Transnet Rail Infrastructure Manager

an Operating Division of **TRANSNET SOC LTD**

[Registration Number 1990/000900/30]

REQUEST FOR PROPOSAL (RFP)

FOR THE MAINTENANCE OF RAILWAY TRACK WITH ON-TRACK MECHANISED TURNOUT REPLACEMENT MACHINE FOR THE WESTERN REGION

RFP NUMBER	**: TFR/2026/10/0002/115033/RFP (TRIM)**
ISSUE DATE	**: 05 November 2026**
CLOSING DATE	**: 19 November 2026**
CLOSING TIME	**: 11h00 am**
TENDER VALIDITY PERIOD	**: 12 weeks from closing date**

Tenderers are required to ensure that electronic bid submissions are done at least a day before he closing date to prevent issues which they may encounter due to their internet speed, bandwidth or the size of the number of uploads they are submitting. Transnet will not be held liable for any challenges experienced by bidders as a result of the technical challenges. Please do not wait for the last hour to submit. A Tenderer can upload 30mb per upload and multiple uploads are permitted.

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T1.1 TENDER NOTICE AND INVITATION TO TENDER

SECTION 1: NOTICE TO TENDERERS

1. INVITATION TO TENDER

Responses to this Tender [hereinafter referred to as a **Tender**] are requested from persons, companies, close corporations or enterprises [hereinafter referred to as a Tenderer].

DESCRIPTION	**FOR THE MAINTENANCE OF RAILWAY TRACK WITH ON TRACK MECHANISED TRUNOUT REPLACEMENT MACHINE FOR THE WESTERN REGION**
TENDER DOWNLOADING	**This Tender may be downloaded directly from the National Treasury eTender Publication Portal at www.etenders.gov.za and the Transnet website at https://transnetetenders.azurewebsites.net (please use Google Chrome to access Transnet link) FREE OF CHARGE.**
COMPULSORY TENDER CLARIFICATION MEETING	**No Compulsory Tender Clarification Meeting**
CLOSING DATE	**11:00am on 19 November 2026** Tenderers must ensure that tenders are uploaded timeously onto the system. **If a tender is late, it will not be accepted for consideration.**

2. TENDER SUBMISSION

Transnet has implemented a new electronic tender submission system, the e-Tender Submission Portal, in line with the overall Transnet digitalization strategy where suppliers can view advertised tenders, register their information, log their intent to respond to bids and upload their bid proposals/responses on to the system.

a) The Transnet e-Tender Submission Portal can be accessed as follows:

Log on to the Transnet eTenders management platform website (https://transnetetenders.azurewebsites.net);

- Click on "ADVERTISED TENDERS" to view advertised tenders;
- Click on "SIGN IN/REGISTER – for bidder to register their information (must fill in all mandatory information);

- Click on "SIGN IN/REGISTER" - to sign in if already registered;
- Toggle (click to switch) the "Log an Intent" button to submit a bid;
- Submit bid documents by uploading them into the system against each tender selected.
- **Tenderers are required to ensure that electronic bid submissions are done at least a day before the closing date to prevent issues which they may encounter due to their internet speed, bandwidth or the size of the number of uploads they are submitting. Transnet will not be held liable for any challenges experienced by bidders as a result of the technical challenges. Please do not wait for the last hour to submit. A Tenderer can upload 30mb per upload and multiple uploads are permitted.**

b) The tender offers to this tender will be opened as soon as possible after the closing date and time. Transnet shall not, at the opening of tenders, disclose to any other company any confidential details pertaining to the Tender Offers / information received, i.e. pricing, delivery, etc. The names and locations of the Tenderers will be divulged to other Tenderers upon request.

c) Submissions must not contain documents relating to any Tender other than that shown on the submission.

3. CONFIDENTIALITY

All information related to this RFP is to be treated with strict confidentiality. In this regard Tenderers are required to certify that they have acquainted themselves with the Non-Disclosure Agreement. All information related to a subsequent contract, both during and after completion thereof, will be treated with strict confidence. Should the need however arise to divulge any information gleaned from provision of the Works, which is either directly or indirectly related to Transnet's business, written approval to divulge such information must be obtained from Transnet.

4. DISCLAIMERS

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

4.1. Award the business to the highest scoring Tenderer/s unless objective criteria justify the award to another tenderer.

4.2. Not necessarily accept the lowest priced tender or an alternative Tender;

4.3. Go to the open market if the quoted rates (for award of work) are deemed unreasonable;

4.4. Should the Tenderers be awarded business on strength of information furnished by the Tenderer, which after conclusion of the contract is proved to have been incorrect, Transnet reserves the right to terminate the contract;

4.5. Request audited financial statements or other documentation for the purposes of a due diligence exercise;

4.6. Not accept any changes or purported changes by the Tenderer to the tender rates after the closing date;

4.7. Verify any information supplied by a Tenderer by submitting a tender, the Tenderer/s hereby irrevocably grant the necessary consent to the Transnet to do so;

4.8. Conduct the evaluation process in parallel. The evaluation of Tenderers at any given stage must therefore not be interpreted to mean that Tenderers have necessarily passed any previous stage(s);

4.9. 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.

4.10. Not be held liable if tenderers do not provide the correct contact details during the clarification session and do not receive the latest information regarding this RFP with the possible consequence of being disadvantaged or disqualified as a result thereof.

4.11. Transnet reserves the right to exclude any Tenderers from the tender 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, as amended. Tenderers are required to indicate in tender returnable on **T2.2-20** [**Breach of Law**] whether or not they have been found guilty of a serious breach of law during the past 5 [five] years.

4.12. Transnet reserves the right to perform a risk analysis on the preferred tenderer to ascertain if any of the following might present an unacceptable commercial risk to the employer*:*

- *unduly high or unduly low tendered rates or amounts in the tender offer;*
- *contract data of contract provided by the tenderer; or*
- *the contents of the tender returnables which are to be included in the contract.*

5. Transnet will not reimburse any Tenderer for any preparatory costs or other work performed in connection with this Tender, whether or not the Tenderer is awarded a contract.

6. NATIONAL TREASURY'S CENTRAL SUPPLIER DATABASE

Tenderer are required to self-register on National Treasury's Central Supplier Database (CSD) which has been established to centrally administer supplier information for all organs of state and facilitate the verification of certain key supplier information. The CSD can be accessed at https://secure.csd.gov.za/. Tenderer are required to provide the following to Transnet in order to enable it to verify information on the CSD:

Supplier Number…… and Unique registration reference number……(Tender Data)

Transnet urges its clients, suppliers and the general public

to report any fraud or corruption to

TIP-OFFS ANONYMOUS: 0800 003 056 OR Transnet@tip-offs.com

T1.2 TENDER DATA

The conditions of tender are the Standard Conditions of Tender as contained in Annex C of the CIDB Standard for Uniformity in Engineering and Construction Works Contracts. The Standard for Uniformity in Construction Procurement was first published in Board Notice 62 of 2004 in Government Gazette No 26427 of 9 June 2004. It was subsequently amended in Board Notice 67 of 2005 in Government Gazette No 28127 of 14 October 2005, Board Notice 93 of 2006 in Government Gazette No 29138 of 18 August 2006, Board Notice No 9 of 2008 in Government Gazette No 31823 of 30 January 2009, Board Notice 86 of 2010 in Government Gazette No 33239 of 28 May 2010, Board Notice 136 of 2015 in Government Gazette 38960 of 10 July 2015 and Board Notice 423 of 2019 in Government Gazette No 42622 of 8 August 2019.

This edition incorporates the amendments made in Board Notice 423 of 2019 in Government Gazette 42622 of 8 August 2019. (see www.cidb.org.za).

The Standard Conditions of Tender make several references to Tender data for detail that apply specifically to this tender. The 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.

Clause		**Data**
C.1.1	The *Employer* is	**Transnet SOC Ltd** **(Reg No. 1990/000900/30)**
C.1.2	The tender documents issued by the *Employer* comprise:	
	Part T: The Tender	
	Part T1: Tendering procedures	T1.1 Tender notice and invitation to tender T1.2 Tender data
	Part T2 : Returnable documents	T2.1 List of returnable documents T2.2 Returnable schedules
	Part C: The contract	
	Part C1: Agreements and contract data	C1.1 Form of offer and acceptance C1.2 Contract data (Part 1 & 2)
	Part C2: Pricing data	C2.1 Pricing instructions C2.2 Price List
	Part C3: Scope of work	C3.1 Service Information

	Part C4: Affected Property	C4.1 Affected Property
C.1.4	The Employer's agent is:	Contract Specialist
	Name:	Estelle van Wyk
	Address:	Transnet Park Building, 1st Floor, Robert Sobukwe Road, Bellville
	Tel No.	021 940 1901 / 084 764 1601
	E – mail	estelle.vanwyk@transnet.net

C.2.1 Only those tenderers who satisfy the following eligibility criteria are eligible to submit tenders:

1. Stage One - Eligibility in terms of the Construction Industry Development Board:

a) Only those tenderers who are registered with the CIDB, or are capable of being so prior to the evaluation of submissions, in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations, designation of **7 CE or higher** class of construction work, are eligible to have their tenders evaluated.

b) Joint Venture (JV)
Joint ventures are eligible to submit tenders subject to the following:
1. every member of the joint venture is registered with the CIDB;
2. the lead partner has a contractor grading designation of not lower than one level below the required class of construction works under consideration and possesses the required recognition status; and
3. the combined Contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a Contractor grading designation determined in accordance with the sum tendered for a **7 CE or higher class** of construction work or a value determined in accordance with Regulation 25(1B) or 25(7A) of the Construction Industry Development Regulations
4. The tenderer shall provide a certified copy of its signed joint venture agreement.

C.2.12 No alternative tender offers will be considered.

C.2.13.3 Each tender offer shall be in the **English Language.**

C.2.13.5 C2.15.1 The *Employer*'s details and identification details that are to be shown on each tender offer package are as follows:

	Identification details:	The tender documents must be uploaded with: ▪ Name of Tenderer: ▪ Contact person and details: ▪ The Tender Number: TFR/2026/10/0002/115033/RFP (TRIM) The Tender Description: FOR THE MAINTENANCE OF RAILWAY TRACK WITH ON-TRACK MECHANISED TURNOUT REPLACEMENT MACHINE FOR THE WESTERN REGION ***Employer*'s Agent: Estelle van Wyk**
C.2.13.9	Telephonic, telegraphic, facsimile or e-mailed tender offers will not be accepted.	
C.2.15	The closing time for submission of tender offers is: Time: **11:00am** on **19 November 2026** Location: The Transnet e-Tender Submission Portal: (https://transnetetenders.azurewebsites.net); **NO LATE TENDERS WILL BE ACCEPTED**	
C.2.16	The tender offer validity period is **12 weeks** after the closing date. Tenderers are to note that they may be requested to extend the validity period of their tender, on the same terms and conditions, if Transnet's internal evaluation and governance approval processes has not been finalised within the validity period.	
C.2.23	The tenderer is required to submit with his tender: 1. A valid Tax Clearance Certificate issued by the South African Revenue Services. **Tenderers also to provide Transnet with a TCS PIN to verify Tenderers compliance status**. 2. A **valid B-BBEE Certificate** from a Verification Agency accredited by the South African Accreditation System [**SANAS**], or a **sworn affidavit** confirming annual turnover and level of black ownership, in line with the code of good practice, together with the tender; 3. A valid CIDB / CRS no. in order to confirm the correct and required designated grading; 4. Proof of registration on the Central Supplier Database; 5. Letter of Good Standing with the Workmen's compensation fund by the tendering entity or separate Letters of Good Standing from all members of a newly constituted JV. **Note:** Refer to Section T2.1 for List of Returnable Documents	
C3.11	Only tenders that are Administratively and Substantively Responsive will be evaluated further in accordance with the 80/20 or 90/10 preference points systems as described in Preferential Procurement Regulations	

C3.11 80 where the financial value of one or more responsive tenders received have a value equal to or below R50 million, inclusive of all applicable taxes.
OR
90 where the financial value of one or more responsive tenders received have a value equal to or higher than R50 million, inclusive of all applicable taxes

Evaluation Criteria	Final Weighted Scores
Price	80/90
Preference (Specific goals) - Scorecard	20/10
TOTAL SCORE:	**100**

Up to 100 minus W_1 tender evaluation points will be awarded to tenderers who complete the preferencing schedule and who are found to be eligible for the preference claimed. **Should the evidence required for any of the Specific Goals applicable in this tender not be provided, a tenderer will score zero preference points for that particular "Specific Goal".**

In terms of Transnet Preferential Procurement Policy (TPPP) and Procurement Manuals, the following preference points must be awarded to a bidder who provides the relevant required evidence for claiming points.

Selected Preferences (Specific Goals)	Number of points allocated **(80/20)**
B-BBEE Level of contributor (1 or 2)	8
Entities that are at least 51% Black Owned	6
30% Black Women Owned entities	6
Non-Compliant and/or B-BBEE Level 3-8 contributors	0

OR

Selected Preferences (Specific Goals)	Number of points allocated **(90/10)**
B-BBEE Level of contributor (1 or 2)	4
Entities that are at least 51% Black Owned	3
30% Black Women Owned entities	3

Non-Compliant and/or B-BBEE Level 3-8 contributors	0

The following Table represents the evidence to be submitted for claiming preference points for applicable specific goals in a particular tender:

Specific Goals	Acceptable Evidence
B-BBEE	B-BBEE Certificate / Sworn- Affidavit / B-BBEE CIPC Certificate (in case of JV, a consolidated scorecard will be accepted) as per DTIC guideline
Entities that are at least 51% Black Owned	B-BBEE Certificate / Sworn-Affidavit / CIPC B-BBEE Certificate (in case of JV, a consolidate scorecard will be accept) as per DTIC guidelines
30% Black Women Owned entities	BBEE Certificate / Sworn- Affidavit / B-BBEE CIPC Certificate (in case of JV, a consolidated scorecard will be accepted) as per DTIC guideline

The maximum points for this bid are allocated as follows:

DISCRIPTION	POINTS
PRICE	80/90
B-BBEE STATUS LEVEL OF CONTRIBUTION Level 1 or 2 Entities that are at least 51% Black Owned Entities that are 30% Black Women Owned entities	20/10
Total points for Price and Preferences (Specific Goals) must not exceed	100

Note: Transnet 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.

C.3.13 Tender offers will only be accepted if:

1. 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;

2. the tenderer does not appear on Transnet's list for restricted tenderers and National Treasury's list of Tender Defaulters;

3. the tenderer has fully and properly completed the Compulsory 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.

4. Transnet reserves the right to award the tender to the tenderer who scores the highest number of points overall, unless there are **objective criteria** which will justify the award of the tender to another tenderer. Objective criteria include but are not limited to the outcome of a due diligence exercise to be conducted. The due diligence exercise may take the following factors into account inter alia;

   the tenderer:

   a) is not under restrictions, or has principals who are under restrictions, preventing participating in the employer's procurement,
   b) is not undergoing a process of being restricted by Transnet or other state institution that Transnet may be aware of,
   c) can, as necessary and in relation to the proposed contract, demonstrate that he or she possesses the professional and technical qualifications, professional and technical competence, financial resources, equipment and other physical facilities, managerial capability, reliability, experience and reputation, expertise and the personnel, to perform the contract,
   d) has the legal capacity to enter into the contract,
   e) is not insolvent, in receivership, under Business Rescue as provided for in chapter 6 of the Companies Act, 2008, bankrupt or being wound up, has his affairs administered by a court or a judicial officer, has suspended his business activities, or is subject to legal proceedings in respect of any of the foregoing,
   f) complies with the legal requirements, if any, stated in the tender data and
   g) is able, in the opinion of the employer to perform the contract free of conflicts of interest.

C.3.17 The number of paper copies of the signed contract to be provided by the Employer is 1 (one).

Annex C

Standard Conditions of Tender

Construction Industry Development Board

DEVELOPMENT THROUGH PARTNERSHIP

C.1 General

C.1.1 Actions

C.1.1.1 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 C.2 and C.3, timeously and with integrity, and behave equitably, honestly and transparently, comply with all legal obligations and not engage in anticompetitive practices.

C.1.1.2 The employer and the tenderer and all their agents and employees involved in the tender process shall avoid conflicts of interest and where a conflict of interest is perceived or known, declare any such conflict of interest, indicating the nature of such conflict. Tenderers shall declare any potential conflict of interest in their tender submissions. Employees, agents and advisors of the employer shall declare any conflict of interest to whoever is responsible for overseeing the procurement process at the start of any deliberations relating to the procurement process or as soon as they become aware of such conflict and abstain from any decisions where such conflict exists or recuse themselves from the procurement process, as appropriate.

Note: 1) *A conflict of interest may arise due to a conflict of roles which might provide an incentive for improper acts in some circumstances. A conflict of interest can create an appearance of impropriety that can undermine confidence in the ability of that person to act properly in his or her position even if no improper acts result.*

2) *Conflicts of interest in respect of those engaged in the procurement process include direct, indirect or family interests in the tender or outcome of the procurement process and any personal bias, inclination, obligation, allegiance or loyalty which would in any way affect any decisions taken.*

C.1.1.3 The employer shall not seek and a tenderer shall not submit a tender without having a firm intention and the capacity to proceed with the contract.

C.1.2 Tender Documents

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

C.1.3 Interpretation

C.1.3.1 The tender data and additional requirements contained in the tender schedules that are included in the returnable documents are deemed to be part of these conditions of tender.

C.1.3.2 These conditions of tender, the tender data and tender schedules which are required for tender evaluation purposes, shall form part of any contract arising from the invitation to tender.

C.1.3.3 For the purposes of these conditions of tender, the following definitions apply:

a) **conflict of interest** means any situation in which:

   i) someone in a position of trust has competing professional or personal interests which make it difficult to fulfill his or her duties impartially;
   ii) an individual or tenderer is in a position to exploit a professional or official capacity in some way for their personal or corporate benefit; or
   iii) incompatibility or contradictory interests exist between an employee and the tenderer who employs that employee.

b) **comparative offer** means the price after the factors of a non-firm price and all unconditional discounts it can be utilised to have been taken into consideration;

c) **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;

d) **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;

C.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 readily read, copied and recorded. Communications 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.

C.1.5 Cancellation and Re-Invitation of Tenders

C.1.5.1 An employer may, prior to the award of the tender, cancel a tender if-

a) due to changed circumstances, there is no longer a need for the engineering and construction works specified in the invitation;

b) funds are no longer available to cover the total envisaged expenditure; or

c) no acceptable tenders are received.

d) there is a material irregularity in the tender process.

C.1.5.2 The decision to cancel a tender invitation must be published in the same manner in which the original tender invitation was advertised

C.1.5.3 An employer may only with the prior approval of the relevant treasury cancel a tender invitation for the second time.

