commitment to continual improvement.

6.7 RESOURCE MANAGEMENT:

6.7.1 Provision of resources:

6.7.1.1 TPT shall determine and provide the resources needed:

6.7.1.1.1 To implement and maintain the SHEQ/RS Management System and continually improve its effectiveness, and
6.7.1.1.2 To enhance customer satisfaction by meeting customer requirements.
6.7.1.1.3 Roles, responsibilities and authorities shall be defined, documented and communicated in order to facilitate effective SHEQ/RS management in TPT.

6.7.2 Human resources:

6.7.2.1 General:

6.7.2.1.1 Personnel performing work affecting operations with SHEQ/RS aspects shall be competent on the basis of appropriate education, training, skills and experience.

6.7.2.2 Competence, awareness and training:

6.7.2.2.1 TPT shall:

6.7.2.2.1.1 Determine the necessary competence for personnel performing work affecting safety, health, operations, quality and/or environmental impacts and risks of their activities, processes and/or operations,
6.7.2.2.1.2 Provide training or take other actions to satisfy these needs,
6.7.2.2.1.3 Evaluate the effectiveness of the actions taken,
6.7.2.2.1.4 Ensure that its personnel are aware of the relevance and importance of their activities and how they contribute to the achievement of the SHEQ/RS objectives,
6.7.2.1.5 Maintain appropriate records of education, training, skills and experience.

6.7.2.1.6 Ensure that any person(s) performing tasks for it or on its behalf that have the potential to cause a significant SHEQ/RS impact(s) identified by TPT are competent on the basis of appropriate education, training or experience.

6.7.2.1.7 Identify all SHEQ/RS training needs and ensure that all persons receive training appropriate to the SHEQ/RS risks they face.

6.7.2.2 TPT shall establish, implement and maintain a procedure(s) to make persons working for it or on behalf of it aware of:

6.7.2.2.1 The importance of conformity to the TPT SHEQ Policy and procedures, and with the requirements of the SHEQ/RS Management System.

6.7.2.2.2 The significant impacts, actual or potential, of their work activities and the benefits of improved personal performance.

6.7.2.2.3 Their roles and responsibilities in achieving conformity with the requirements of the SHEQ/RS Management System including emergency preparedness and response requirements.

6.7.2.2.4 The potential consequences of deviating from specified operating procedures.

6.7.2.3 The training procedures shall take into account differing levels of:

6.7.2.3.1 Responsibility, ability and literacy; and

6.7.2.3.2 Risk/Impact

6.7.3 Infrastructure:

6.7.3.1 TPT shall determine, provide and maintain the infrastructure required to achieve conformity to the SHEQ/RS requirements.

6.7.3.2 Infrastructure includes, as applicable:

6.7.3.2.1 Buildings, workspaces and associated utilities,

6.7.3.2.2 Process equipment (both hardware and software), and

6.7.3.2.3 Supporting operations (such as transport or communication).

6.7.3.2.4 Rail and associated infrastructure.

6.7.4 Work Environment:
6.7.4.1 TPT shall determine and manage the work environment required to achieve conformity to operation requirements.

6.8 OPERATION REALISATION:

6.8.1 Planning of operation realisation:

6.8.1.1 TPT shall plan and develop the processes required for operation realisation. Planning of operation realisation shall be consistent with the requirements of the other processes of the SHEQ/RS Management System.

6.8.1.2 In planning operation realisation, TPT shall determine the following, as appropriate:

6.8.1.2.1 SHEQ/RS objectives and requirements for the operation;

6.8.1.2.2 The need to establish processes, documents and provide resources specific to the operation;

6.8.1.2.3 Required verification, validation, monitoring, inspection and test activities specific to the operation and the criteria for operation acceptance;

6.8.1.2.4 Records required to provide evidence that the realisation processes and resulting operation meet requirements.

6.8.1.2.5 The output of this planning shall be in a form suitable for TPT’s method of operations.

6.8.1.2.6 TPT shall identify those operations and activities that are associated with the identified SHEQ/RS aspects consistent with the TPT SHEQ/RS Policy, objectives, targets and programmes where control measures may need to be applied.

6.8.1.2.7 TPT shall plan these activities, including maintenance, in order to ensure that they are carried out under specified conditions by:

6.8.1.2.7.1 Establishing, implementing and maintaining a documented procedure(s) to control situations where their absence could lead to deviation from the TPT SHEQ Policy and the objectives and targets.

6.8.1.2.7.2 Stipulating operating criteria in the procedure(s).

6.8.1.2.7.3 Establishing, implementing and maintaining procedures related to the identified significant SHEQ/RS aspects of equipment, services and operations purchased by TPT, and communicating the relevant procedures and requirements to suppliers and contractors.

6.8.1.2.7.4 Establishing and maintaining procedures for the design of workplace, process, installations, machinery, operating procedures and work organisation. Including
their adaptation to human capabilities, in order to eliminate or reduce SHEQ/RS risks at their source.

6.8.2 Customer-related processes:

6.8.2.1 Determination of requirements related to operations:

6.8.2.1.1 TPT shall determine:

6.8.2.1.1.1 Requirements specified by the customer, including the requirements for delivery and post-delivery operations,

6.8.2.1.1.2 Requirements not stated by the customer but necessary for specified or intended use, where known,

6.8.2.1.1.3 Statutory and regulatory requirements related to the operation,

6.8.2.1.1.4 Any additional requirements determined by TPT,

6.8.2.1.1.5 That customer requirement(s) is determined and is met with the aim of enhancing customer satisfaction

6.8.2.2 Review of requirements related to operations:

6.8.2.2.1 TPT shall review the requirements related to the operation.

6.8.2.2.2 This review shall be conducted prior to TPT's commitment to supply an operation to the customer (e.g. submission of tenders, acceptance of contracts of orders, acceptance of changes to contracts or orders) and shall ensure that:

6.8.2.2.2.1 Operational requirements are defined,

6.8.2.2.2.2 Contract or order requirements differing from those previously expressed are resolved, and

6.8.2.2.2.3 TPT has the ability to meet the defined requirements.

6.8.2.2.3 Records of the results of the review and actions arising from the review shall be maintained.

6.8.2.2.4 Where the customer provides no documented statement of requirements, the customer requirements shall be confirmed by TPT before acceptance.

6.8.2.2.5 Where operation requirements are changed, TPT shall ensure that relevant documents are amended and that relevant personnel are made aware of the changed requirements.

6.8.2.3 Customer communication:

6.8.2.3.1 TPT shall determine and implement effective arrangements for communicating with customers in relation to:

6.8.2.3.1.1 Operational information,
6.9 PURCHASING:

6.9.1 Purchasing process:

6.9.1.1 TPT shall ensure that purchased operations/services conform to specified purchase requirements and the Procurement Procedures Manual.

6.9.1.2 The type and extent of control applied to the supplier and the purchased operation/service shall be dependent upon the effect of the purchased operation/service on subsequent operation realisation or the final operation.

6.9.1.3 TPT shall evaluate and select suppliers based on their ability to supply operational and/or the required service in accordance with TPT's requirements.

6.9.1.4 Criteria for selection, evaluation and re-evaluation shall be established.

6.9.1.5 Records of the results of evaluations and any necessary actions arising from the evaluation shall be maintained.

6.9.2 Purchasing information:

6.9.2.1 Purchasing information shall describe the operation/service to be purchased, including where appropriate:

6.9.2.1.1 Requirements for approval of operation/service, procedures, processes and equipment,

6.9.2.1.2 Requirements for qualifications of personnel, and

6.9.2.1.3 SHEQ/RS Management System requirements.

6.9.2.2 TPT shall ensure the adequacy of specified purchase requirements prior to their communication to the supplier.

6.9.3 Verification of purchased operation/service:

6.9.3.1 TPT shall establish and implement the inspection or other activities necessary for ensuring that purchased operation/service meets purchase requirements.

6.9.3.2 Where TPT or its customer intends to perform verification at the supplier's premises, TPT shall state the intended arrangements and method of operation/service release in the purchasing information.