C.1.6 Procurement procedures

C.1.6.1 General

Unless otherwise stated in the tender data, a contract will, subject to C.3.13, be concluded with the tenderer who in terms of C.3.11 is the highest ranked or the tenderer scoring the highest number of tender evaluation points, as relevant, based on the tender submissions that are received at the closing time for tenders.

C.1.6.2 Competitive negotiation procedure

C.1.6.2.1 Where the tender data require that the competitive negotiation procedure is to be followed, tenderers shall submit tender offers in response to the proposed contract in the first round of submissions. Notwithstanding the requirements of C.3.4, the employer shall announce only the names of the tenderers who make a submission. The requirements of C.8 relating to the material deviations or qualifications which affect the competitive position of tenderers shall not apply.

C.1.6.2.2 All responsive tenderers or at least a minimum of not less than three responsive tenderers that are highest ranked in terms of the evaluation criteria stated in the tender data shall be invited to enter into competitive negotiations based on the principle of equal treatment, keeping confidential the proposed solutions and associated information.

Notwithstanding the provisions of C.2.17, the employer may request that tenders be clarified, specified and fine-tuned in order to improve a tenderer's competitive position provided that such clarification, specification, fine-tuning or additional information does not alter any fundamental aspects of the offers or impose substantial new requirements which restrict or distort competition or have a discriminatory effect.

C.1.6.2.3 At the conclusion of each round of negotiations, tenderers shall be invited by the employer to revise their tender offer based on the same evaluation criteria, with or without adjusted weightings. Tenderers shall be advised when they are to submit their best and final offer.

C.1.6.2.4 The contract shall be awarded in accordance with the provisions of C.3.11 and C.3.13 after tenderers have been requested to submit their best and final offer.

C.1.6.3 Proposal procedure using the two stage-system

C.1.6.3.1 Option 1

Tenderers shall in the first stage submit technical proposals and, if required, cost parameters around which a contract may be negotiated. The employer shall evaluate each responsive submission in terms of the method of evaluation stated in the tender data, and in the second stage negotiate a contract with the tenderer scoring the highest number of evaluation points and award the contract in terms of these conditions of tender.

C.1.6.3.2 Option 2

C.1.6.3.2.1 Tenderers shall submit in the first stage only technical proposals. The employer shall invite all responsive tenderers to submit tender offers in the second stage, following the issuing of procurement documents.

C.1.6.3.2.2 The employer shall evaluate tenders received during the second stage in terms of the method of evaluation stated in the tender data, and award the contract in terms of these conditions of tender.

C.2 Tenderer's obligations

C.2.1 Eligibility

C.2.1.1 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.

C.2.1.2 Notify the employer of any proposed material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used by the employer as the basis in a prior process to invite the tenderer to submit a tender offer and obtain the employer's written approval to do so prior to the closing time for tenders.

C.2.2 Cost of tendering

C.2.2.1 Accept that, unless otherwise stated in the tender data, 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 complies with requirements.

C.2.2.2 The cost of the tender documents charged by the employer shall be limited to the actual cost incurred by the employer for printing the documents. Employers must attempt to make available the tender documents on its website so as not to incur any costs pertaining to the printing of the tender documents.

C.2.3 Check documents

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

C.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.

C.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.

C.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.

C.2.7 Clarification meeting

Attend, where required, a clarification meeting 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.

C.2.8 Seek clarification

Request clarification of the tender documents, if necessary, by notifying the employer at least five (5) working days before the closing time stated in the tender data.

C.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.

C.2.10 Pricing the tender offer

C.2.10.1 Include in the rates, prices, and the tendered total of the prices (if any) all duties, taxes except Value Added Tax (VAT), and other levies payable by the successful tenderer, such duties, taxes and levies being those applicable fourteen (14) days before the closing time stated in the tender data.

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

C.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.

C.2.10.4 State the rates and prices in Rand unless instructed otherwise in the tender data. The conditions of contract identified in the contract data may provide for part payment in other currencies.

C.2.11 Alterations to documents

Do 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.

C.2.12 Alternative tender offers

C.2.12.1 Unless otherwise stated in the tender data, submit alternative tender offers only if a main tender offer, strictly in accordance with all the requirements of the tender documents, is also submitted as well as a schedule that compares the requirements of the tender documents with the alternative requirements that are proposed.

C.2.12.2 Accept that an alternative tender offer must be based only on the criteria stated in the tender data or criteria otherwise acceptable to the employer.

C.2.12.3 An alternative tender offer must only be considered if the main tender offer is the winning tender.

C.2.13 Submitting a tender offer

C.2.13.1 Submit one tender offer only, either as a single tendering entity or as a member in a joint venture to provide the whole of the works identified in the contract data and described in the scope of works, unless stated otherwise in the tender data.

C.2.13.2 Return all returnable documents to the employer after completing them in their entirety, either electronically (if they were issued in electronic format) or by writing legibly in non-erasable ink.

C.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.

C.2.13.4 Sign the original and all copies of the tender offer where required in terms of the tender data. The employer will hold all authorized signatories liable on behalf of the tenderer. Signatories for tenderers proposing to contract as joint ventures shall state which of the signatories is the lead partner whom the employer shall hold liable for the purpose of the tender offer.

C.2.13.5 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.

C.2.13.6 Where a two-envelope system is required in terms of the tender data, place and seal the returnable documents listed in the tender data in an envelope marked “financial proposal” and place the remaining returnable documents in an envelope marked “technical proposal”. Each envelope 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.

C.2.13.7 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.

C.2.13.8 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.

C.2.13.9 Accept that tender offers submitted by facsimile or e-mail will be rejected by the employer, unless stated otherwise in the tender data.

C.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 form required, may be regarded by the employer as non-responsive.

C.2.15 Closing time

C.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. Accept that proof of posting shall not be accepted as proof of delivery.

C.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.

C.2.16 Tender offer validity

C.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.

C.2.16.2 If requested by the employer, consider extending the validity period stated in the tender data for an agreed additional period with or without any conditions attached to such extension.

C.2.16.3 Accept that a tender submission that has been submitted to the employer may only be withdrawn or substituted by giving the employer's agent written notice before the closing time for tenders that a tender is to be withdrawn or substituted. If the validity period stated in C.2.16 lapses before the employer evaluating tender, the contractor reserves the right to review the price based on Consumer Price Index (CPI).

C.2.16.4 Where a tender submission is to be substituted, a tenderer must submit a substitute tender in accordance with the requirements of C.2.13 with the packages clearly marked as "SUBSTITUTE".

C.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 of tenderers or substance of the tender offer is sought, offered, or permitted.

Note: *Sub-clause C.2.17 does not preclude the negotiation of the final terms of the contract with a preferred tenderer following a competitive selection process, should the Employer elect to do so.*

C.2.18 Provide other material

C.2.18.1 Provide, on request by the employer, any other material 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.

C.2.18.2 Dispose of samples of materials provided for evaluation by the employer, where required.

C.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.

C.2.20 Submit securities, bonds and policies

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.

C.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.

C.2.22 Return of other tender documents

If so instructed by the employer, return all retained tender documents within twenty-eight (28) days after the expiry of the validity period stated in the tender data.

C.2.23 Certificates

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

C.3 The employer's undertakings

C.3.1 Respond to requests from the tenderer

C.3.1.1 Unless otherwise stated in the tender Data, respond to a request for clarification received up to five (5) working days before the tender closing time stated in the Tender Data and notify all tenderers who collected tender documents.

C.3.1.2 Consider any request to make a material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used to prequalify a tenderer to submit a tender offer in terms of a previous procurement process and deny any such request if as a consequence:

a) an individual firm, or a joint venture as a whole, or any individual member of the joint venture fails to meet any of the collective or individual qualifying requirements;
b) the new partners to a joint venture were not prequalified in the first instance, either as individual firms or as another joint venture; or
c) in the opinion of the Employer, acceptance of the material change would compromise the outcome of the prequalification process.

C.3.2 Issue Addenda

If necessary, issue addenda that may amend or amplify the tender documents to each tenderer during the period from the date that tender documents are available until three (3) working 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 collected tender documents.

C.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.

C.3.4 Opening of tender submissions

C.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 data. Tender submissions for which acceptable reasons for withdrawal have been submitted will not be opened.

C.3.4.2 Announce at the meeting held immediately after the opening of tender submissions, at a venue indicated in the tender data, the name of each tenderer whose tender offer is opened and, where applicable, the total of his prices, number of points claimed for its BBBEE status level and time for completion for the main tender offer only.

C.3.4.3 Make available the record outlined in C.3.4.2 to all interested persons upon request.

C.3.5 Two-envelope system

C.3.5.1 Where stated in the tender data that a two-envelope system is to be followed, open only the technical proposal of valid tenders in the presence of tenderers' agents who choose to attend at the time and place stated in the tender data and announce the name of each tenderer whose technical proposal is opened.

C.3.5.2 Evaluate functionality of the technical proposals offered by tenderers, then advise tenderers who remain in contention for the award of the contract of the time and place when the financial proposals will be opened. Open only the financial proposals of tenderers, who score in the functionality evaluation more than the minimum number of points for functionality stated in the tender data, and announce the score obtained for the technical proposals and the total price and any points claimed on BBBEE status level. Return unopened financial proposals to tenderers whose technical proposals failed to achieve the minimum number of points for functionality.

C.3.6 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.

C.3.7 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 a tenderer (and his tender offer) if it is established that he engaged in corrupt or fraudulent practices.

C.3.8 Test for responsiveness

C.3.8.1 Determine, after opening and before detailed evaluation, whether each tender offer properly received:

a) complies with the requirements of these Conditions of Tender,
b) has been properly and fully completed and signed, and
c) is responsive to the other requirements of the tender documents.

C.3.8.2 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) significantly 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.

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.

C.3.9 Arithmetical errors, omissions and discrepancies

C.3.9.1 Check responsive tenders for discrepancies between amounts in words and amounts in figures. Where there is a discrepancy between the amounts in figures and the amount in words, the amount in words shall govern.

C.3.9.2 Check the highest ranked tender or tenderer with the highest number of tender evaluation points after the evaluation of tender offers in accordance with C.3.11 for:

a) the gross misplacement of the decimal point in any unit rate;
b) omissions made in completing the pricing schedule or bills of quantities; or
c) arithmetic errors in:

(i) line item totals resulting from the product of a unit rate and a quantity in bills of quantities or schedules of prices; or
(ii) the summation of the prices.

C.3.9.3 Notify the tenderer of all errors or omissions that are identified in the tender offer and either confirm the tender offer as tendered or accept the corrected total of prices.

C.3.9.4 Where the tenderer elects to confirm the tender offer as tendered, correct the errors as follows:

a) If bills of quantities or pricing schedules 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.

b) 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.

C.3.10 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.

C.3.11 Evaluation of tender offers

The Standard Conditions of Tender standardize the procurement processes, methods and procedures from the time that tenders are invited to the time that a contract is awarded. They are generic in nature and are made project specific through choices that are made in developing the Tender Data associated with a specific project.

Conditions of tender are by definition the document that establishes a tenderer's obligations in submitting a tender and the employer's undertakings in soliciting and evaluating tender offers. Such conditions establish the rules from the time a tender is advertised to the time that a contract is awarded and require employers to conduct the process of offer and acceptance in terms of a set of standard procedures.

The CIDB Standard Conditions of Tender are based on a procurement system that satisfies the following system requirements:	
Requirement	**Qualitative interpretation of goal**
Fair	The process of offer and acceptance is conducted impartially without bias, providing simultaneous and timely access to participating parties to the same information.
Equitable	Terms and conditions for performing the work do not unfairly prejudice the interests of the parties.
Transparent	The only grounds for not awarding a contract to a tenderer who satisfies all requirements are restrictions from doing business with the employer, lack of capability or capacity, legal impediments and conflicts of interest.
Competitive	The system provides for appropriate levels of competition to ensure cost effective and best value outcomes.
Cost effective	The processes, procedures and methods are standardized with sufficient flexibility to attain best value outcomes in respect of quality, timing and price, and least resources to effectively manage and control procurement processes.

The activities associated with evaluating tender offers are as follows:

a) Open and record tender offers received
b) Determine whether or not tender offers are complete
c) Determine whether or not tender offers are responsive
d) Evaluate tender offers
e) Determine if there are any grounds for disqualification
f) Determine acceptability of preferred tenderer
g) Prepare a tender evaluation report
h) Confirm the recommendation contained in the tender evaluation report

C.3.11.1 General

The employer must appoint an evaluation panel of not less than three persons conversant with the proposed scope of works to evaluate each responsive tender offer using the tender evaluation methods and associated evaluation criteria and weightings that are specified in the tender data.

C.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.

C.3.13 Acceptance of tender offer

Accept the tender offer; if in the opinion of the employer, it does not present any risk and only if the tenderer:

a) is not under restrictions, or has principals who are under restrictions, preventing participating in the employer's procurement;
b) can, as necessary and in relation to the proposed contract, demonstrate that he or she possesses the professional and technical qualifications, professional and technical competence, financial resources, equipment and other physical facilities, managerial capability, reliability, experience and reputation, expertise and the personnel, to perform the contract;
c) has the legal capacity to enter into the contract;
d) is not; insolvent, in receivership, under Business Rescue as provided for in chapter 6 of the Companies Act No. 2008, bankrupt or being wound up, has his/her affairs administered by a court or a judicial officer, has suspended his/her business activities or is subject to legal proceedings in respect of any of the foregoing;
e) complies with the legal requirements, if any, stated in the tender data; and
f) is able, in the opinion of the employer, to perform the contract free of conflicts of interest.

C.3.14 Prepare contract documents

C.3.14.1 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:

a) addenda issued during the tender period,
b) inclusion of some of the returnable documents and
c) other revisions agreed between the employer and the successful tenderer.

C.3.14.2 Complete the schedule of deviations attached to the form of offer and acceptance, if any.

C.3.15 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.

C.3.16 Registration of the award

An employer must, within twenty-one (21) working days from the date on which a contractor's offer to perform a construction works contract is accepted in writing by the employer, register and publish the award on the cidb Register of Projects.

C.3.17 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.

C.3.18 Provide written reasons for actions taken

Provide upon request written reasons to tenderers for any action that is taken in applying these conditions of tender but withhold information which is not in the public interest to be divulged, which is considered to prejudice the legitimate commercial interests of tenderers or might prejudice fair competition between tenderers.

T2.1 List of Returnable Documents

NB: The listed documents below must be submitted with the RFP document. If the documents are not submitted the bidder will be non-responsive

2.1.1 T2.2-01 Agreement in terms of Protection of Personal Information Act, 4 of 2013 ("POPIA")

2.1.2 Returnable Schedules:

General:

T2.2-02 Health and Safety Management
T2.2-03 Health and Safety Questionnaire
T2.2-04 Health and Safety Cost Breakdown
T2.2-05 Risk Elements
T2.2-06 Environmental Management
T2.2-07 Authority to submit tender
T2.2-08 Project Organogram, Management & CV's
T2.2-09 Previous Experience
T2.2-10 Letter of Good Standing
T2.2-11 Schedule of proposed Subcontractors
T2.2-12 Affected Property Establishment Requirements
T2.2-13 Record of addenda to tender documents
T2.2-14 Availability of equipment and other resources
T2.2-15 Quality Management
T2.2-16 Machine Ownership

Agreement and Commitment by Tenderer:

T2.2-17: CIDB SFU ANNEX G Compulsory Enterprise Questionnaire. Valid proof of Respondent's compliance to Specific Goals evidence (Preference Claim Form) requirements stipulated in SBD6.1.
T2.2-18 Non-Disclosure Agreement
T2.2-19 RFP Declaration Form
T2.2-20 RFP – Breach of Law
T2.2-21 Certificate of Acquaintance with Tender Document
T2.2-22 Service Provider Integrity Pact
T2.2-23 Supplier Code of Conduct

Insurance:

T2.2-24 Insurance provided by the Contractor

2.2 C1.1 Offer portion of Form of Offer & Acceptance

2.3 C1.2 Contract Data Part 2 (by the *Contractor*)

2.4 C2.2 Price List

T2.2-01 Agreement in terms of Protection of Personal Information Act, 4 of 2013 ("POPIA")

1. PREAMBLE AND INTRODUCTION

1.1. The rights and obligation of the Parties in terms of the Protection of Personal Information Act, 4 of 2013 ("POPIA") are included as forming part of the terms and conditions of this contract.

2. PROTECTION OF PERSONAL INFORMATION

2.1. The following terms shall bear the same meaning as contemplated in Section 1 of the Protection of Person information act, No. of 2013 "(POPIA"):

consent; data subject; electronic communication; information officer; operator; person; personal information; processing; record; Regulator; responsible party; special information; as well as any terms derived from these terms.

2.2. The Operator will process all information by the Transnet in terms of the requirements contemplated in Section 4(1) of the POPIA:

Accountability; Processing limitation; Purpose specification; Further processing limitation; Information quality; Openness; Security safeguards and Data subject participation.

2.3. The Parties acknowledge and agree that, in relation to personal information of Transnet and the information of a third party that will be processed pursuant to this Agreement , the Operator is (.....) hereinafter Operator and the Data subject is "Transnet". Operator will process personal information only with the knowledge and authorisation of Transnet and will treat personal information and the information of a third party which comes to its knowledge as confidential and will not disclose it, unless so required by law or subject to the exceptions contained in the POPIA.

2.4. Transnet reserves all the rights afforded to it by the POPIA in the processing of any of its information as contained in this Agreement and the Operator is required to comply with all prescripts as detailed in the POPIA relating to all information concerning Transnet.

2.5. In terms of this Agreement, the Operator acknowledges that it will obtain and have access to personal information of Transnet and the information of a third party and agrees that it shall only process the information disclosed by Transnet in terms of this Agreement and only for the purposes as detailed in this Agreement and in accordance with any applicable law.

2.6. Should there be a need for the Operator to process the personal information and the information of a third party in a way that is not agreed to in this Agreement, the Operator must request consent from Transnet to the processing of its personal information or and the information of a third party in a manner other than that it was collected for, which consent cannot be unreasonably withheld.

2.7. Furthermore, the Operator will not otherwise modify, amend or alter any personal information and the information of a third party submitted by Transnet or disclose or permit the disclosure of any personal information and the information of a third party to any third party without prior written consent from Transnet.

2.8. The Operator shall, at all times, ensure compliance with any applicable laws put in place and maintain sufficient measures, policies and systems to manage and secure against all forms of risks to any information that may be shared or accessed pursuant to the services offered to Transnet in terms of this Agreement (physically, through a computer or any other form of electronic communication).

2.9. The Operator shall notify Transnet in writing of any unauthorised access to personal information and the information of a third party , cybercrimes or suspected cybercrimes, in its knowledge and report such crimes or suspected crimes to the relevant authorities in accordance with applicable laws, after becoming aware of such crimes or suspected crime. The Operator must inform Transnet of the breach as soon as it has occurred to allow Transnet to take all necessary remedial steps to mitigate the extent of the loss or compromise of personal information and the information of a third party and to restore the integrity of the affected personal information as quickly as is possible.

2.10. Transnet may, in writing, request the Operator to confirm and/or make available any personal information and the information of a third party in its possession in relation to Transnet and if such personal information has been accessed by third parties and the identity thereof in terms of the POPIA.

2.11. Transnet may further request that the Operator correct, delete, destroy, withdraw consent or object to the processing of any personal information and the information of a third party relating to the Transnet or a third party in the Operator's s possession in terms of the provision of the POPIA and utilizing Form 2 of the POPIA Regulations .

2.12. In signing this addendum that is in terms of the POPIA, the Operator hereby agrees that it has adequate measures in place to provide protection of the personal information and the information of a third party given to it by Transnet in line with the 8 conditions of the POPIA and that it will provide to Transnet satisfactory evidence of these measures whenever called upon to do so by Transnet.

The Operator is required to provide confirmation that all measures in terms of the POPIA are in place when processing personal information and the information of a third party received from Transnet:

YES		NO	

2.13. Further, the Operator acknowledges that it will be held liable by Transnet should it fail to process personal information in line with the requirements of the POPIA. The Operator will be subject to any civil or criminal action, administrative fines or other penalty or loss that may arise as a result of the processing of any personal information that Transnet submitted to it.

2.14. Should a Tenderer have any complaints or objections to processing of its personal information, by Transnet, the Tenderer can submit a complaint to the Information Regulator on https://www.justice.gov.za/inforeg/, click on contact us, click on complaints.IR@justice.gov.za

3. SOLE AGREEMENT

3.1. The Agreement, constitute the sole agreement between the parties relating to the subject matter referred to in paragraph 1.1 of this and no amendment/variation/change shall be of any force and effect unless reduced to writing and signed by or on behalf of both parties.

Signed at _____ on this _____day of _____ 20..

Name: _____

Title: _____

Signature: _____

.....

(Operator)

Authorised signatory for and on behalf of ..... who warrants that he/she is duly authorised to sign this Agreement.

AS WITNESSES:

1. Name: _____ Signature: _____

2. Name: _____ Signature: _____

T2.2-02 Health and Safety Management

Submit the following documents as a minimum with your tender:

1. The Tenderers must provide their own project specific health and safety Plan.

2. Health and safety cost breakdown – Returnable T2.2-04 Health and Safety Cost Breakdown

3. Safety, Policy signed by the Chief Executive Officer, must include or cover the following five elements

4. Table or outline the Roles & Responsibilities, such as S16.2 CEO, CR8.1 Construction manager, CR8.2 Assistant Construction manager, CR8.5 Safety officer, CR8.7 Construction Supervisor, CR8.8 Construction assistant supervisor, CR9.1 Risk Assessor, 17.1 SHE Reps, etc. as per the Occupational health and safety Act 85 of 1993

5. Overview of the project specific Baseline Risk Assessment (RA), indicating major activities of the project.

6. Complete and return with tender documentation the Contractor Safety Questionnaire included as Returnable T2.2-03

Attached submissions to this schedule:

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

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

Tenderer .....

T2.2-03: Health and Safety Questionnaire

1. SAFE WORK PERFORMANCE

1A. Injury Experience / Historical Performance - Alberta

Use the previous three years injury and illness records to complete the following:

Year			
Number of medical treatment cases			
Number of restricted work day cases			
Number of lost time injury cases			
Number of fatal injuries			
Total recordable frequency			
Lost time injury frequency			
Number of worker manhours			

1 - Medical Treatment Case	Any occupational injury or illness requiring treatment provided by a physician or treatment provided under the direction of a physician
2 – Restricted Work Day Case	Any occupational injury or illness that prevents a worker from performing any of his/her craft jurisdiction duties
3 – Lost Time injury Cases	Any occupational injury that prevents the worker from performing any work for at least one day
4 – Total Recordable Frequency	Total number of Medical Treatment, Restricted Work and Lost Time Injury cases multiplied by 200,000 then divided by total manhours
5- Lost Time Injury Frequency	Total number of Lost Time Injury cases multiplied by 200,000 then divide by total manhours

1B. Workers' Compensation Experience

Use the previous three years injury and illness records to complete the following (if applicable):

Industry Code:	Industry Classification:

Year			
Industry Rate			
Contractor Rate			
% Discount or Surcharge			

Is your Workers' Compensation account in good standing? ☐ Yes ☐ No
(Please provide letter of confirmation)

2. CITATIONS

2A. Has your company been cited, charged or prosecuted under Health, Safety and/or Environmental Legislation in the last 5 years?
☐ Yes ☐ No
If yes, provide details:

2B. Has your company been cited, charged or prosecuted under the above Legislation in another Country, Region or State?
☐ Yes ☐ No
If yes, provide details:

3. CERTIFICATE OF RECOGNITION

Does your company have a Certificate of Recognition?
☐ Yes ☐ No If Yes, what is the Certificate No. _____ Issue Date _____

4. SAFETY PROGRAM

Do you have a written safety program manual? ☐ Yes ☐ No
If Yes, provide a copy for review
Do you have a pocket safety booklet for field distribution? ☐ Yes ☐ No
If Yes, provide a copy for review
Does your safety program contain the following elements:

	Yes	No		Yes	No
Corporate Safety Policy	☐	☐	Equipment Maintenance	☐	☐
Incident Notification Policy	☐	☐	Emergency Response	☐	☐
Recordkeeping & Statistics	☐	☐	Hazard Assessment	☐	☐
Reference to Legislation	☐	☐	Safe Work Practices	☐	☐
General Rules & Regulations	☐	☐	Safe Work Procedures	☐	☐
Progressive Discipline Policy	☐	☐	Workplace Inspections	☐	☐
Responsibilities	☐	☐	Investigation Process	☐	☐
PPE Standards	☐	☐	Training Policy & Program	☐	☐
Environmental Standards	☐	☐	Communication Processes	☐	☐
Modified Work Program	☐	☐			

5. TRAINING PROGRAM

5A. Do you have an orientation program for new hire employees? ☐ Yes ☐ No
If Yes, include a course outline. Does it include any of the following:

	Yes	No		Yes	No
General Rules & Regulations	☐	☐	Confined Space Entry	☐	☐
Emergency Reporting	☐	☐	Trenching & Excavation	☐	☐
Injury Reporting	☐	☐	Signs & Barricades	☐	☐
legislation	☐	☐	Dangerous Holes & Openings	☐	☐
Right to Refuse Work	☐	☐	Rigging & Cranes	☐	☐
Personal Protective Equipment	☐	☐	Mobile Vehicles	☐	☐
Emergency Procedures	☐	☐	Preventative Maintenance	☐	☐
Project Safety Committee	☐	☐	Hand & Power Tools	☐	☐
Housekeeping	☐	☐	Fire Prevention & Protection	☐	☐
Ladders & Scaffolds	☐	☐	Electrical Safety	☐	☐
Fall Arrest Standards	☐	☐	Compressed Gas Cylinders	☐	☐
Aerial Work Platforms	☐	☐	Weather Extremes	☐	☐

5B. Do you have a program for training newly hired or promoted supervisors? ☐ Yes ☐ No
(If Yes, submit an outline for evaluation. Does it include instruction on the following:

	Yes	No		Yes	No

EMPLOYER RESPONSIBILITIES	☐	☐	SAFETY COMMUNICATION	☐	☐
EMPLOYEE RESPONSIBILITIES	☐	☐	FIRST AID/MEDICAL PROCEDURES	☐	☐
DUE DILIGENCE	☐	☐	NEW WORKER TRAINING	☐	☐
SAFETY LEADERSHIP	☐	☐	ENVIRONMENTAL REQUIREMENTS	☐	☐
WORK REFUSALS	☐	☐	HAZARD ASSESSMENT	☐	☐
INSPECTION PROCESSES	☐	☐	PRE-JOB SAFETY INSTRUCTION	☐	☐
EMERGENCY PROCEDURES	☐	☐	DRUG & ALCOHOL POLICY	☐	☐
INCIDENT INVESTIGATION	☐	☐	PROGRESSIVE DISCIPLINARY POLICY	☐	☐
SAFE WORK PROCEDURES	☐	☐	SAFE WORK PRACTICES	☐	☐
SAFETY MEETINGS	☐	☐	NOTIFICATION REQUIREMENTS	☐	☐

6. SAFETY ACTIVITIES

Do you conduct safety inspections? Yes ☐ No ☐ Weekly ☐ Monthly ☐ Quarterly ☐

Describe your safety inspection process (include participation, documentation requirements, follow-up, report distribution).

Who follows up on inspection action items?

Do you hold site safety meetings for field employees? If Yes, how often?

Yes ☐ No ☐ Daily ☐ Weekly ☐ Biweekly ☐

Do you hold site meetings where safety is addressed with management and field supervisors?

Yes ☐ No ☐ Weekly ☐ Biweekly ☐ Monthly ☐

Is pre-job safety instruction provided before to each new task? ☐ Yes ☐ No

Is the process documented? ☐ Yes ☐ No

Who leads the discussion?

Do you have a hazard assessment process? ☐ Yes ☐ No

- Are hazard assessments documented? If yes, how are hazard assessments communicated and implemented on each project? Who is responsible for leading the hazard assessment process?

Does your company have policies and procedures for environmental protection, spill clean-up, reporting, waste disposal, and recycling as part of the Health & Safety Program?

☐ Yes ☐ No

How does your company measure its H&S success?

- Attach separate sheet to explain

7. SAFETY STEWARDSHIP

7A Are incident reports and report summaries sent to the following and how often?

	Yes	No	Monthly	Quarterly	Annually
Project/Site Manager	☐	☐	☐	☐	☐
Managing Director	☐	☐	☐	☐	☐
Safety Director/Manager	☐	☐	☐	☐	☐
/Chief Executive Officer	☐	☐	☐	☐	☐

7B How are incident records and summaries kept? How often are they reported internally?

	Yes	No	Monthly	Quarterly	Annually
Incidents totaled for the entire company	☐	☐	☐	☐	☐
Incidents totaled by project	☐	☐	☐	☐	☐
• Subtotaled by superintendent	☐	☐	☐	☐	☐
• Subtotaled by foreman	☐	☐	☐	☐	☐

7C How are the costs of individual incidents kept? How often are they reported internally?

	Yes	No	Monthly	Quarterly	Annually
Costs totaled for the entire company	☐	☐	☐	☐	☐
Costs totaled by project	☐	☐	☐	☐	☐
• Subtotaled by superintendent	☐	☐	☐	☐	☐
• Subtotaled by foreman/general foreman	☐	☐	☐	☐	☐

7D Does your company track non-injury incidents?

	Yes	No	Monthly	Quarterly	Annually
Near Miss	☐	☐	☐	☐	☐
Property Damage	☐	☐	☐	☐	☐
Fire	☐	☐	☐	☐	☐
Security	☐	☐	☐	☐	☐
Environmental	☐	☐	☐	☐	☐

8 PERSONNEL

List key health and safety officers planned for this project. Attach resume.

Name	Position/Title	Designation

Supply name, address and phone number of your company's corporate health and safety representative. Does this individual have responsibilities other than health, safety and environment?

Name	Address	Telephone Number

Other responsibilities:

9 REFERENCES

List the last three company's your form has worked for that could verify the quality and management commitment to your occupational Health & Safety program

Name and Company	Address	Phone Number

T2.2-04 Health and Safety Cost Breakdown

Tenderer (Company)	Responsible Person	Designation	Date

Project/Tender Title	Project/Tender No.	Project Location / Description
FOR THE MAINTENANCE OF RAILWAY TRACK WITH ON-TRACK MECHANISED TURNOUT REPLACEMENT MACHINE FOR THE WESTERN REGION	TFR/2026/10/0002/115033/RFP (TRIM)	Various locations

#	Cost element	Unit Cost (R)	# of Units	Total Cost (R)
1.	Human Resources			
2.	Systems Documentation			
3.	Meetings & Administration			
4.	H&S Training			
5.	PPE & Safety Equipment			
6.	Signage & Barricading			
7.	Workplace Facilities			
8.	Emergency & Rescue Measures			
9.	Hygiene Surveys & Monitoring			
10.	Medical Surveillance			
11.	Safe Transport of Workers			
12.	HazMat Management (e.g. asbestos /silica)			

13.	Substance Abuse Testing (3 kits @R500 pm)			
14.	H&S Reward & Recognition			
15.	Other			

Total Health and Safety Estimate (R)	
Total Estimate Value (R)	
H&S Cost as % of Tender value	

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

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

Tenderer .....

T2.2-05: Risk Elements

Tenderers to identify and evaluate the potential risk elements associated with the Works and possible mitigation thereof. The risk elements and the mitigation as identified thereof by the Tenderer are to be submitted.

If No Risks are identified "No Risks" must be stated on this schedule.

Tenderers are also to evaluate any risk/s stated by the *Employer* in Contract Data Part C1, and provide possible mitigation thereof.

Tenders to note: Notwithstanding this information, all costs related to risk elements which are at the Contractor's risk are deemed to be included in the tenderer's offered total of the Prices.

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

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

Tenderer .....

T2.2-06: Environmental Management

The Tenderer must review the following documents for context to meet the environmental requirements, namely:

- Transnet SOC Limited – TFR Standard Environmental Specification (TFR / EMS (SES) – 001);

1. The tenderer must provide evidence of how their Environmental Management System (EMS) will ensure conformance to the abovementioned requirements
2. The tenderer must provide an environmental policy signed by Top Management which, as a minimum:
   - Details the Managements commitment to preventing and controlling environmental impacts.
3. The tenderer must provide specific Environmental Management Plan which describes relevant roles and responsibilities, and how potential environmental impacts will be identified and managed including the monitoring and recording thereof.

NB: By signing this Tender Schedule, the tenderer confirms that they will comply with the above requirements and in particular Transnet policy statements and environmental specifications.

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

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

Tenderer .....

T2.2-07: Authority to submit a Tender

Indicate the status of the tenderer by ticking the appropriate box hereunder. The tenderer must complete the certificate set out below for his category of organisation or alternatively attach a certified copy of a company / organisation document which provides the same information for the relevant category as requested here.

A - COMPANY	B - PARTNERSHIP	C - JOINT VENTURE	D - SOLE PROPRIETOR

A. Certificate for Company

I, _____ chairperson of the board of directors _____ _____, hereby confirm that by resolution of the board taken on _____ (date), Mr/Ms _____, acting in the capacity of _____, was authorised to sign all documents in connection with this tender offer and any contract resulting from it on behalf of the company.

Signed		Date	
Name		Position	Chairman of the Board of Directors

B. Certificate for Partnership

We, the undersigned, being the **key partners** in the business trading as _____ _____ hereby authorise Mr/Ms _____ acting in the capacity of _____, to sign all documents in connection with the tender offer for Contract _____ and any contract resulting from it on our behalf.

Name	Address	Signature	Date

NOTE: This certificate is to be completed and signed by the full number of Partners necessary to commit the Partnership. Attach additional pages if more space is required.

C. Certificate for Joint Venture

We, the undersigned, are submitting this tender offer in Joint Venture and hereby authorise Mr/Ms _____, an authorised signatory of the company _____, acting in the capacity of lead partner, to sign all documents in connection with the tender offer for Contract _____ _____ and any contract resulting from it on our behalf.

This authorisation is evidenced by the attached power of attorney signed by legally authorised signatories of all the partners to the Joint Venture.

Furthermore we attach to this Schedule a copy of the joint venture agreement which incorporates a statement that all partners are liable jointly and severally for the execution of the contract and that the lead partner is authorised to incur liabilities, receive instructions and payments and be responsible for the entire execution of the contract for and on behalf of any and all the partners.

Name of firm	**Address**	**Authorising signature, name (in caps) and capacity**

D. Certificate for Sole Proprietor

I, _____, hereby confirm that I am the sole owner of the business trading as _____.

Signed		Date	
Name		Position	Sole Proprietor

T2.2-08: Project Organogram, Management & CV's

The tender must be able to demonstrate that the project personnel have sufficient knowledge, experience and qualifications to provide the required services and submit the following documents as a minimum with the tender:

1. An organisation chart showing on-site and off-site management (including the key people you have identified in the Contract Data Part two and identify the required legal appointments.)
2. Detailed CV's and proof of qualifications attached for the Project Team including Safety Officer and Quality Assurance Representative.
3. The Individual CV's from the Project Team to indicate the relevant experience
4. Details of the location (and functions) of offices from which the *works* will be managed.
5. Details of the experience of the staff who will be working on the *works* with respect to: Working with the NEC3 Term Service Contract Option chosen for this contract. If staff experience of these matters is limited, an indication of relevant training that they have attended would be helpful.

Index of documentation attached to this schedule:

.....

.....

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

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

Tenderer .....

T2.2-09: Previous Experience

Note to tenderers:

Tenderers are required to demonstrate performance in comparable projects of similar size and nature by supplying the following:

Contactable references relevant to this RFP with a completion certificate, written reference or in execution (company name, contact person, contact no. and value of work).

Index of documentation attached to this schedule:
……
……
……
……

Signed …… Date ……

Name …… Position ……

Tenderer ……

T2.2-10 Letter/s of Good Standing with the Workmen's Compensation Fund

Attached to this schedule is the Letter/s of Good Standing.

Name of Company/Members of Joint Venture:

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

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

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

Tenderer .....

T2.2-11 Schedule of Proposed Subcontractors

The tenderer is required to provide details of all the sub-contractors that will be utilised in the execution of the *service.*

Note to tenderers:

- A tenderer may not be awarded points for B-BBEE status level of contributor if the tender documents indicate that the tenderer intends subcontracting more than 25% of the value of the contract to any other person not qualifying for at least the points that the tenderer qualifies for, unless the intended subcontractor is an EME that has the capability to execute the subcontract.

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

Tenderer to note that after award, any deviations from this list of proposed sub-contractors will be subject to acceptance by the *Service Manager* in terms of the Conditions of Contract.