6.10 Operation provision:
6.10.1 Control of operation/service provision:

6.10.1.1 TPT shall perform and carry out the operation/service provision under controlled conditions.

6.10.1.2 Controlled conditions shall include, as applicable:

- 6.10.1.2.1 The availability of information that describes the characteristics of the operation/service,
- 6.10.1.2.2 The availability of work instructions as necessary,
- 6.10.1.2.3 The use of suitable equipment,
- 6.10.1.2.4 The availability and use of monitoring and measuring devices,
- 6.10.1.2.5 The implementation of monitoring and measurement, and
- 6.10.1.2.6 The implementation of release, delivery and post-delivery activities.

6.10.2 Validation of processes for operation/service provision:

6.10.2.1 TPT shall validate any processes for operation/service provision where the resulting output cannot be verified by subsequent monitoring or measurement.

6.10.2.2 This includes any processes where deficiencies become apparent only after the operation/service is in use or the operation/service has been delivered.

6.10.2.3 Validation shall demonstrate the ability of these operations/services to achieve planned results.

6.10.2.4 TPT shall establish arrangements for these operations/services including, as applicable:

- 6.10.2.4.1 Defined criteria for review and approval of the operations/services,
- 6.10.2.4.2 Approval of equipment and qualification of personnel,
- 6.10.2.4.3 Use of specific methods and procedures,
- 6.10.2.4.4 Requirements for records (see 4.3.3), and
- 6.10.2.4.5 Revalidation.

6.10.3 Identification and traceability:

6.10.3.1 Where appropriate, TPT shall identify the operations/services by suitable means throughout operation realisation.

6.10.3.2 TPT shall identify the operation/service status with respect to monitoring and measurement requirements.

6.10.3.3 Where traceability is a requirement, TPT shall control and record the unique identification of the operation.

6.10.4 Customer property:
6.10.4.1 TPT shall exercise care with customer property while it is under TPT's control or being operated by TPT.

6.10.4.2 TPT shall identify, verify, protect and safeguard customer property provided for use or incorporation into the operation.

6.10.4.3 If any customer property is lost, damaged or otherwise found to be unsuitable for use, this shall be reported to the customer and records maintained.

6.10.5 Control of monitoring and measuring devices:

6.10.5.1 TPT shall determine the SHEQ/RS monitoring and measurement to be undertaken and the monitoring and measuring devices needed to prove evidence of conformity of operational SHEQ/RS to determine requirements.

6.10.5.2 TPT shall establish processes to ensure that SHEQ/RS monitoring and measurement can be carried out and are carried out in a manner that is consistent with the monitoring and measurement requirements.

6.10.5.3 Where necessary to ensure valid results, measuring equipment shall:

6.10.5.3.1 Be calibrated or verified at specified intervals, or prior to use, against measurement standards traceable to international or national measurements standards; where no such standards exist, the basis used for calibration or verification shall be recorded;

6.10.5.3.2 Be adjusted or re-adjusted as necessary;

6.10.5.3.3 Be identified to enable the calibration status to be determined;

6.10.5.3.4 Be safeguarded from adjustments that would invalidate the measurement result;

6.10.5.3.5 Be protected from damage and deterioration during handling, maintenance and storage.

6.10.5.4 In addition, TPT shall assess and record the validity of the previous SHEQ/RS measuring results when the equipment is found not to conform to requirements.

6.10.5.5 TPT shall take appropriate action on the equipment and any operation affected.

6.10.5.6 Records of the results of calibrations and verification shall be maintained.

6.10.5.7 When used in the SHEQ/RS monitoring and measurement of specified requirements, the ability of computer software to satisfy the intended application shall be confirmed.

6.10.5.8 This shall be undertaken prior to initial use and reconfirmed as necessary.

6.11 MEASUREMENT, ANALYSIS AND IMPROVEMENT:

6.12 General:
6.12.1 TPT shall plan and implement the monitoring, measurement, analysis and improvement processes needed:

6.12.1.1 To demonstrate conformity of the operations,
6.12.1.2 To ensure conformity of the SHEQ/RS Management System, and
6.12.1.3 To continually improve the effectiveness of the SHEQ/RS Management System.

6.12.2 This shall include determination of applicable methods, including statistical techniques, and the extent of their use.