Provide information of the Sub-contractors below:

Name of Proposed Subcontractor			Address		Nature of work		Amount of Worked	Percentage of work
% Black Owned	**EME**	**QSE**	**Youth**	**Women**	**Disabilities**	**Rural/ Underdeveloped areas/ Townships**		**Military Veterans**
	☐	☐	☐	☐	☐	☐		☐

Name of Proposed Subcontractor			Address		Nature of work		Amount of Worked	Percentage of work
% Black Owned	**EME**	**QSE**	**Youth**	**Women**	**Disabilities**	**Rural/ Underdeveloped areas/ Townships**		**Military Veterans**
	☐	☐	☐	☐	☐	☐		☐

Name of Proposed Subcontractor	Address	Nature of work	Amount of Worked	Percentage of work

% Black Owned	EME	QSE	Youth	Women	Disabilities	Rural/ Underdeveloped areas/ Townships	Military Veterans
	☐	☐	☐	☐	☐	☐	☐

Name of Proposed Subcontractor	Address	Nature of work	Amount of Worked	Percentage of work

% Black Owned	EME	QSE	Youth	Women	Disabilities	Rural/ Underdeveloped areas/ Townships	Military Veterans
	☐	☐	☐	☐	☐	☐	☐

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

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

Tenderer .....

T2.2-12: Affected Property Establishment Requirements

Tenderers to indicate their Affected Property establishment area requirements:

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

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

Tenderer .....

T2.2-13: Record of Addenda to Tender Documents

This schedule as submitted confirms that the following communications received from the *Employer* before the submission of this tender offer, amending the tender documents, have been taken into account in this specific tender offer:

	Date	**Title or Details**
1		
2		
3		
4		
5		
6		
7		
8		
9		

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

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

Tenderer .....

T2.2-14: Availability of Equipment and Other Resources

The Tenderer to submit a list of all Equipment and other resources that will be used to execute the *service* as described in the Service Information.

Equipment Type and Availability – Description	Hourly Rate	Number of Equipment	Details of Ownership

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

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

Tenderer .....

T2.2-15 Quality Management

The tenderer is to note that if successful, and awarded the contract, shall execute and complete the contract as per the Quality Management stated in the Works Information and should include but not be limited to the following.

1. Project Quality Plan which satisfies the technical and quality requirements of the *works*, identifying all procedures, reviews, audits, controls and records used to control and verify compliance with the Works Information.

2. Check list of procedures and method statements to be used during the contract.

3. A signed Quality Policy

Attached submissions to this schedule:
.....
.....
.....
.....

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

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

Tenderer .....

T2.2-16 Machine Ownership

The tenderer must submit the following letters together with the tender submission:

- Proof of Ownership – A signed letter from the owner and asset register confirming that the tenderer owns the machine/s. The number of machines must be reflected on the letter

The letters should be signed and stamped, and the information must be provided on the client's letter head with their client's company stamp.

Equipment Description	Number of Equipment	Name of OEM

Signd ..... Date .....

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

Tenderer .....

T2.2-17: ANNEX G Compulsory Enterprise Questionnaire

The following particulars hereunder must be furnished.

In the case of a Joint Venture, separate enterprise questionnaires in respect of each partner/member must be completed and submitted.

Section 1: Name of enterprise: _____

Section 2: VAT registration number, if any: _____

Section 3: CIDB registration number, if any: _____

Section 4: CSD number: _____

Section 5: Particulars of sole proprietors and partners in partnerships

Name	Identity number	Personal income tax number

***** Complete only if sole proprietor or partnership and attach separate page if more than 3 partners

Section 6: Particulars of companies and close corporations

Company registration number _____

Close corporation number _____

Tax reference number: _____

Section 7: The attached SBD4 must be completed for each tender and be attached as a tender requirement.
Section 8: The attached SBD 6 must be completed for each tender and be attached as a requirement.

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise:

i) authorizes the Employer to obtain a tax clearance certificate from the South African Revenue Services that my / our tax matters are in order;

ii) confirms that the neither the name of the enterprise or the name of any partner, manager, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears on the Register of Tender Defaulters established in terms of the Prevention and Combating of Corrupt Activities Act of 2004;

iii) confirms that no partner, member, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears, has within the last five years been convicted of fraud or corruption;

iv) confirms that I / we are not associated, linked or involved with any other tendering entities submitting tender offers and have no other relationship with any of the tenderers or those responsible for compiling the scope of work that could cause or be interpreted as a conflict of interest; and

v) confirms that the contents of this questionnaire are within my personal knowledge and are to the best of my belief both true and correct.

Signed _____ Date .....

Name _____ Position .....

Enterprise name .....

SBD 6.1

PREFERENCE POINTS CLAIM FORM

This preference form must form part of all bids invited. It contains general information and serves as a claim for preference points for Specific Goals contribution. Transnet will award preference points to companies who provide valid proof of evidence as per the table of evidence in paragraph 4.1 below.

1. GENERAL CONDITIONS

1.1 The following preference point systems are applicable to all bids:

- the 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included); and
- the 90/10 system for requirements with a Rand value above R50 000 000 (all applicable taxes included).

1.2 Either the 80/20 or 90/10 preference point system will apply. Transnet shall use the lowest acceptable bid to determine the applicable preference point system in a situation where all received acceptable bids are received outside the stated preference point system.

1.3 Preference points for this bid shall be awarded for:

(a) Price;

(b) B-BBEE Status Level of Contribution; and

(c) Any other specific goal determined in the Transnet preferential procurement policy

1.4 The maximum points for this bid are allocated as follows:

	POINTS
PRICE	**80**
B-BBEE STATUS LEVEL OF CONTRIBUTION Level 1 or 2.- 8 points Entities that are at least 51% Black Owned – 6 Points 30% Black Women Owned entities – 6 Points	**20**
Total points for Price and Preferences (Specific Goals) must not exceed	100

OR

	POINTS
PRICE	**90**
B-BBEE STATUS LEVEL OF CONTRIBUTION Level 1 or 2 – 4 Points Entities that are at least 51% Black Owned – 3 Points 30% Black Women Owned entities – 3 Points	**10**
Total points for Price and Preferences (Specific Goals) must not exceed	100

1.5 Failure on the part of a bidder to submit proof of evidence required for any of the specific goals together with the bid will be interpreted to mean that preference points for that specific goal are not claimed.

1.6 The purchaser reserves the right to require of a bidder, either before a bid is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the purchaser.

2. DEFINITIONS

(a) **"all applicable taxes"** includes value-added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies;

(b) **"B-BBEE"** means broad-based black economic empowerment as defined in section 1 of the Broad-Based Black Economic Empowerment Act;

(c) "**B-BBEE status level of contributor"** means the B-BBEE status received by a measured entity based on its overall performance using the relevant scorecard contained in the Codes of Good Practice on Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;

(d) **"bid"** means a written offer in a prescribed or stipulated form in response to an invitation by an organ of state for the supply/provision of services, works or goods, through price quotations, advertised competitive bidding processes or proposals;

(e) **"Broad-Based Black Economic Empowerment Act"** means the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);

(f) **"EME"** means an Exempted Micro Enterprise as defines by Codes of Good Practice under section 9 (1) of the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);

(g) **"functionality"** means the ability of a bidder to provide goods or services in accordance with specification as set out in the bid documents

(h) **"Price"** includes all applicable taxes less all unconditional discounts.

(i) **"Proof of B-BBEE Status Level of Contributor"**

i) the B-BBBEE status level certificate issued by an authorised body or person;

ii) a sworn affidavit as prescribed by the B-BBEE Codes of Good Practice; or

iii) any other requirement prescribed in terms of the B-BBEE Act.

(j) **"QSE"** means a Qualifying Small Enterprise as defines by Codes of Good Practice under section 9 (1) of the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);

(k) **"rand value"** means the total estimated value of a contract in South African currency, calculated at the time of bid invitations, and includes all applicable taxes and excise duties.

(l) **Specific goals"** means targeted advancement areas or categories of persons or groups either previously disadvantaged or falling within the scope of the Reconstruction and Development Programme identified by Transnet to be given preference in allocation of procurement contracts in line with section 2(1) of the PPPFA.

3. POINTS AWARDED FOR PRICE

3.1 THE 80/20 OR 90/10 PREFERENCE POINT SYSTEMS

A maximum of 80/90 points is allocated for price on the following basis:

$$PS = 80/90 \left(1 - \frac{Pt - Pmin}{Pmin}\right)$$

Where

Ps = Points scored for comparative price of bid under consideration

Pt = Comparative price of bid under consideration

Pmin = Comparative price of lowest acceptable bid

4. EVEDINCE REQUIRED FOR CLAIMING SPECIFIC GOALS

4.1 In terms of Transnet Preferential Procurement Policy (TPPP) and Procurement Manuals, preference points must be awarded to a bidder for providing evidence in accordance with the table below:

Specific Goals	Acceptable Evidence
B-BBEE	B-BBEE Certificate / Sworn-Affidavit B-BBEE Certificate (in case of JV, a consolidate scorecard will be accept) as per DTIC guidelines
Entities that are at least 51% Black Owned	B-BBEE Certificate / Sworn-Affidavit / CIPC B-BBEE Certificate (in case of JV, a consolidate scorecard will be accept) as per DTIC guidelines
30% Black Women Owned entities	BBEE Certificate / Sworn- Affidavit / B-BBEE CIPC Certificate (in case of JV, a consolidated scorecard will be accepted) as per DTIC guideline

4.2 The table below indicates the required proof of B-BBEE status depending on the category of enterprises:

Enterprise	B-BBEE Certificate & Sworn Affidavit
Large	Certificate issued by SANAS accredited verification agency
QSE	Certificate issued by SANAS accredited verification agency Sworn Affidavit signed by the authorised QSE representative and attested by a Commissioner of Oaths confirming annual turnover and black ownership (only black-owned QSEs - 51% to 100% Black owned) [Sworn affidavits must substantially comply with the format that can be obtained on the DTI's website at www.dti.gov.za/economic_empowerment/bee_codes.jsp.]
EME	Sworn Affidavit signed by the authorised EME representative and attested by a Commissioner of Oaths confirming annual turnover and black ownership Certificate issued by CIPC (formerly CIPRO) confirming annual turnover and black ownership Certificate issued by SANAS accredited verification agency only if the EME is being measured on the QSE scorecard

4.3 A trust, consortium or joint venture (including unincorporated consortia and joint ventures) must submit a consolidated B-BBEE Status Level verification certificate for every separate bid.

4.4 Tertiary Institutions and Public Entities will be required to submit their B-BBEE status level certificates in terms of the specialized scorecard contained in the B-BBEE Codes of Good Practice.

4.5 A person will not be awarded points for B-BBEE status level if it is indicated in the bid documents that such a bidder intends sub-contracting more than 25% of the value of the contract to any other enterprise that does not qualify for at least the points that such a bidder qualifies for, unless the intended sub-contractor is an EME that has the capability and ability to execute the sub-contract.

4.6 A person awarded a contract may not sub-contract more than 25% 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 sub-contracted to an EME that has the capability and ability to execute the sub-contract.

4.7 Bidders are to note that the rules pertaining to B-BBEE verification and other B-BBEE requirements may be changed from time to time by regulatory bodies such as National Treasury or the DTI. It is the Bidder's responsibility to ensure that his/her bid complies fully with all B-BBEE requirements at the time of the submission of the bid.

5. BID DECLARATION

5.1 Bidders who claim points in respect of B-BBEE Status Level of Contribution must complete the following:

6. B-BBEE STATUS LEVEL OF CONTRIBUTION CLAIMED IN TERMS OF PARAGRAPHS 1.4 AND 6.1

6.1 B-BBEE Status Level of Contribution: . = 20/10 (maximum of 20/10 points)

(Points claimed in respect of paragraph 6.1 must be in accordance with the table reflected in paragraph 4.1 and must be substantiated by relevant proof of B-BBEE status level of contributor.

7. SUB-CONTRACTING

7.1 Will any portion of the contract be sub-contracted?

(***Tick applicable box***)

YES		NO	

7.1.1 If yes, indicate:

i) What percentage of the contract will be subcontracted.....%
ii) The name of the sub-contractor.....
iii) The B-BBEE status level of the sub-contractor.....
iv) Whether the sub-contractor is an EME or QSE.

(Tick applicable box)

YES		NO	

8. DECLARATION WITH REGARD TO COMPANY/FIRM

8.1 Name of company/firm:.....

8.2 VAT registration number:.....

8.3 Company registration number:.....

8.4 TYPE OF COMPANY/ FIRM

- ☐ Partnership/Joint Venture / Consortium
- ☐ One person business/sole propriety
- ☐ Close corporation
- ☐ Company
- ☐ (Pty) Limited

[TICK APPLICABLE BOX]

8.5 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES

.....
.....
.....

8.6 COMPANY CLASSIFICATION

- ☐ Manufacturer
- ☐ Supplier
- ☐ Professional Service provider
- ☐ Other Service providers, e.g. transporter, etc.

[*TICK APPLICABLE BOX*]

8.7 Total number of years the company/firm has been in business:.....

8.8 I/we, the undersigned, who is / are duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the B-BBE status level of contribution indicated in paragraphs 1.4 and 6.1 of the foregoing certificate, qualifies the company/ firm for the preference(s) shown and I / we acknowledge that:

i) The information furnished is true and correct;

ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;

iii) In the event of a contract being awarded as a result of points claimed as shown in paragraph 1.4 and 6.1, the contractor may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are correct;

iv) If a bidder submitted false information regarding its B-BBEE status level of contributor,, which will affect or has affected the evaluation of a bid, or where a bidder has failed to declare any subcontracting arrangements or any of the conditions of contract have not been fulfilled, the purchaser may, in addition to any other remedy it may have

(a) disqualify the person from the bidding process;

(b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;

(c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;

(d) if the successful bidder subcontracted a portion of the bid to another person without disclosing it, Transnet reserves the right to penalise the bidder up to 10 percent of the value of the contract;

(e) recommend that the bidder or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted by the National Treasury from obtaining business from any organ of state for a period not exceeding 10 years, after the audi alteram partem (hear the other side) rule has been applied; and

(f) forward the matter for criminal prosecution.

WITNESSES 1. …….. 2. ……	…… SIGNATURE(S) OF BIDDERS(S) DATE: ……..

SBD4

BIDDER'S DISCLOSURE

1. PURPOSE OF THE FORM

1.1 Any person (natural or juristic) may make an offer or offers in terms of this invitation to bid. In line with the principles of transparency, accountability, impartiality, and ethics as enshrined in the Constitution of the Republic of South Africa, 1996 (Constitution), and further expressed in the various applicable legislation, it is required for the bidder to make this declaration in respect of the details required hereunder.

1.2 If a person is listed in the Register for Tender Defaulters and/or the List of Restricted Suppliers, that person will automatically be disqualified from the bid process.

2. DECLARATION ON EMPLOYMENT BY ORGAN OF STATE

2.1 Is the bidder, or any of the directors / trustees / shareholders / members / partners of the bidder employed by an organ of state, as defined in section 239 of the Constitution? **YES/NO**

2.2 If YES, furnish particulars of the names, individual identity numbers, in the table below:

Full Name	**Identity Number**	**Name of organ of state**

2.3 Do you, or any person connected with the bidder, have a relationship with any person who is employed by the procuring institution? **YES/NO**

2.3.1 If so, furnish particulars:

.....

.....

2.4 Does the bidder or any of its directors/trustees/shareholders members/partners or any person having a controlling interest in the enterprise have any interest in any other related enterprise, whether or not they are bidding for this contract?

YES/NO

2.4.1 If so, indicate all companies registered in the CSD in the table below:

Supplier registration number (MAAA)	**Status (active/inactive/deleted)**

Failure to disclose all CSD-registered active companies linked to all Directors will lead to disqualification**.**

3 GENERAL DECLARATION

I, ..., the undersigned, in submitting the accompanying bid, do hereby make the following statements that I certify to be true and complete in every respect:

3.1 I have read and I understand the contents of this disclosure.

3.2 I understand that the accompanying bid will be disqualified if this disclosure is found to be false.

3.3 The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor.

3.4 In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications, prices, including methods, factors or formulas used to calculate prices, market allocation, the intention or decision to submit or not to submit the bid, bidding with the intention not to

win the bid and conditions or delivery particulars of the products or services to which this bid invitation relates.

3.5 The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.

3.6 There have been no consultations, communications, agreements or arrangements made by the bidder with any official of the procuring institution in relation to this procurement process prior to and during the bidding process except to provide clarification on the bid submitted where so required by the institution; and the bidder was not involved in the drafting of the specifications or terms of reference for this bid.

3.7 I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act, 1998 (Act No. 89 of 1998) and or may be referred to law enforcement agencies for criminal investigation and or may be restricted from conducting business with the state for a period not exceeding 10 years in terms of the Prevention and Combating of Corrupt Activities Act, 2004 (Act No. 12 of 2004) or any other applicable legislation.

I CERTIFY THAT THE ABOVE IS CORRECT.

I ACCEPT THAT THE PROCURING INSTITUTION MAY REJECT THE BID OR TAKE APPROPRIATE ACTION AGAINST ME IF THIS DECLARATION IS FALSE.

…… ……

Signature Date

…… ……..

Designation Name of bidder

T2.2-18 NON-DISCLOSURE AGREEMENT

Note to tenderers: This Non-Disclosure Agreement is to be completed and signed by an authorised signatory:

THIS AGREEMENT is made effective as of ..... day of ..... 20..... by and between:

TRANSNET SOC LTD

(Registration No. 1990/000900/30), a company incorporated and existing under the laws of South Africa, having its principal place of business at Transnet Corporate Centre 138 Eloff Street , Braamfontein , Johannesburg 2000

And

.....

(Registration No. .....),a private company incorporated and existing under the laws of South Africa having its principal place of business at

.....

.....

WHEREAS

Transnet and the Company wish to exchange Information [as defined below] and it is envisaged that each party may from time to time receive Information relating to the other in respect thereof. In consideration of each party making available to the other such Information, the parties jointly agree that any dealings between them shall be subject to the terms and conditions of this Agreement which themselves will be subject to the parameters of the Tender Document.

IT IS HEREBY AGREED

1. INTERPRETATION

In this Agreement:

1.1 **Agents** mean directors, officers, employees, agents, professional advisers, contractors or sub-contractors, or any Group member;

1.2 **Bid** or **Bid Document** (hereinafter Tender) means Transnet's Request for Information [**RFI**] Request for Proposal [**RFP**] or Request for Quotation [**RFQ**], as the case may be;

1.3 **Confidential Information** means any information or other data relating to one party [the **Disclosing Party**] and/or the business carried on or proposed or intended to be carried on by that party and which is made available for the purposes of the Bid to the other party [the **Receiving Party**] or its Agents by the Disclosing Party or its Agents or recorded in agreed minutes following oral disclosure and any other information otherwise made available by the Disclosing Party or its Agents to the Receiving Party or its Agents, whether before, on or after the date of this Agreement, and whether in writing or otherwise, including any information, analysis or specifications derived from, containing or reflecting such information but excluding information which:

1.3.1 is publicly available at the time of its disclosure or becomes publicly available [other than as a result of disclosure by the Receiving Party or any of its Agents contrary to the terms of this Agreement]; or

1.3.2 was lawfully in the possession of the Receiving Party or its Agents [as can be demonstrated by its written records or other reasonable evidence] free of any restriction as to its use or disclosure prior to its being so disclosed; or

1.3.3 following such disclosure, becomes available to the Receiving Party or its Agents [as can be demonstrated by its written records or other reasonable evidence] from a source other than the Disclosing Party or its Agents, which source is not bound by any duty of confidentiality owed, directly or indirectly, to the Disclosing Party in relation to such information;

1.4 **Group** means any subsidiary, any holding company and any subsidiary of any holding company of either party; and

1.5 **Information** means all information in whatever form including, without limitation, any information relating to systems, operations, plans, intentions, market opportunities, know-how, trade secrets and business affairs whether in writing, conveyed orally or by machine-readable medium.

2 CONFIDENTIAL INFORMATION

2.3 All Confidential Information given by one party to this Agreement [the **Disclosing Party**] to the other party [the **Receiving Party**] will be treated by the Receiving Party as secret and confidential and will not, without the Disclosing Party's written consent, directly or indirectly communicate or disclose [whether in writing or orally or in any other manner] Confidential Information to any other person other than in accordance with the terms of this Agreement.

2.4 The Receiving Party will only use the Confidential Information for the sole purpose of technical and commercial discussions between the parties in relation to the Tender or for the subsequent performance of any contract between the parties in relation to the Tender.

2.5 Notwithstanding clause 2.3 above, the Receiving Party may disclose Confidential Information:

2.5.2 to those of its Agents who strictly need to know the Confidential Information for the sole purpose set out in clause 2.4 above, provided that the Receiving Party shall ensure that such Agents are made aware prior to the disclosure of any part of the Confidential Information that the same is confidential and that they owe a duty of confidence to the Disclosing Party. The Receiving Party shall at all times remain liable for any actions of such Agents that would constitute a breach of this Agreement; or

2.5.3 to the extent required by law or the rules of any applicable regulatory authority, subject to clause 2.6 below.

2.6 In the event that the Receiving Party is required to disclose any Confidential Information in accordance with clause 2.5.3 above, it shall promptly notify the Disclosing Party and cooperate with the Disclosing Party regarding the form, nature, content and purpose of such disclosure or any action which the Disclosing Party may reasonably take to challenge the validity of such requirement.

2.7 In the event that any Confidential Information shall be copied, disclosed or used otherwise than as permitted under this Agreement then, upon becoming aware of the same, without prejudice to any rights or remedies of the Disclosing Party, the Receiving Party shall as soon as practicable notify the Disclosing Party of such event and if requested take such steps [including the institution of legal proceedings] as shall be necessary to remedy [if capable of remedy] the default and/or to prevent further unauthorised copying, disclosure or use.

2.8 All Confidential Information shall remain the property of the Disclosing Party and its disclosure shall not confer on the Receiving Party any rights, including intellectual property rights over the Confidential Information whatsoever, beyond those contained in this Agreement.

3 RECORDS AND RETURN OF INFORMATION

3.3 The Receiving Party agrees to ensure proper and secure storage of all Information and any copies thereof.

3.4 The Receiving Party shall keep a written record, to be supplied to the Disclosing Party upon request, of the Confidential Information provided and any copies made thereof and, so far as is reasonably practicable, of the location of such Confidential Information and any copies thereof.

3.5 The Company shall, within 7 [seven] days of receipt of a written demand from Transnet:

3.5.2 return all written Confidential Information [including all copies]; and

3.5.3 expunge or destroy any Confidential Information from any computer, word processor or other device whatsoever into which it was copied, read or programmed by the Company or on its behalf.

3.6 The Company shall on request supply a certificate signed by a director as to its full compliance with the requirements of clause 3.5.3 above.

4 ANNOUNCEMENTS

4.3 Neither party will make or permit to be made any announcement or disclosure of its prospective interest in the Tender without the prior written consent of the other party.

4.4 Neither party shall make use of the other party's name or any information acquired through its dealings with the other party for publicity or marketing purposes without the prior written consent of the other party.

5 DURATION

The obligations of each party and its Agents under this Agreement shall survive the termination of any discussions or negotiations between the parties regarding the Tender and continue thereafter for a period of 5 [five] years.

6 PRINCIPAL

Each party confirms that it is acting as principal and not as nominee, agent or broker for any other person and that it will be responsible for any costs incurred by it or its advisers in considering or pursuing the Tender and in complying with the terms of this Agreement.

7 ADEQUACY OF DAMAGES

Nothing contained in this Agreement shall be construed as prohibiting the Disclosing Party from pursuing any other remedies available to it, either at law or in equity, for any such threatened or actual breach of this Agreement, including specific performance, recovery of damages or otherwise.

8 PRIVACY AND DATA PROTECTION

8.3 The Receiving Party undertakes to comply with South Africa's general privacy protection in terms Section 14 of the Bill of Rights in connection with this Tender and shall procure that its personnel shall observe the provisions of such Act [as applicable] or any amendments and re-enactments thereof and any regulations made pursuant thereto.

8.4 The Receiving Party warrants that it and its Agents have the appropriate technical and organisational meaures in place against unauthorised or unlawful processing of data relating to the Tender and against accidental loss or destruction of, or damage to such data held or processed by them.

9 GENERAL

9.3 Neither party may assign the benefit of this Agreement, or any interest hereunder, except with the prior written consent of the other, save that Transnet may assign this Agreement at any time to any member of the Transnet Group.

9.4 No failure or delay in exercising any right, power or privilege under this Agreement will operate as a waiver of it, nor will any single or partial exercise of it preclude any further exercise or the exercise of any right, power or privilege under this Agreement or otherwise.

9.5 The provisions of this Agreement shall be severable in the event that any of its provisions are held by a courtof competent jurisdiction or other applicable authority to be invalid, void or otherwise unenforceable, and the remaining provisions shall remain enforceable to the fullest extent permitted by law.

9.6 This Agreement may only be modified by a written agreement duly signed by persons authorised on behalf of each party.

9.7 Nothing in this Agreement shall constitute the creation of a partnership, joint venture or agency between the parties.

9.8 This Agreement will be governed by and construed in accordance with South African law and the parties irrevocably submit to the exclusive jurisdiction of the South African courts.

Signed	.....	Date	.....
Name	.....	Position	.....
Tenderer	.....		

T2.2-19: RFP DECLARATION FORM

NAME OF COMPANY: _____

We _____ do hereby certify that:

1. Transnet has supplied and we have received appropriate tender offers to any/all questions (as applicable) which were submitted by ourselves for tender clarification purposes;
2. we have received all information we deemed necessary for the completion of this Tender;
3. at no stage have we received additional information relating to the subject matter of this tender from Transnet sources, other than information formally received from the designated Transnet contact(s) as nominated in the tender documents;
4. we are satisfied, insofar as our company is concerned, that the processes and procedures adopted by Transnet in issuing this tender and the requirements requested from tenderers in responding to this tender have been conducted in a fair and transparent manner; and
5. furthermore, we acknowledge that a direct relationship exists between a family member and/or an owner / member / director / partner / shareholder (unlisted companies) of our company and an employee or board member of the Transnet Group as indicated below: *[Respondent to indicate if this section is not applicable]*

   FULL NAME OF OWNER/MEMBER/DIRECTOR/
   PARTNER/SHAREHOLDER: ADDRESS:

   _____

   _____

   _____

   Indicate nature of relationship with Transnet:

   _____

   _____

   _____

   _____

   [Failure to furnish complete and accurate information in this regard may lead to the disqualification of your response and may preclude a Respondent from doing future business with Transnet]

We declare, to the extent that we are aware or become aware of any relationship between ourselves and Transnet (other than any existing and appropriate business relationship with Transnet) which could unfairly advantage our company in the forthcoming adjudication process, we shall notify Transnet immediately in writing of such circumstances.

6. We accept that any dispute pertaining to this tender will be resolved through the Ombudsman process and will be subject to the Terms of Reference of the Ombudsman. The Ombudsman process must first be exhausted before judicial review of a decision is sought. (Refer "Important Notice to respondents" below).

7. We further accept that Transnet reserves the right to reverse a tender award or decision based on the recommendations of the Ombudsman without having to follow a formal court process to have such award or decision set aside.

8. We have acquainted ourselves and agree with the content of **T2.2-27** "Service Provider Integrity Pact".

For and on behalf of …… duly authorised thereto
Name:
Signature:
Date:

IMPORTANT NOTICE TO TENDERERS

- Transnet has appointed a Procurement Ombudsman to investigate any material complaint in respect of tenders exceeding R5,000,000.00 (five million S.A. Rand) in value. Should a Tenderer have any material concern regarding an tender process which meets this value threshold, a complaint may be lodged with Transnet's Procurement Ombudsman for further investigation.

- It is incumbent on the Tenderer to familiarise himself/herself with the Terms of Reference for the Transnet Procurement Ombudsman, details of which are available for review at Transnet's website www.transnet.net.

- An official complaint form may be downloaded from this website and submitted, together with any supporting documentation, within the prescribed period, to procurement.ombud@transnet.net
- For transactions below the R5,000,000.00 (five million S.A. Rand) threshold, a complaint may be lodged with the Chief Procurement Officer of the relevant Transnet Operating Division.
- All Tenderers should note that a complaint must be made in good faith. If a complaint is made in bad faith, Transnet reserves the right to place such a tenderer on its List of Excluded Bidders.

T2.2-20: REQUEST FOR PROPOSAL – BREACH OF LAW

NAME OF COMPANY: _____

I / We _____ do hereby certify that ***I/we have/have not been*** found guilty during the preceding 5 (five) years of a serious breach of law, including but not limited to a breach of the Competition Act, 89 of 1998, by a court of law, tribunal or other administrative body. The type of breach that the Tenderer is required to disclose excludes relatively minor offences or misdemeanours, e.g. traffic offences.

Where found guilty of such a serious breach, please disclose:

NATURE OF BREACH:

_____
_____
_____

DATE OF BREACH:

_____

Furthermore, I/we acknowledge that Transnet SOC Ltd reserves the right to exclude any Tenderer from the tendering process, should that person or company have been found guilty of a serious breach of law, tribunal or regulatory obligation.

Signed on this _____ day of _____ 20____

_____

SIGNATURE OF TENDER

T2.2-21 Certificate of Acquaintance with Tender Documents

NAME OF TENDERING ENTITY:

_____

1. By signing this certificate I/we acknowledge that I/we have made myself/ourselves thoroughly familiar with, and agree with all the conditions governing this RFQ. This includes those terms and conditions of the Contract, the Supplier Integrity Pact, Non-Disclosure Agreement etc. contained in any printed form stated to form part of the documents thereof, but not limited to those listed in this clause.
2. I/we furthermore agree that Transnet SOC Ltd shall recognise no claim from me/us for relief based on an allegation that I/we overlooked any tender/contract condition or failed to take it into account for the purpose of calculating my/our offered prices or otherwise.
3. I/we understand that the accompanying Tender will be disqualified if this Certificate is found not to be true and complete in every respect.
4. For the purposes of this Certificate and the accompanying Tender, I/we understand that the word "competitor" shall include any individual or organisation, other than the Tenderer, whether or not affiliated with the Tenderer, who:
   a) has been requested to submit a Tender in response to this Tender invitation;
   b) could potentially submit a Tender in response to this Tender invitation, based on their qualifications, abilities or experience; and
   c) provides the same Services as the Tenderer and/or is in the same line of business as the Tenderer
5. The Tenderer has arrived at the accompanying Tender independently from, and without consultation, communication, agreement or arrangement with any competitor. However communication between partners in a joint venture or consortium will not be construed as collusive Tendering.
6. In particular, without limiting the generality of paragraph 5 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:

a) prices;

b) geographical area where Services will be rendered [market allocation]

c) methods, factors or formulas used to calculate prices;

d) the intention or decision to submit or not to submit, a Tender;

e) the submission of a tender which does not meet the specifications and conditions of the tender; or

f) Tendering with the intention not winning the tender.

7. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the Services to which this tender relates.

8. The terms of the accompanying tender have not been, and will not be, disclosed by the Tenderer, directly or indirectly, to any competitor, prior to the date and time of the official tender opening or of the awarding of the contract.

9. I/We am/are aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to tenders and contracts, tenders that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and/or may be reported to the National Prosecuting Authority [NPA] for criminal investigation. In addition, Tenderers that submit suspicious tenders may be restricted from conducting business with the public sector for a period not exceeding 10 [ten] years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

Signed on this _____ day of _____20___

_____

SIGNATURE OF TENDERER

T2.2-22 Service Provider Integrity Pact

Important Note: All potential tenderers must read this document and certify in the RFQ Declaration Form that that have acquainted themselves with and agree with the content.

The contract with the successful tenderer will automatically incorporate this Integrity Pact and shall be deemed as part of the final concluded contract.

INTEGRITY PACT

Between

TRANSNET SOC LTD

Registration Number: 1990/000900/30

("Transnet")

and

The Contractor (hereinafter referred to as the "Tenderer/Service Providers/Contractor")

PREAMBLE

Transnet values full compliance with all relevant laws and regulations, ethical standards and the principles of economical use of resources, fairness and transparency in its relations with its Tenderers/Service Providers/Contractors.

In order to achieve these goals, Transnet and the Tenderer/Service Provider/Contractor hereby enter into this agreement hereinafter referred to as the "Integrity Pact" which will form part of the Tenderer's/Service Provider's/Contractor's application for registration with Transnet as a vendor.

The general purpose of this Integrity Pact is to agree on avoiding all forms of dishonesty, fraud and corruption by following a system that is fair, transparent and free from any undue influence prior to, during and subsequent to the currency of any procurement and/or reverse logistics event and any further contract to be entered into between the Parties, relating to such event.

All Tenderers/Service Providers/Contractor's will be required to sign and comply with undertakings contained in this Integrity Pact, should they want to be registered as a Transnet vendor.

1 OBJECTIVES

1.1 Transnet and the Tenderer/Service Provider/Contractor agree to enter into this Integrity Pact, to avoid all forms of dishonesty, fraud and corruption including practices that are anti-competitive in nature, negotiations made in bad faith and under-pricing by following a system that is fair, transparent and free from any influence/unprejudiced dealings prior to, during and subsequent to the currency of the contract to be entered into with a view to:

a) Enable Transnet to obtain the desired contract at a reasonable and competitive price in conformity to the defined specifications of the works, goods and services; and

b) Enable Tenderers/Service Providers/Contractors to abstain from bribing or participating in any corrupt practice in order to secure the contract.

2 COMMITMENTS OF TRANSNET

Transnet commits to take all measures necessary to prevent dishonesty, fraud and corruption and to observe the following principles:

2.1 Transnet hereby undertakes that no employee of Transnet connected directly or indirectly with the sourcing event and ensuing contract, will demand, take a promise for or accept directly or through intermediaries any bribe, consideration, gift, reward, favour or any material or immaterial benefit or any other advantage from the Tenderer, either for themselves or for any person, organisation or third party related to the contract in exchange for an advantage in the tendering

process, Tender evaluation, contracting or implementation process related to any contract.

2.2 Transnet will, during the registration and tendering process treat all Tenderers/ Service Providers/Contractor with equity, transparency and fairness. Transnet will in particular, before and during the registration process, provide to all Tenderers/Service Providers/Contractors the same information and will not provide to any Tenderers/Service Providers/Contractors confidential/additional information through which the Tenderers/Service Providers/Contractors could obtain an advantage in relation to any tendering process.

2.3 Transnet further confirms that its employees will not favour any prospective Tenderers/Service Providers/Contractors in any form that could afford an undue advantage to a particular Tenderer during the tendering stage, and will further treat all Tenderers/Service Providers/Contractors participating in the tendering process in a fair manner.

2.4 Transnet will exclude from the tender process such employees who have any personal interest in the Tenderers/Service Providers/Contractors participating in the tendering process.

3 OBLIGATIONS OF THE TENDERER / SERVICE PROVIDER

3.1 Transnet has a '**Zero Gifts'** Policy. No employee is allowed to accept gifts, favours or benefits.

a) Transnet officials and employees **shall not** solicit, give or accept, or from agreeing to solicit, give, accept or receive directly or indirectly, any gift, gratuity, favour, entertainment, loan, or anything of monetary value, from any person or juridical entities in the course of official duties or in connection with any operation being managed by, or any transaction which may be affected by the functions of their office.

b) Transnet officials and employees **shall not** solicit or accept gifts of any kind, from vendors, suppliers, customers, potential employees, potential vendors, and suppliers, or any other individual or organisation irrespective of the value.

c) Under **no circumstances** should gifts, business courtesies or hospitality packages be accepted from or given to prospective suppliers participating in a tender process at the respective employee's Operating Division, regardless of retail value.

d) Gratuities, bribes or kickbacks of any kind must never be solicited, accepted or offered, either directly or indirectly. This includes money, loans, equity, special privileges, personal favours, benefit or services. Such favours will be considered to constitute corruption.

3.2 The Tenderer/Service Provider/Contractor commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its Tender or during any ensuing contract stage in order to secure the contract or in furtherance to secure it and in particular the Tenderer/Service Provider/Contractor commits to the following:

a) The Tenderer/Service Provider/Contractor will not, directly or through any other person or firm, offer, promise or give to Transnet or to any of Transnet's employees involved in the tendering process or to any third person any material or other benefit or payment, in order to obtain in exchange an advantage during the tendering process; and

b) The Tenderer/Service Provider/Contractor will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any employee of Transnet, connected directly or indirectly with the tendering process, or to any person, organisation or third party related to the contract in exchange for any advantage in the tendering, evaluation, contracting and implementation of the contract.

3.3 The Tenderer/Service Provider/Contractor will not collude with other parties interested in the contract to preclude a competitive Tender price, impair the transparency, fairness and progress of the tendering process, Tender evaluation, contracting and implementation of the contract. The Tenderer / Service Provider further commits itself to delivering against all agreed upon conditions as stipulated within the contract.

3.4 The Tenderer/Service Provider/Contractor will not enter into any illegal or dishonest agreement or understanding, whether formal or informal with other Tenderers/Service Providers/Contractors. This applies in particular to certifications, submissions or non-submission of documents or actions that are restrictive or to introduce cartels into the tendering process.

3.5 The Tenderer/Service Provider/Contractor will not commit any criminal offence under the relevant anti-corruption laws of South Africa or any other country. Furthermore, the Tenderer/Service Provider/Contractor will not use for illegitimate purposes or for restrictive purposes or personal gain, or pass on to others, any information provided by Transnet as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

3.6 A Tenderer/Service Provider/Contractor of foreign origin shall disclose the name and address of its agents or representatives in South Africa, if any, involved directly or indirectly in the registration or tendering process. Similarly, the Tenderer / Service Provider / Contractor of South African nationality shall furnish

the name and address of the foreign principals, if any, involved directly or indirectly in the registration or tendering process.