6.13 MONITORING AND MEASUREMENT:

6.13.1 Customer satisfaction:

6.13.1.1 As one of the measurements of the performance of the SHEQ/RS Management System, TPT shall monitor information relating to operational SHEQ/RS perception as to whether TPT has met customer requirements.

6.13.1.2 The methods for obtaining and using information shall be determined.

6.13.2 Internal audit:

6.13.2.1 TPT shall conduct internal audits at planned intervals to determine whether the SHEQ/RS Management System:

6.13.2.1.1 Conforms to the planned arrangements to the requirements of this International Standard and to the SHEQ/RS Management System requirements established by TPT, and

6.13.2.1.2 Is effectively implemented and maintained.

6.13.2.1.3 Is effective in meeting the TPT National SHEQ Policy and Objectives.

6.13.2.2 TPT shall review the results of previous audits.

6.13.2.3 TPT shall provide information on the results of audits to management.

6.13.2.4 An audit programme shall be planned, established, implemented and maintained by TPT taking into consideration the status and importance of the processes and areas to be audited, as well as the results of previous audits.

6.13.2.5 Selection of auditors and conducting of audits shall ensure objectivity and impartiality of the audit process.

6.13.2.6 Auditor shall not audit their own work.

6.13.2.7 All areas shall be audited, including system documentation of the SHEQ/RS Management System.

6.13.2.8 The responsibilities and requirements for planning and conducting audit, and for reporting results and maintaining records shall be defined in a documented Audit procedure.
6.13.2.8.1 The audit criteria, scope, frequency and methods shall also be defined in this audit.

6.13.2.9 The management responsible for the area being audited shall ensure that actions are taken without undue delay to eliminate detected nonconformities and their causes.

6.13.2.10 Follow-up activities shall include the verification of the actions taken and the reporting of verification results.

6.13.3 Performance Monitoring and Measurement of Processes and Operations:

6.13.3.1 TPT shall apply suitable methods for monitoring and, where applicable, measurement of the SHEQ/RS Management System processes, services and operations.

6.13.3.2 These methods shall demonstrate the ability of the processes, services and operations to achieve planned results.

6.13.3.3 When planned results are not achieved, correction and preventative action shall be taken, as appropriate, to ensure conformity of the operation and/or process.

6.13.3.4 TPT shall establish, implement and maintain procedure(s) to monitor and measure, on a regular basis, the key characteristics of its operations and/or processes that can have a significant SHEQ/RS impact(s).

6.13.3.5 The procedure(s) shall include the documenting of information to monitor performance, applicable operational and/or process controls and conformity with the TPT’s SHEQ/RS objectives and targets.

6.13.3.6 TPT shall ensure that calibrated or verified monitoring and measurement equipment is used and maintained and shall retain associated records.

6.13.3.7 TPT shall monitor and measure the SHEQ/RS characteristics of the operation to verify that operational requirements have been met.

6.13.3.8 This shall be carried out at appropriate stages of the operation realisation process in accordance with the planned arrangements.

6.13.3.9 Evidence of conformity with the acceptance criteria shall be maintained.

6.13.3.10 Records shall indicate the person(s) authorising release of operations and/or processes (see 4.3.3).

6.13.3.11 Operation and/or process release and operation and/or process delivery shall not proceed until the planned arrangements have been satisfactorily completed, unless otherwise approved by a relevant authority and, where applicable, by the customer.
6.13.3.12 TPT shall establish and maintain parameters and procedures to monitor and measure SHEQ/RS performance on a regular basis. These procedures shall provide for:

6.13.3.12.1 Monitoring of the extent to which TPT SHEQ/RS objectives are met;
6.13.3.12.2 Monitoring the effectiveness of controls
6.13.3.12.3 Proactive measures of performance that monitor compliance with the SHEQ/RS Management programme, operational criteria and applicable legislation and regulatory requirements;
6.13.3.12.4 Reactive measures of performance to monitor accidents, near misses, incidents and other historical evidence of deficient SHEQ/RS performance;
6.13.3.12.5 Recording of data and results of monitoring and measurement sufficient to facilitate subsequent corrective and preventative action analysis.