3.7 The Tenderer/Service Provider/Contractor will not misrepresent facts or furnish false or forged documents or information in order to influence the tendering process to the advantage of the Tenderer/Service Provider/Contractor or detriment of Transnet or other competitors.

3.8 Transnet may require the Tenderer/Service Provider/Contractor to furnish Transnet with a copy of its code of conduct. Such code of conduct must address the compliance programme for the implementation of the code of conduct and reject the use of bribes and other dishonest and unethical conduct.

3.9 The Tenderer/Service Provider/Contractor will not instigate third persons to commit offences outlined above or be an accessory to such offences.

3.10 The Tenderer/Service Provider/Contractor confirms that they will uphold the ten principles of the United Nations Global Compact (UNGC) in the fields of Human Rights, Labour, Anti-Corruption and the Environment when undertaking business with Transnet as follows:

a) Human Rights

- Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights; and
- Principle 2: make sure that they are not complicit in human rights abuses.

b) Labour

- Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
- Principle 4: the elimination of all forms of forced and compulsory labour;
- Principle 5: the effective abolition of child labour; and
- Principle 6: the elimination of discrimination in respect of employment and occupation.

c) Environment

- Principle 7: Businesses should support a precautionary approach to environmental challenges;
- Principle 8: undertake initiatives to promote greater environmental responsibility; and

• Principle 9: encourage the development and diffusion of environmentally friendly technologies.

d) Anti-Corruption

• Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery.

4 INDEPENDENT TENDERING

4.1 For the purposes of that Certificate in relation to any submitted Tender, the Tenderer declares to fully understand that the word "competitor" shall include any individual or organisation, other than the Tenderer, whether or not affiliated with the Tenderer, who:

a) has been requested to submit a Tender in response to this Tender invitation;
b) could potentially submit a Tender in response to this Tender invitation, based on their qualifications, abilities or experience; and
c) provides the same Goods and Services as the Tenderer and/or is in the same line of business as the Tenderer.

4.2 The Tenderer has arrived at his submitted Tender independently from, and without consultation, communication, agreement or arrangement with any competitor. However communication between partners in a joint venture or consortium will not be construed as collusive tendering.

4.3 In particular, without limiting the generality of paragraph 5 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:

a) prices;
b) geographical area where Goods or Services will be rendered [market allocation];
c) methods, factors or formulas used to calculate prices;
d) the intention or decision to submit or not to submit, a Tender;
e) the submission of a Tender which does not meet the specifications and conditions of the RFQ; or
f) tendering with the intention of not winning the Tender.

4.4 In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the Goods or Services to which his/her tender relates.

4.5 The terms of the Tender as submitted have not been, and will not be, disclosed by the Tenderer, directly or indirectly, to any competitor, prior to the date and time of the official Tender opening or of the awarding of the contract.

4.6 Tenderers are aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to Tenders and contracts, Tenders that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and/or may be reported to the National Prosecuting Authority [**NPA**] for criminal investigation and/or may be restricted from conducting business with the public sector for a period not exceeding 10 [ten] years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

4.7 Should the Tenderer find any terms or conditions stipulated in any of the relevant documents quoted in the Tender unacceptable, it should indicate which conditions are unacceptable and offer alternatives by written submission on its company letterhead, attached to its submitted Tender. Any such submission shall be subject to review by Transnet's Legal Counsel who shall determine whether the proposed alternative(s) are acceptable or otherwise, as the case may be.

5 DISQUALIFICATION FROM TENDERING PROCESS

5.1 If the Tenderer/Service Provider/Contractor has committed a transgression through a violation of section 3 of this Integrity Pact or in any other form such as to put its reliability or credibility as a Tenderer/Service Provider/Contractor into question, Transnet may reject the Tenderer's / Service Provider's / Contractor's application from the registration or tendering process and remove the Tenderer/Service Provider/Contractor from its database, if already registered.

5.2 If the Tenderer/Service Provider/Contractor has committed a transgression through a violation of section 3, or any material violation, such as to put its reliability or credibility into question. Transnet may after following due procedures and at its own discretion also exclude the Tenderer/Service Provider /Contractor from future tendering processes. The imposition and duration of the exclusion will be determined by the severity of the transgression. The severity will be determined by the circumstances of the case, which will include amongst others the number of transgressions, the position of the transgressors within the company hierarchy of the Tenderer/Service Provider/Contractor and the amount of the damage. The exclusion will be imposed for up to a maximum of 10 (ten) years. However, Transnet reserves the right to impose a longer period of exclusion, depending on the gravity of the misconduct.

5.3 If the Tenderer/Service Provider/Contractor can prove that it has restored the damage caused by it and has installed a suitable corruption prevention system, or taken other remedial measures as the circumstances of the case may require, Transnet may at its own discretion revoke the exclusion or suspend the imposed penalty.

6 TRANSNET'S LIST OF EXCLUDED TENDERERS (BLACKLIST)

6.1 The process of restriction is used to exclude a company/person from conducting future business with Transnet and other organs of state for a specified period. No Tender shall be awarded to a Tenderer whose name (or any of its members, directors, partners or trustees) appear on the Register of Tender Defaulters kept by National Treasury, or who have been placed on National Treasury's List of Restricted Suppliers. Transnet reserves the right to withdraw an award, or cancel a contract concluded with a Tenderer should it be established, at any time, that a tenderer has been restricted with National Treasury by another government institution.

6.2 All the stipulations on Transnet's restriction process as laid down in Transnet's Supply Chain Policy and Procurement Procedures Manual (CPM included) are included herein by way of reference. Below follows a condensed summary of this restriction procedure.

6.3 On completion of the restriction procedure, Transnet will submit the restricted entity's details (including the identity number of the individuals and registration number of the entity) to National Treasury for placement on National Treasury's Database of Restricted Suppliers for the specified period of exclusion. National Treasury will make the final decision on whether to restrict an entity from doing business with any organ of state for a period not exceeding 10 years and place the entity concerned on the Database of Restricted Suppliers published on its official website.

6.4 The decision to restrict is based on one of the grounds for restriction. The standard of proof to commence the restriction process is whether a "*prima facie*" (i.e. on the face of it) case has been established.

6.5 Depending on the seriousness of the misconduct and the strategic importance of the Goods/Services, in addition to restricting a company/person from future business, Transnet may decide to terminate some or all existing contracts with the company/person as well.

6.6 A Service Provider or Contractor to Transnet may not subcontract any portion of the contract to a blacklisted company.

6.7 Grounds for blacklisting include: If any person/Enterprise which has submitted a Tender, concluded a contract, or, in the capacity of agent or subcontractor, has been associated with such Tender or contract:

a) Has, in bad faith, withdrawn such Tender after the advertised closing date and time for the receipt of Tenders;
b) has, after being notified of the acceptance of his Tender, failed or refused to sign a contract when called upon to do so in terms of any condition forming part of the Tender documents;
c) has carried out any contract resulting from such Tender in an unsatisfactory manner or has breached any condition of the contract;
d) has offered, promised or given a bribe in relation to the obtaining or execution of the contract;
e) has acted in a fraudulent or improper manner or in bad faith towards Transnet or any Government Department or towards any public body, Enterprise or person;
f) has made any incorrect statement in a certificate or other communication with regard to the Local Content of his Goods or his B-BBEE status and is unable to prove to the satisfaction of Transnet that:

(i) he made the statement in good faith honestly believing it to be correct; and

(ii) before making such statement he took all reasonable steps to satisfy himself of its correctness;

g) caused Transnet damage, or to incur costs in order to meet the contractor's requirements and which could not be recovered from the contractor;
h) has litigated against Transnet in bad faith.

6.8 Grounds for blacklisting include a company/person recorded as being a company or person prohibited from doing business with the public sector on National Treasury's database of Restricted Service Providers or Register of Tender Defaulters.

6.9 Companies associated with the person/s guilty of misconduct (i.e. entities owned, controlled or managed by such persons), any companies subsequently formed by the person(s) guilty of the misconduct and/or an existing company where such person(s) acquires a controlling stake may be considered for

blacklisting. The decision to extend the blacklist to associated companies will be at the sole discretion of Transnet.

7 PREVIOUS TRANSGRESSIONS

7.1 The Tenderer/Service Provider/Contractor hereby declares that no previous transgressions resulting in a serious breach of any law, including but not limited to, corruption, fraud, theft, extortion and contraventions of the Competition Act 89 of 1998, which occurred in the last 5 (five) years with any other public sector undertaking, government department or private sector company that could justify its exclusion from its registration on the Tenderer's/Service Provider's/Contractor's database or any tendering process.

7.2 If it is found to be that the Tenderer/Service Provider/Contractor made an incorrect statement on this subject, the Tenderer/Service Provider/Contractor can be rejected from the registration process or removed from the Tenderer/ Service Provider/Contractor database, if already registered, for such reason (refer to the Breach of Law Returnable Form contained in the document.)

8 SANCTIONS FOR VIOLATIONS

8.1 Transnet shall also take all or any one of the following actions, wherever required to:

a) Immediately exclude the Tenderer/Service Provider/Contractor from the tendering process or call off the pre-contract negotiations without giving any compensation the Tenderer/Service Provider/Contractor. However, the proceedings with the other Tenderer/ Service Provider/Contractor may continue;
b) Immediately cancel the contract, if already awarded or signed, without giving any compensation to the Tenderer/Service Provider/Contractor;
c) Recover all sums already paid by Transnet;
d) Encash the advance bank guarantee and performance bond or warranty bond, if furnished by the Tenderer/Service Provider/Contractor, in order to recover the payments, already made by Transnet, along with interest;
e) Cancel all or any other contracts with the Tenderer/Service Provider/Contractor; and
f) Exclude the Tenderer/ Service Provider/Contractor from entering into any Tender with Transnet in future.

9 CONFLICTS OF INTEREST

9.1 A conflict of interest includes, inter alia, a situation in which:
a) A Transnet employee has a personal financial interest in a tendering / supplying entity; and

b) A Transnet employee has private interests or personal considerations or has an affiliation or a relationship which affects, or may affect, or may be perceived to affect his / her judgment in action in the best interest of Transnet, or could affect the employee's motivations for acting in a particular manner, or which could result in, or be perceived as favouritism or nepotism.

9.2 A Transnet employee uses his / her position, or privileges or information obtained while acting in the capacity as an employee for:

a) Private gain or advancement; or

b) The expectation of private gain, or advancement, or any other advantage accruing to the employee must be declared in a prescribed form.

Thus, conflicts of interest of any Tender committee member or any person involved in the sourcing process must be declared in a prescribed form.

9.3 If a Tenderer/Service Provider/Contractor has or becomes aware of a conflict of interest i.e. a family, business and / or social relationship between its owner(s)/ member(s)/director(s)/partner(s)/shareholder(s) and a Transnet employee/ member of Transnet's Board of Directors in respect of a Tender which will be considered for the Tender process, the Tenderer/Service Provider/ Contractor:

a) must disclose the interest and its general nature, in the Request for Proposal ("RFX") declaration form; or

b) must notify Transnet immediately in writing once the circumstances has arisen.

9.4 The Tenderer/Service Provider/Contractor shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any committee member or any person involved in the sourcing process, where this is done, Transnet shall be entitled forthwith to rescind the contract and all other contracts with the Tenderer/Service Provider/Contractor.

10 DISPUTE RESOLUTION

10.1 Transnet recognises that trust and good faith are pivotal to its relationship with its Tenderer / Service Provider / Contractor. When a dispute arises between Transnet and its Tenderer / Service Provider / Contractor, the parties should use their best endeavours to resolve the dispute in an amicable manner, whenever possible. Litigation in bad faith negates the principles of trust and good faith on which commercial relationships are based. Accordingly, following a blacklisting process as mentioned in paragraph 6 above, Transnet will not do business with a company that litigates against it in bad faith or is involved in any action that reflects bad faith on its part. Litigation in bad faith includes, but is not limited to the following instances:

a) **Vexatious proceedings**: these are frivolous proceedings which have been instituted without proper grounds;

b) **Perjury:** where a Tenderer / Service Provider / Contractor make a false statement either in giving evidence or on an affidavit;
c) **Scurrilous allegations:** where a Tenderer / Service Provider / Contractor makes allegations regarding a senior Transnet employee which are without proper foundation, scandalous, abusive or defamatory; and
d) **Abuse of court process:** when a Tenderer / Service Provider / Contractor abuses the court process in order to gain a competitive advantage during a Tender process.

11 GENERAL

11.1 This Integrity Pact is governed by and interpreted in accordance with the laws of the Republic of South Africa.

11.2 The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the law relating to any civil or criminal proceedings.

11.3 The validity of this Integrity Pact shall cover all the tendering processes and will be valid for an indefinite period unless cancelled by either Party.

11.4 Should one or several provisions of this Integrity Pact turn out to be invalid the remainder of this Integrity Pact remains valid.

11.5 Should a Tenderer/Service Provider/Contractor be confronted with dishonest, fraudulent or corruptive behaviour of one or more Transnet employees, Transnet expects its Tenderer/Service Provider/Contractor to report this behaviour directly to a senior Transnet official/employee or alternatively by using Transnet's "Tip-Off Anonymous" hotline number 0800 003 056, whereby your confidentiality is guaranteed.

The Parties hereby declare that each of them has read and understood the clauses of this Integrity Pact and shall abide by it. To the best of the Parties' knowledge and belief, the information provided in this Integrity Pact is true and correct.

I …….. duly authorised by the tendering entity, hereby certify that the tendering entity are **fully acquainted** with the contents of the Integrity Pact and further **agree to abide by it** in full.

Signature ……

Date ……..

T2.2-23 : Supplier Code of Conduct

Transnet SOC Limited 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 Policy – A guide for Tenderers.
- 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 (BBBEE)
- The Prevention and Combating of Corrupt Activities Act (PRECCA); and
- The Construction Industry Development Board Act (CIDB Act).

This code of conduct has been included in this contract to formally appraise 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 SOC Limited will not participate in corrupt practices. Therefore, it 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, from suppliers.
- Employees may not receive anything that is calculated 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 person 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 SOC Limited 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 practices.
- Transnet does not engage with non-value adding agents or representatives solely for the purpose of increasing BBBEE spend (fronting).

3. Transnet's relationship with suppliers requires us to clearly define requirements, to 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, BBBEE 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 straight forward manner.
- Suppliers must record and report facts accurately, honestly and objectively. Financial records must be accurate in all material respects.

Conflicts of Interest

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 SOC Limited.

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

Where possible, contracts will be negotiated to include the above in the terms of such contracts. To the extent such terms are not included in contractual obligations and any of the above code is breached, then Transnet reserves its right to review doing business with these suppliers.

I, _____ of _____

(insert name of Director or as per Authority Resolution from Board of Directors)

(insert name of Company)

hereby acknowledge having read, understood and agree to the terms and conditions set out in the "Transnet Supplier Code of Conduct."

Signed this on day _____ at

_____

_____

Signature

T2.2-24: Insurance provided by the *Contractor*

Clause 83.1 in NEC3 Term Service Contract (June 2005)(amended June 2006 and April 2013) requires that the *Contractor* provides the insurance stated in the insurance table except any insurance which the *Employer* is to provide as stated in the Contract Data.

Please provide the following details for insurance which the *Contractor* is still to provide. Notwithstanding this information all costs related to insurance are deemed included in the tenderer's rates and prices.

Insurance against (See clause 83.1 of the TSC)	**Name of Insurance Company**	**Cover**	**Premium**
Liability for death of or bodily injury to employees of the *Contractor* arising out of and in the course of their employment in connection with this contract			
Motor Vehicle Liability Insurance comprising (as a minimum) "Balance of Third Party" Risks including Passenger and Unauthorised Passenger Liability indemnity with a minimum indemnity limit of R5 000 000.			
Insurance in respect of loss of or damage to own property and equipment.			

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

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

Tenderer .....

T2.2-25 SUPPLIER DECLARATION FORM

Transnet Vendor Management has received a request to load / change your company details onto the Transnet vendor master database. Please return the completed Supplier Declaration Form (SDF) together with the required supporting documents as per Appendix A to the Transnet Official who is intending to procure your company's services / products, to enable us to process this request. Please only submit the documentation relevant to your request.

Please Note: all organisations, institutions and individuals who wish to provide goods and/or services to organs of the State must be registered on the National Treasury's Central Supplier Database (CSD). This needs to be done via their portal at https://secure.csd.gov.za/ **before applying to Transnet**.

General Terms and Conditions:

Please Note: Failure to submit the relevant documentation will delay the vendor creation / change process.

Where applicable, the respective Transnet Operating Division processing your application may request further or additional information from your company.

The Service Provider warrants that the details of its bank account ("the nominated account") provided herein, are correct and acknowledges that payments due to the Supplier will be made into the nominated account. If details of the nominated account should change, the Service Provider must notify Transnet in writing of such change, failing which any payments made by Transnet into the nominated account will constitute a full discharge of the indebtedness of Transnet to the Supplier in respect of the payment so made. Transnet will incur no liability for any payments made to the incorrect account or any costs associated therewith. In such an event, the Service Provider indemnifies and holds Transnet harmless in respect of any payments made to an incorrect bank account and will, on demand, pay Transnet any costs associated herewith.

Transnet expects its suppliers to timeously renew their Tax Clearance and B-BBEE certificates (Large Enterprises and QSEs less than 51% black owned) as well as sworn affidavits in the case of EMEs and QSEs with more than 51% black ownership as per Appendices C and D.

In addition, please take note of the following very important information:

1. **If your annual turnover is R10 million or less,** then in terms of the DTI Generic Codes of Good Practice, you are classified as an Exempted Micro Enterprise (EME). If your company is classified as an EME, please include in your submission a sworn affidavit confirming your company's most recent annual turnover is less than R10 million and percentage of black ownership and black female ownership in the company (Appendix C) OR B-BBEE certificate issued by a verification agency accredited by SANAS in terms of the EME scorecard should you feel you will be able to attain a better B-BBEE score. It is only in this context that an EME may submit a B-BBEE verification certificate. These EME sworn affidavits must be accepted by the . Government introduced this mechanism specifically to reduce the cost of doing business and regulatory burden for these entities and the template for the sworn affidavit is available at no cost on the website www.thedti.gov.za or EME certificates at CIPC from www.cipic.co.za.

The B-BBEE Commission said "that only time an EME can be verified by a SANAS accredited verification professional is when it wishes to maximise its B-BBEE points and move to a higher B-BBEEE recognition level, and that must be done use the QSE Scorecard".

2. **If your annual turnover is between R10 million and R50 million,** then in terms of the DTI codes, you are classified as a Qualifying Small Enterprise (QSE). A QSE which is at least 51% black owned, is required to submit a sworn affidavit confirming their annual total revenue of between R10 million and R50 million and level of black ownership (Appendix D). QSE 'that does not qualify for 51% of black ownership, are required to submit a B-BBEE verification certificate issued by a verification agency accredited by SANAS their QSEs are required to submit a B-BBEE verification certificate issued by a verification agency accredited by SANAS.

Please Note: B-BBEE certificate and detailed scorecard should be obtained from an accredited rating agency (e.g. SANAS Member).

3. **If your annual turnover exceeds R50 million,** then in terms of the DTI codes, you are classified as a Large Enterprise. Large Enterprises are required to submit a B-BBEE level verification certificate issued by a verification agency accredited by SANAS.

Please Note: B-BBEE certificate and detailed scorecard should be obtained from an accredited rating agency (e.g. SANAS Member).

4. **The supplier to furnish proof to the procurement department as required in the Fourth Schedule of the Income Tax Act. 58 of 1962** whether a supplier of service is to be classified as an "employee", "personal service provider" or "labour broker". Failure to do so will result in the supplier being subject to employee's tax.

5. **No payments can be made to a vendor until the** vendor has been registered / updated, and no vendor can be registered / updated until the vendor application form, together with its supporting documentation, has been received and processed**.** No payments can be made to a vendor until the vendor has met / comply with the procurement requirements.

6. It is in line with PPPFA Regulations, only valid B-BBBEE status level certificate issued by an unauthorised body or person OR a sworn affidavit as prescribed by the B-BBEE Codes of Good Practice, OR any other requirement prescribed in terms of the Broad- Based Black Economic Empowerment Act.

7. The B-BBEE Commission advises entities and organs of state to reject B-BBEE certificates that have been issues by verification agencies or professionals who are not accredited by South African National Accreditation Systems ("SANAS) as such B-BBEE certificates are invalid for lack of authority and mandate to issue them. A list of SANAS Accredited agencies is available on the SANAS website at www.sanas.co.za.

8. Presenting banking details. Please note: Banks have decided to enable the customers and provide the ability for customers to generate Account Confirmation/Bank Account letters via their online platform; this is a digital approach to the authentication of banking details.

SUPPLIER DECLARATION FORM

Supplier Declaration Form

Important Notice: all organisations, institutions and individuals who wish to provide goods and/or services to organs of the State must be registered on the National Treasury Central Supplier Database (CSD). This needs to be done via their portal at https://secure.csd.gov.za/ **before applying to Transnet**.	
CSD Number (MAAA xxxxxxx):	

Company Trading Name						
Company Registered Name						
Company Registration No Or ID No If a Sole Proprietor						
Company Income Tax Number						
Form of Entity	CC	Trust	Pty Ltd	Limited	Partnership	Sole Proprietor
	Non-profit (NPO's or NPC)	Personal Liability Co	State Owned Co	National Govt	Provincial Govt	Local Govt
	Education al Institution	Specialise d Profession	Financial Institution	Joint Venture	Foreign International	Foreign Branch Office

Did your company previously operate under another name?	Yes		No	
If **YES** state the previous details below:				
Trading Name				
Registered Name				
Company Registration No Or ID No If a Sole Proprietor				

Form of Entity	CC	Trust	Pty Ltd	Limited	Partnership	Sole Proprietor
	Non-profit (NPO's or NPC)	Personal Liability Co	State Owned Co	National Govt	Provincial Govt	Local Govt
	Education al Institution	Specialise d Profession	Financial Institution	Joint Venture	Foreign International	Foreign Branch Office

Your Current Company's VAT Registration Status	
VAT Registration Number	
If **Exempted from VAT registration,** state reason and submit proof from SARS in confirming the exemption status	

If your business entity is not VAT Registered, please submit a current original sworn affidavit (see example in Appendix I). Your Non VAT Registration must be confirmed annually.

Company Banking Details		Bank Name	
Universal Branch Code		Bank Account Number	

Company Physical Address			
		Code	
Company Postal Address			
		Code	
Company Telephone number			
Company Fax Number			
Company E-Mail Address			
Company Website Address			

Company Contact Person Name	
Designation	
Telephone	
Email	

Is your company a Labour Broker?	Yes		No			
Main Product / Service Supplied e.g. Stationery / Consulting / Labour etc.						
How many personnel does the business employ?	Full Time		Part Time			
Please Note: Should your business employ more than 2 full time employees who are not connected persons as defined in the Income Tax Act, please submit a sworn affidavit, as per Appendix II.						

Most recent Financial Year's Annual Turnover	<R10Million **EME**		>R10Million <R50Million **QSE**		>R50Million **Large Enterprise**	

Does your company have a valid proof of B-BBEE status?	Yes		No						
Please indicate your Broad Based BEE status (Level 1 to 9)	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**

Majority Race of Ownership						
% Black Ownership		% Black Women Ownership		% Black Disabled person(s) Ownership		% Black Youth Ownership	
% Black Unemployed		% Black People Living in Rural Areas		% Black Military Veterans			
Please Note: Please provide proof of B-BBEE status as per Appendix C and D:							

- Large Enterprise and QSEs with less than 51% black ownership need to obtain a B-BBEE certificate and detailed scorecard from an accredited rating agency;
- EMEs and QSEs with at least 51% black ownership may provide an affidavit using the templates provided in Appendix C and D respectively;
- Black Disabled person(s) ownership will only be accepted if accompanied with a certified letter signed by a physician on the physician's letterhead confirming the disability;
- A certified South African identification document will be required for all Black Youth Ownership.

Supplier Development Information Required	
EMPOWERING SUPPLIER An Empowering Supplier is a B-BBEE compliant Entity which complies with at least three criteria if it is a large Entity, or one criterion if it is a Qualifying Small Enterprise ("QSE"), as detailed in Statement 400 of the New Codes. In terms of the requirements of an Empowering Supplier, numerous companies found it challenging to meet the target of 25% transformation of raw materials or beneficiation including local manufacturing, particularly so, if these companies imported goods or products from offshore. The matter was further compounded by the requirement for 25% of Cost of Sales, excluding labour cost and depreciation, to be procured from local producers or suppliers.	YES ○ NO ○
FIRST TIME SUPPLIER A supplier that we haven't as yet Traded within Transnet and will be registered via our database for the 1st time.	YES ○ NO ○

SUPPLIER DEVELOPMENT PLAN Supplier Development Plan is a plan that when we as Transnet award a supplier a long term contract depending on the complexity of the Transaction. We will negotiate supplier development obligations that they must meet throughout the contract duration. e.g. we might request that they (create jobs or do skills development or encourage procurement from designated groups. (BWO, BYO & BDO etc.).	YES ○ NO ○

DEVELOPMENT PLAN DOCUMENT Agreed plan that will be crafted with the supplier in regards to their development (It could be for ED OR SD in terms of their developmental needs they may require with the company.	YES ○ NO ○ *If Yes- Attach supporting documents

ENTERPRISE DEVELOPMENT BENEFICIARY A supplier that is not as yet in our value chain that we are assisting in their developmental area.	YES ○ NO ○
SUPPLIER DEVELOPMENT BENEFICIARY A supplier that we are already doing business with or transacting with and we are also assisting them assisting them in their developmental area e.g. (They might require training or financial assistance etc.)	YES ○ NO ○
GRADUATION FROM ED TO SD BENEFICIARY When a supplier that we assisted with as an ED beneficiary then gets awarded a business and we start Transacting with.	YES ○ NO ○
ENTERPRISE DEVELOPMENT RECIPIENT A supplier that isn't in our value chain as yet but we have assisted them with an ED intervention	YES ○ NO ○

By signing below, I hereby verify that I am duly authorised to sign for and on behalf of firm / organisation and that all information contained herein and attached herewith are true and correct			
Name and Surname		Designation	
Signature		Date	

APPENDIX B

Affidavit or Solemn Declaration as to VAT registration status

Affidavit or Solemn Declaration

I, _____ solemnly swear/declare that _____ is not a registered VAT vendor and is not required to register as a VAT vendor because the combined value of taxable supplies made by the provider in any 12 month period has not exceeded or is not expected to exceed R1million threshold, as required in terms of the Value Added Tax Act.

Signature: _____

Designation: _____

Date: _____

Commissioner of Oaths

Thus signed and sworn to before me at _____ on this the _____ day of _____ 20_____,

the Deponent having knowledge that he/she knows and understands the contents of this Affidavit, and that he/she has no objection to taking the prescribed oath, which he/she regards binding on his/her conscience and that the allegations herein contained are all true and correct.

_____
Commissioner of Oaths

VENDOR REGISTRATION DOCUMENTS CHECKLIST

Please note that you will have to provide the first two documents on the list (highlighted in red) and the rest will be provided by the supplier:

	Yes	No
1. Complete the "Supplier Declaration Form" (SDF) (commissioned). See attachment.		
2. Complete the "Supplier Code of Conduct" (SCC). See attachment.		
3. Copy of cancelled cheque OR letter from the bank verifying banking details (with **bank stamp not older than 3 Months & sign by Bank Teller**).		
4. Certified (**Not Older than 3 Months**) copy of Identity document of Shareholders/Directors/Members (where applicable).		
5. Certified copy of certificate of incorporation, CM29 / CM9 (name change).		
6. Certified copy of share Certificates of Shareholders, CK1 / CK2 (if CC).		
7. A letter with the company's letterhead confirming both **Physical** and **Postal** address.		
8. Original or certified copy of SARS Tax Clearance certificate and Vat registration certificate.		
9. BBBEE certificate and detailed scorecard from a **SANAS** Accredited Verification Agency and/or Sworn Certified Affidavit.		
10. Central Supplier Database (CSD) Summary Registration Report.		

SWORN AFFIDAVIT – B-BBEE EXEMPTED MICRO ENTERPRISE - GENERAL

I, the undersigned,

Full name & Surname	
Identity number	

Hereby declare under oath as follows:

1. The contents of this statement are to the best of my knowledge a true reflection of the facts.

2. I am a Member / Director / Owner (**Select one**) of the following enterprise and am duly authorised to act on its behalf:

Enterprise Name:	
Trading Name (If Applicable):	
Registration Number:	
Vat Number (If applicable)	
Enterprise Physical Address:	
Type of Entity (CC, (Pty) Ltd, Sole Prop etc.):	
Nature of Business:	
Definition of "Black People"	As per the Broad-Based Black Economic Empowerment Act 53 of 2003 as Amended by Act No 46 of 2013 "Black People" is a generic term which means Africans, Coloureds and Indians – (a) who are citizens of the Republic of South Africa by birth or descent; or (b) who became citizens of the Republic of South Africa by naturalisation- i. before 27 April 1994; or ii. on or after 27 April 1994 and who would have been entitled to acquire citizenship by naturalization prior to that date;"
Definition of "Black Designated Groups"	"Black Designated Groups means: (a) unemployed black people not attending and not required by law to attend an educational institution and not awaiting admission to an educational institution; (b) Black people who are youth as defined in the National Youth Commission Act of 1996; (c) Black people who are persons with disabilities as defined in the Code of Good Practice on employment of people with disabilities issued under the Employment Equity Act; (d) Black people living in rural and under developed areas; (e) Black military veterans who qualifies to be called a military veteran in terms of the Military Veterans Act 18 of 2011;"

3. I hereby declare under Oath that:

- The Enterprise is _____% Black Owned using the flow-through principle as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,
- The Enterprise is _____% Black Female Owned as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,
- The Enterprise is _____% Black Designated Group Owned as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,
- Black Designated Group Owned % Breakdown as per the definition stated above:
    - Black Youth % = _____%
    - Black Disabled % =_____%
    - Black Unemployed % =_____%
    - Black People living in Rural areas % = _____%
    - Black Military Veterans % =_____%

- Based on the Audited Financial Statements/Financial Statements and other information available on the latest financial year-end of _____ (DD/MM/YYYY), the annual Total Revenue was R10,000,000.00 (Ten Million Rands) or less
- Please Confirm on the below table the B-BBEE Level Contributor, **by ticking the applicable box.**

100% Black Owned	**Level One** (135% B-BBEE procurement recognition level)	
At least 51% Black Owned	**Level Two** (125% B-BBEE procurement recognition level)	
Less than 51% Black Owned	**Level Four** (100% B-BBEE procurement recognition level)	

4. I know and understand the contents of this affidavit and I have no objection to take the prescribed oath and consider the oath binding on my conscience and on the Owners of the Enterprise which I represent in this matter.

5. The sworn affidavit will be valid for a period of 12 months from the date signed by commissioner.

Deponent Signature: _____

Date :_____

_____

Commissioner of Oaths
Signature & stamp
Date:

SWORN AFFIDAVIT – B-BBEE EXEMPTED MICRO ENTERPRISE – SPECIALISED ENTITY ONLY – GENERAL - which include (Not Limited to) Non-Profit Organisations, Non-Profit Companies, Public Benefit Organisations etc.

I, the undersigned,

Full name & Surname	
Identity number	

Hereby declare under oath as follows:

1. The contents of this statement are to the best of my knowledge a true reflection of the facts.

2. I am a Director of the following enterprise and am duly authorised to act on its behalf:

Enterprise Name:	
Trading Name (If Applicable):	
Registration Number:	
Vat Number (If applicable)	
Enterprise Physical Address:	
Type of Entity (NPO, PBO etc.):	
Nature of Business:	
Definition of "Black People"	As per the Broad-Based Black Economic Empowerment Act 53 of 2003 as Amended by Act No 46 of 2013 "Black People" is a generic term which means Africans, Coloureds and Indians – (a) who are citizens of the Republic of South Africa by birth or descent; or (b) who became citizens of the Republic of South Africa by naturalisation- i. before 27 April 1994; or ii. on or after 27 April 1994 and who would have been entitled to acquire citizenship by naturalization prior to that date;"
Definition of "Black Designated Groups"	"Black Designated Groups means: (a) unemployed black people not attending and not required by law to attend an educational institution and not awaiting admission to an educational institution; (b) Black people who are youth as defined in the National Youth Commission Act of 1996; (c) Black people who are persons with disabilities as defined in the Code of Good Practice on employment of people with disabilities issued under the Employment Equity Act; (d) Black people living in rural and under developed areas; (e) Black military veterans who qualifies to be called a military veteran in terms of the Military Veterans Act 18 of 2011;"

3. I hereby declare under Oath that:

- The Enterprise has _____% Black Beneficiaries as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,
- The Enterprise has _____% Black Female Beneficiaries as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,
- The Enterprise has _____% Black Designated Group Beneficiaries as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,
- Black Designated Group Beneficiary % Breakdown as per the definition stated above:
    - Black Youth % = _____%
    - Black Disabled % =_____%
    - Black Unemployed % =_____%
    - Black People living in Rural areas % =_____%
    - Black Military Veterans % =_____%

- Based on the Audited Financial Statements/ Financial Statements and other information available on the latest financial year-end of _____ (DD/MM/YYYY), the annual Total Revenue/Allocated Budget/Gross Receipts was R10,000,000.00 (Ten Million Rands) or less

- Please Confirm on the below table the B-BBEE Level Contributor, **by ticking the applicable box.**

At Least 75% Black Beneficiaries	**Level One** (135% B-BBEE procurement recognition level)	
At Least 51% Black Beneficiaries	**Level Two** (125% B-BBEE procurement recognition level)	
Less than 51% Black Beneficiaries	**Level Four** (100% B-BBEE procurement recognition level)	

4. I know and understand the contents of this affidavit and I have no objection to take the prescribed oath and consider the oath binding on my conscience and on the Owners of the Enterprise which I represent in this matter.

5. The sworn affidavit will be valid for a period of 12 months from the date signed by commissioner.

Deponent Signature: _____

Date:_____

_____

Commissioner of Oaths
Signature & stamp
Date:

SWORN AFFIDAVIT – B-BBEE QUALIFYING SMALL ENTERPRISE - GENERAL

I, the undersigned,

Full name & Surname	
Identity number	

Hereby declare under oath as follows:

1. The contents of this statement are to the best of my knowledge a true reflection of the facts.

2. I am a Member / Director / Owner (**Select one**) of the following enterprise and am duly authorised to act on its behalf:

Enterprise Name:	
Trading Name (If Applicable):	
Registration Number:	
Vat Number (If applicable)	
Enterprise Physical Address:	
Type of Entity (CC, (Pty) Ltd, Sole Prop etc.):	
Nature of Business:	
Definition of "Black People"	As per the Broad-Based Black Economic Empowerment Act 53 of 2003 as Amended by Act No 46 of 2013 "Black People" is a generic term which means Africans, Coloureds and Indians – (a) who are citizens of the Republic of South Africa by birth or descent; or (b) who became citizens of the Republic of South Africa by naturalisation- i. before 27 April 1994; or ii. on or after 27 April 1994 and who would have been entitled to acquire citizenship by naturalization prior to that date;"
Definition of "Black Designated Groups"	"Black Designated Groups means: (a) unemployed black people not attending and not required by law to attend an educational institution and not awaiting admission to an educational institution; (b) Black people who are youth as defined in the National Youth Commission Act of 1996; (c) Black people who are persons with disabilities as defined in the Code of Good Practice on employment of people with disabilities issued under the Employment Equity Act; (d) Black people living in rural and under developed areas; (e) Black military veterans who qualifies to be called a military veteran in terms of the Military Veterans Act 18 of 2011;"

3. I hereby declare under Oath that:

- The Enterprise is _____% Black Owned using the flow-through principle as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,
- The Enterprise is _____% Black Female Owned as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,
- The Enterprise is _____% Black Designated Group Owned as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,
- Black Designated Group Owned % Breakdown as per the definition stated above:
    - Black Youth % = _____%
    - Black Disabled % =_____%
    - Black Unemployed % =_____%
    - Black People living in Rural areas % = _____%
    - Black Military Veterans % =_____%

- Based on the Audited Financial Statements/ Financial Statements and other information available on the latest financial year-end of _____ (DD/MM/YYYY), the annual Total Revenue was between R10,000,000.00 (Ten Million Rands) and R50,000,000.00 (Fifty Million Rands),

- Please confirm on the table below the B-BBEE level contributor, **by ticking the applicable box.**

100% Black Owned	**Level One** (135% B-BBEE procurement recognition level)	
At Least 51% black owned	**Level Two** (125% B-BBEE procurement recognition level)	

4. I know and understand the contents of this affidavit and I have no objection to take the prescribed oath and consider the oath binding on my conscience and on the owners of the enterprise which I represent in this matter.

5. The sworn affidavit will be valid for a period of 12 months from the date signed by commissioner.

Deponent Signature: _____

Date: _____

_____

Commissioner of Oaths
Signature & stamp
Date:

SWORN AFFIDAVIT – B-BBEE QUALIFYING SMALL ENTERPRISE – SPECIALISED ENTITY - GENERAL - which include (Not Limited to) Non-Profit Organisations, Non-Profit Companies, Public Benefit Organisations etc.