6.13.3.13 Both qualitative and quantitative measures shall be considered as appropriate and shall be tailored to the needs of TPT.

6.13.3.14 If monitoring equipment is required for performance measurement and monitoring, it shall be calibrated and maintained and records of this process shall be retained.

6.13.4 Adequacy Audits of the RSMS:

6.13.4.1 Shall be implemented to ensure that the organisational elements, functions and procedures in the RSMS are in place and are adequate for purpose.

6.13.5 Evaluation of Compliance:

6.13.5.1 TPT shall:

6.13.5.1.1 Establish, implement and maintain a procedure(s) for periodically evaluating compliance with applicable legal requirements.
6.13.5.1.2 Keep records of the results of the periodic evaluations.
6.13.5.1.3 Evaluate compliance with other requirements to which it subscribes.
6.13.5.1.4 Keep records of the results of the periodic evaluations.
6.13.5.1.5 Provide combined assurance by maintaining a combined assurance matrix

6.14 CONTROL OF NONCONFORMING OPERATIONS, CORRECTIVE ACTION AND PREVENTIVE ACTION:
6.14.1 TPT shall ensure that operations which do not conform to operational requirements are identified and controlled to prevent its unintended use or delivery.

6.14.2 The controls and related responsibilities and authorities for dealing with nonconforming operations, accidents and incidents shall be defined in a documented procedure.

6.14.3 TPT shall deal with nonconforming operations in one or more of the following ways:
   6.14.3.1 By taking action to eliminate the detected nonconformity;
   6.14.3.2 By authorising its use, release or acceptance under concession by a relevant authority and, where applicable, by the customer;
   6.14.3.3 By taking action to preclude its original intended use or application.

6.14.4 Records of the nature of nonconformities and any subsequent actions taken, including concessions obtained, shall be maintained.

6.14.5 When a nonconforming operation is corrected it shall be subject to re-verification to demonstrate conformity to the requirements.

6.14.6 When a nonconforming operation is detected after delivery or use has started, TPT shall take action appropriate to the effects, or potential effects of the non-conformity.

6.14.7 TPT shall establish, implement and maintain a procedure(s) for dealing with actual and potential SHEQ/RS nonconformity (ies) and for taking corrective action and preventive action.

6.14.8 The procedure(s) shall define requirements for:
   6.14.8.1 Identifying and correcting SHEQ/RS nonconformity (ies) and taking action(s) to mitigate their SHEQ/RS impacts.
   6.14.8.2 Investigating SHEQ/RS nonconformity (ies), determining their cause(s) and taking actions in order to avoid their recurrence.
   6.14.8.3 Evaluating the need for action(s) to prevent SHEQ/RS nonconformity (ies) and implementing appropriate actions designed to avoid their occurrence.
   6.14.8.4 Recording the results of corrective action(s) and preventive action(s) taken.
   6.14.8.5 Reviewing the effectiveness of corrective action(s) and preventive action(s) taken.
   6.14.8.6 Confirmation of the effectiveness of corrective and preventative actions taken.

6.14.9 Actions taken shall be appropriate to the magnitude of the problems and commensurate with the SHEQ/RS impacts encountered.

6.14.10 TPT shall ensure that any necessary changes are made to the SHEQ/RS Management System documentation.

6.14.11 Where the corrective and preventative action identifies new or changed hazards/aspects or the need for new or changed controls, the procedure shall require that the proposed actions be taken through the risk assessment prior to implementation.
6.15 EMERGENCY, PREPAREDNESS AND RESPONSE:

6.15.1 TPT shall establish, implement and maintain a procedure(s) to identify potential emergency situations / Incidents that can have an impact(s) on the SHEQ/RS of operations, service and how it will respond to incidents and emergency situations.

6.15.2 TPT shall respond to actual emergency situations and incidents and prevent or mitigate associated adverse SHEQ/RS impacts.

6.15.3 TPT shall periodically review and, where necessary, revise its emergency preparedness and response procedure(s) / plans, in particular, after the occurrence of incident(s)/accident(s) or emergency situations.

6.15.4 TPT shall periodically test such procedures where practicable, throughout all activities / operations.

6.15.5 In planning the emergency evacuation plan, TPT shall take into account the needs of the relevant interested parties.

6.16 OPERATIONAL CONTROL

6.16.1 TPT shall determine those operations and activities that are associated with the identified hazards where the implementation of controls is necessary to manage the SHEQ/RS risks and impacts - these shall include the management of change.

6.16.2 For those operations and activities, TPT shall implement and maintain:

6.16.2.1 Operational controls as applicable to the organisation and its activities. The organisation shall integrate those operational controls into its overall SHEQ/RS MS

6.16.2.2 Controls related to purchased goods, equipment and services

6.16.2.3 Controls related to contractors and other visitors to the workplace

6.16.2.4 Documented procedures, to cover situations where their absence could lead to deviations from the SHEQ Policy and the objectives

6.16.2.5 Stipulated operating criteria where their absence could lead to deviations from the SHEQ Policy and objectives

6.17 ANALYSIS OF DATA:

6.17.1 TPT shall determine, collect and analyse appropriate data to demonstrate the suitability and effectiveness of the SHEQ/RS Management System and to evaluate where continual improvement of the effectiveness of the SHEQ/RS Management System can be made.

6.17.2 This shall include data generated as a result of SHEQ/RS monitoring and measurement and from other relevant sources.

6.17.3 The analysis of data shall provide information relating to:

6.17.3.1 Customer satisfaction

6.17.3.2 Occupational Hygiene Surveys
6.17.3.3 Conformity to operation requirements
6.17.3.4 Characteristics and trends of processes and operations including opportunities for preventative action,
6.17.3.5 Suppliers,
6.17.3.6 Resource usage (electricity, fuel, water consumption, paper usage and metal consumption), and
6.17.3.7 SHEQ/RS Impacts caused from operations such as dust, noise, contamination and marine impacts.
6.17.3.8 Carbon Emissions Management
6.17.3.9 Equipment reliability reports.
6.17.3.10 Incidents and the causes thereof.

6.18 IMPROVEMENT:

6.18.1 Continual improvement:

6.18.1.1 TPT shall continually improve the effectiveness of the SHEQ/RS Management System through the use of the TPT National SHEQ Policy, SHEQ/RS objectives, audit results, analysis of SHEQ/RS data, corrective and preventative actions and management review.

6.18.2 Historical Incidents:

6.18.2.1 TPT shall establish and maintain procedures for:

   6.18.2.1.1 Obtaining and communicating related experience on SHEQ/RS matters.

   6.18.2.1.2 Extracting historical incidents and related experiences from the SHEQ/RS database for non-conformances.

6.18.3 Corrective and Preventative Action:

   6.18.3.1.1 TPT shall take action to eliminate the cause of SHEQ/RS nonconformities in order to prevent recurrences.

   6.18.3.1.2 TPT shall ensure proactive identification of potential problems before they occur or become more severe. Preventative action must focus on identifying negative trends and addressing them before they become significant.

   6.18.3.1.3 Preventive actions shall also be considered prior to the introduction of any changes in the workplace, e.g. new products, processes, equipment, etc. Events that could trigger preventative action include monitoring and measurement results, trends analysis,
tracking of progress on achieving objectives, targets and programmes response to emergencies and near misses, etc.

6.18.3.1.4 Corrective and preventative actions shall be appropriate to the effects of the SHEQ/RS non-conformities encountered.

6.18.3.1.5 A documented procedure shall be established to define requirements for:

6.18.3.1.5.1 Reviewing SHEQ/RS nonconformities (including customer complaints, quality of operations, safety, health and environmental impacts),

6.18.3.1.5.2 Determining the causes of SHEQ/RS nonconformities,

6.18.3.1.5.3 Evaluating the need for action to ensure that SHEQ/RS nonconformities do not recur,

6.18.3.1.5.4 Determining and implementing action needed,

6.18.3.1.5.5 Records of the results of action taken (see 4.3.3), and;

6.18.3.1.5.6 Reviewing corrective and preventative action taken.

7 RECORDS:

7.1 N/A

8 ANNEXURES:

8.1 Annexure 1: Interrelationship process flow diagram.