I, the undersigned,

Full name & Surname	
Identity number	

Hereby declare under oath as follows:

1. The contents of this statement are to the best of my knowledge a true reflection of the facts.

2. I am a Director of the following enterprise and am duly authorised to act on its behalf:

Enterprise Name:	
Trading Name (If Applicable):	
Registration Number:	
Vat Number (If applicable)	
Enterprise Physical Address:	
Type of Entity (NPO, PBO etc.):	
Nature of Business:	
Definition of "Black People"	As per the Broad-Based Black Economic Empowerment Act 53 of 2003 as Amended by Act No 46 of 2013 "Black People" is a generic term which means Africans, Coloureds and Indians – (a) who are citizens of the Republic of South Africa by birth or descent; or (b) who became citizens of the Republic of South Africa by naturalisation- i. before 27 April 1994; or ii. on or after 27 April 1994 and who would have been entitled to acquire citizenship by naturalization prior to that date;"
Definition of "Black Designated Groups"	"Black Designated Groups means: (a) unemployed black people not attending and not required by law to attend an educational institution and not awaiting admission to an educational institution; (b) Black people who are youth as defined in the National Youth Commission Act of 1996; (c) Black people who are persons with disabilities as defined in the Code of Good Practice on employment of people with disabilities issued under the Employment Equity Act; (d) Black people living in rural and under developed areas; (e) Black military veterans who qualifies to be called a military veteran in terms of the Military Veterans Act 18 of 2011;"

3. I hereby declare under Oath that:

- The Enterprise has _____% Black Beneficiaries as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,
- The Enterprise has _____% Black Female Beneficiaries as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,
- The Enterprise has _____% Black Designated Group Beneficiaries as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,
- Black Designated Group Beneficiary % Breakdown as per the definition stated above:
    - Black Youth % = _____%
    - Black Disabled % =_____%
    - Black Unemployed % =_____%
    - Black People living in Rural areas % =_____%
    - Black Military Veterans % =_____%

- Based on the Audited Financial Statements/ Financial Statements and other information available on the latest financial year-end of _____(DD/MM/YYYY), the annual Total Revenue/Allocated Budget/Gross Receipts was between R10,000,000.00 (Ten Million Rands) and R50,000,000.00 (Fifty Million Rands)

- Please confirm on the table below the B-BBEE level contributor, **by ticking the applicable box.**

At Least 75% Black Beneficiaries	**Level One** (135% B-BBEE procurement recognition level)	
At Least 51% Black Beneficiaries	**Level Two** (125% B-BBEE procurement recognition level)	

4. I know and understand the contents of this affidavit and I have no objection to take the prescribed oath and consider the oath binding on my conscience and on the owners of the enterprise which I represent in this matter.

5. The sworn affidavit will be valid for a period of 12 months from the date signed by commissioner.

Deponent Signature: _____

Date:_____

_____

Commissioner of Oaths
Signature & stamp
Date:

C1.1 Form of Offer & Acceptance

Offer

The Employer, identified in the Acceptance signature block, has solicited offers to enter into a contract for the procurement of:

FOR THE MAINTENANCE OF RAILWAY TRACK WITH ON-TRACK MECHANISED TURNOUT REPLACEMENT MACHINE FOR THE WESTERN REGION

The tenderer, identified in the Offer signature block, has examined the documents listed in the Tender Data and addenda thereto as listed in the Returnable Schedules, and by submitting this Offer has accepted the Conditions of Tender.

By the representative of the tenderer, deemed to be duly authorised, signing this part of this Form of Offer and Acceptance the tenderer offers to perform all of the obligations and liabilities of the *Contractor* under the contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the *conditions of contract* identified in the Contract Data.

The offered total of the Prices exclusive of VAT is	**R**
Value Added Tax @ 15% is	**R**
The offered total of the Prices inclusive of VAT is	**R**
(in words)	

This Offer may be accepted by the Employer by signing the Acceptance part of this Form of Offer and Acceptance and returning one copy of this document including the Schedule of Deviations (if any) to the tenderer before the end of the period of validity stated in the Tender Data, or other period as agreed, whereupon the tenderer becomes the party named as the *Contractor* in the *conditions of contract* identified in the Contract Data.

Signature(s) .....

Name(s) .....

Capacity .....

For the tenderer: .....

(Insert name and address of organisation)

Name & signature of witness ..... Date .....

Tenderer's CIDB registration number: .....

Acceptance

By signing this part of this Form of Offer and Acceptance, the Employer identified below accepts the tenderer's Offer. In consideration thereof, the Employer shall pay the Contractor the amount due in accordance with the *conditions of contract* identified in the Contract Data. Acceptance of the tenderer's Offer shall form an agreement between the Employer and the tenderer upon the terms and conditions contained in this agreement and in the contract that is the subject of this agreement.

The terms of the contract, are contained in:

Part C1	Agreements and Contract Data, (which includes this Form of Offer and Acceptance)
Part C2	Pricing Data
Part C3	Scope of Work: Service Information
Part C4	Affected Property

and drawings and documents (or parts thereof), which may be incorporated by reference into the above listed Parts.

Deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Returnable Schedules as well as any changes to the terms of the Offer agreed by the tenderer and the Employer during this process of offer and acceptance, are contained in the Schedule of Deviations attached to and forming part of this Form of Offer and Acceptance. No amendments to or deviations from said documents are valid unless contained in this Schedule.

The tenderer shall within two weeks of receiving a completed copy of this agreement, including the Schedule of Deviations (if any), contact the Employer's agent (whose details are given in the Contract Data) to arrange the delivery of any securities, bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the *conditions of contract* identified in the Contract Data at, or just after, the date this agreement comes into effect. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this agreement.

Notwithstanding anything contained herein, this agreement comes into effect on the date of award.

Unless the tenderer (now *Contractor*) within five working days of the date of such receipt notifies the Employer in writing of any reason why he cannot accept the contents of this agreement, this agreement shall constitute a binding contract between the Parties.

Signature(s) .....

Name(s) .....

Capacity .....

for the Employer

.....
(Insert name and address of organisation)

Name & signature of witness .....

Date .....

.

Schedule of Deviations

Note:

1. To be completed by the Employer prior to award of contract. This part of the Offer & Acceptance would not be required if the contract has been developed by negotiation between the Parties and is not the result of a process of competitive tendering.
2. The extent of deviations from the tender documents issued by the Employer prior to the tender closing date is limited to those permitted in terms of the Conditions of Tender.
3. A tenderer's covering letter must not be included in the final contract document. Should any matter in such letter, which constitutes a deviation as aforesaid be the subject of agreement reached during the process of Offer and Acceptance, the outcome of such agreement shall be recorded here and the final draft of the contract documents shall be revised to incorporate the effect of it.

No.	Subject	Details
1		
2		
3		
4		
5		
6		
7		

By the duly authorised representatives signing this Schedule of Deviations below, the Employer and the tenderer agree to and accept this Schedule of Deviations as the only deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Tender Schedules, as well as any confirmation, clarification or changes to the terms of the Offer agreed by the tenderer and the Employer during this process of Offer and Acceptance.

It is expressly agreed that no other matter whether in writing, oral communication or implied during the period between the issue of the tender documents and the receipt by the tenderer of a completed signed copy of this Form shall have any meaning or effect in the contract between the parties arising from this Agreement.

	For the tenderer:	**For the Employer**
Signature	.....	.....
Name	.....	.....
Capacity	.....	.....
On behalf of	..... *(Insert name and address of organisation)*	..... *(Insert name and address of organisation)*
Name & signature of witness	.....	.....
Date	.....	.....

C1.2 Contract Data

Part one - Data provided by the *Employer*

Clause	Statement	Data
1	**General**	
	The *conditions of contract* are the core clauses and the clauses for main Option:	
		A: Priced contract with price list
	dispute resolution Option	**W1: Dispute resolution procedure**
	and secondary Options	
		X2 Changes in the law
		X17 Low Service Damages
		X18 Limitation of Liability
		Z: *Additional conditions of contract*
	of the NEC3 Term Service Contract (June 2005) (and amended June 2006 and April 2013)	
10.1	The *Employer* is:	**Transnet SOC Ltd**
	Address	**Registered address:** **Transnet Corporate Centre** **96 Rissik Street** **Braamfontein** **Johannesburg, Gauteng** **2017**
	Having elected its Contractual Address for the purposes of this contract as:	**Transnet Freight Rail** **Transnet Park Building** **Robert Sobukwe Road** **Bellville**
	Tel No.	**021 940 1901 /084 764 1601**
10.1	The *Service Manager* is (name):	**Nozipho Hadebe**
	Address	**Inyanda House 1, 21 Wellington road, Parktown**

	Tel	**060 569 3891**
	e-mail	**nozipho.hadebe@transnet.net**
11.2(2)	The Affected Property is	**Western Region**
11.2(13)	The *service* is	**Maintenance of railway track with on track mechanised turnout replacement machine**
11.2(14)	The following matters will be included in the Risk Register	• **Machine operation in proximity of live OHTE.** • **Executing work on one line while a normal train service is running on adjacent line/s.** • **Staging the accommodation units of workers in yards in proximity of live OHTE and lines on which rail traffic runs continuously** • **Sanitation, refuse disposal, oil spillage and spoil disposal as a threat to the environment.** • **Machines working on sharp curves and steep gradients.** • **Machines working on embankments and in cuttings** • **Machines working on wet or high clay content ballast** • **Operating outside the working temperature range.** • **Machine must be capable to work without any damage to rails, sleepers, electrical and signal bonds, and any wayside equipment.** • **Working in tunnels with poor ventilation: Exhaust fumes pose a health hazard for TRIM staff manning the machine as well as the Contractor's Operators on the machines**
11.2(15)	The Service Information is in	**The Scope of Services**
12.2	The *law of the contract* is the law of	**the Republic of South Africa subject to the jurisdiction of the Courts of South Africa.**
13.1	The *language of this contract* is	**English**
13.3	The *period for reply* is	**2 weeks**
2	**The *Contractor*'s main responsibilities**	**No additional data is required for this section of the *conditions of contract***
21.1	The *Contractor* submits a first plan for acceptance within	**2 weeks of the Contract Date**

3	**Time**	
30.1	The *starting date* is.	**16 November 2026**
30.1	The *service period* is	**30 Days**
4	**Testing and defects**	**No additional data is required for this section of the *conditions of contract*.**
5	**Payment**	
50.1	The *assessment interval* is	**25th (twenty fifth) day of each successive month.**
51.1	The *currency of this contract* is the	**South African Rand.**
51.2	The period within which payments are made is	**Payment will be effected on or before the last day of the month following the month during which a valid Tax Invoice and Statement were received.**
51.4	The *interest rate* is	**The prime lending rate of the Standard Bank South Africa.**
6	**Compensation events**	**No additional data is required for this section of the *conditions of contract***
7	**Use of Equipment Plant and Materials**	**No additional data is required for this section of the *conditions of contract*.**
8	**Risks and insurance**	
80.1	These are additional *Employers* risks	**None**
83.1	The minimum limit of indemnity for insurance in respect of loss and damage to property (except goods, plant and materials and equipment) and liability for bodily injury or death of a person (not an employee of the *Contractor)* caused by activity in connection with this contract for any one event is:	**Whatever *Contractor* deems necessary as the *Employer* is not carrying this indemnity.**
83.1	The minimum limit of indemnity for insurance in respect of death of or bodily injury to employees of the *Contractor* arising out of and in the course of their employment in connection with this contract for any one event is:	**As prescribed by the Compensation for Occupational Injuries and Diseases Act No. 130 of 1993 and the *Contractor's* common law liability for people falling outside the scope of the Act.**
83.1	Motor Vehicle Liability Insurance comprising (as a minimum) "Balance of Third Party" Risks including Passenger and Unauthorised Passenger Liability indemnity with a minimum indemnity limit of R 5 000 000	

83.1	The *Contractor* liability to the *Employer* for indirect or consequential loss including loss of profit, revenue and goodwill, is limited to:	**The Total of the Prices.**
83.1	For any one event, the *Contractor* liability to the *Employer* for loss of or damage to the *Employers* property is limited to:	**The Total of the Prices.**
83.1	The *Contractor* total liability to the *Employer* for all matters arising under or in connection with this contract, other than the excluded matters, is limited to:	**The Total of the Prices.**
9	**Termination**	**There is no Contract Data required for this section of the *conditions of contract*.**
10	**Data for main Option clause**	
A	**Priced contract with price list**	
20.5	The *Contractor* prepares forecasts of the final total of the Prices for the whole of the *service* at intervals no longer than	**4 weeks.**
11	**Data for Option W1**	
W1.1	The *Adjudicator* is (Name)	**Both parties will agree as and when a dispute arises. If the parties cannot reach an agreement on the *Adjudicator*, the chairman of the Association of Arbitrators will appoint an *Adjudicator.***
W1.2(3)	The *Adjudicator nominating body* is:	
	If no *Adjudicator nominating body* is entered, it is	**The Association of Arbitrators (Southern Africa)**
W1.4(2)	The *tribunal* is:	**Arbitration**
W1.4(5)	The *arbitration procedure* is	**The Rules for the Conduct of Arbitrations of the Association of Arbitrators (Southern Africa)**
	The place where arbitration is to be held is	**Cape Town**
	The person or organisation who will choose an arbitrator - if the Parties cannot agree a choice or - if the arbitration procedure does not state who selects an arbitrator, is	**The Chairman of the Association of Arbitrators (Southern Africa)**
12	**Data for secondary Option clauses**	
X2	**Changes in the law**	**No additional data is required for this Option**

X17	**Low service damages**	
X17.1		

Performance level	% achieved of performance against Tw	Low service damages
Completion of Works measured against the accepted program	99-100% performance achieved	R0 (nil)
	95 - 98% performance achieved	2,5% of the monthly fixed cost as per Price List
	90 – 94% performance achieved	5% of the monthly fixed cost as per Price List
	88-89% performance achieved	7,5% of the monthly fixed cost as per Price List
	86-87% performance achieved	10% of the monthly fixed cost as per Price List
	84-85% performance achieved	12,5% of the monthly fixed cost as per Price List
	<84% performance achieved	15% of the monthly fixed cost as per Price List

X18	**Limitation of liability**	
X18.1	The *Contractor*'s liability to the *Employer* for indirect or consequential loss is limited to	**Nil**
X18.2	For any one event, the *Contractor*'s liability to the *Employer* for loss of or damage to the *Employer*'s property is limited to	**The deductible of the relevant insurance policy**
X18.3	The *Contractor*'s liability for Defects due to his design of an item of Equipment is limited to	**The cost of correcting the defect.**
X18.4	The *Contractor*'s total liability to the *Employer*, for all matters arising under or in connection with this contract, other than the excluded matters, is limited to	**Total of the Prices.**
X18.5	The *end of liability date* is	**Three months after the end of the *service period*.**
Z	***Additional conditions of contract***	
Z.1	**Obligations in respect of Termination**	
Z1.1		The following will be included under core clause 91.1: In the second main bullet, after the word 'partnership' add 'joint venture whether incorporated or otherwise (including any constituent of the joint venture)'; and

		Under the second main bullet, insert the following additional bullets after the last sub-bullet: • commenced business rescue proceedings (R22) • repudiated this Contract (R23)
Z1.2	Termination Table	The following will be included under core clause 90.2 Termination Table as follows: Amend "A reason other than R1 – R21" to "A reason other than R1 – R23"
Z1.3		Amend "R1 – R15 or R18" to "R1 – R15, R18, R22 or R23."
Z2	**Right Reserved by Transnet to Conduct Vetting through SSA**	
		Transnet reserves the right to conduct vetting through State Security Agency (SSA) for security clearances of any Contractor who has access to National Key Points for the following without limitations: 1. Confidential – this clearance is based on any information which may be used by malicious, opposing or hostile elements to harm the objectives and functions of an organ of state. 2. Secret – clearance is based on any information which may be used by malicious, opposing or hostile elements to disrupt the objectives and functions of an organ of state. 3. Top Secret – this clearance is based on information which may be used by malicious, opposing or hostile elements to neutralise the objectives and functions of an organ of state.
Z3	**Additional clause relating to Collusion in the Construction Industry**	
Z3.1		The contract award is made without prejudice to any rights Transnet may have to take appropriate action later with regard to any declared bid rigging including blacklisting.
Z4	**Protection of Personal Information Act**	
Z4.1		The *Employer* and the *Contractor* are required to process information obtained for the duration of the Agreement in a manner that is aligned to the Protection of Personal Information Act

C1.2 Contract Data

Part two - Data provided by the *Contractor.*

The tendering contractor is advised to read both the NEC3 Term Service Contract (June 2005) and the relevant parts of its Guidance Notes (TSC3-GN) in order to understand the implications of this Data which the tenderer is required to complete.

Completion of the data in full, according to Options chosen, is essential to create a complete contract.

Clause	Statement	Data
10.1	The *Contractor* is (Name): Address Tel No. Fax No.	
11.2(8)	The *direct fee percentage* is The *subcontracted fee percentage* is	**.....%** **.....%**
11.2(14)	The following matters will be included in the Risk Register	**T2.2-05**
24.1	The key persons are: 1 Name: Job: Responsibilities: Qualifications: Experience: 2 Name: Job Responsibilities: Qualifications: Experience:	**CV's (and further key person's data including CVs) are in T2.2-08**

A	**Priced contract with price list**	
11.2(12)	The *price list* is in	**C2.2**
11.2(19)	The tendered total of the Prices is	**R_____ excl. vat**

PART C2: PRICING DATA

Document reference	Title	No of pages
C2.1	Pricing instructions: Option A	2-10
C2.2	Price List	11-21

C2.1 Pricing instructions: Option A

2.1 The *conditions of contract*

2.2 How the contract prices work and assesses it for progress payments

Clause 11 in NEC3 Term Services Contract (TSC), June 2005 (with amendments June 2006 and April 2013) Option A states:

Identified and defined terms

11

11.2 (17) The Price for Services Provided to Date is the total of

- the Price for each lump sum item in the Price List which the *Contractor* has completed and
- where a quantity is stated for an item in the Price List, an amount calculated by multiplying the quantity which the *Contractor* has completed by the rate.

(19) The Prices are the amounts stated in the Price column of the Price List, where a quantity is stated for an item in the Price List, the Price is calculated by multiplying the quantity by the rate.

2.3 Measurement and Payment

1.3.1 The Price List provides the basis of all valuations of the Price for Services Provided to Date, payments in multiple currencies and general progress monitoring.

1.3.2 The amount due at each assessment date is based on activities and/or milestones completed as indicated on the Price List.

1.3.3 The Price List work breakdown structure provided by the *Contractor* is based on the activity/milestone provided by the Employer. The activities listed by the *Employer* are the minimum activities acceptable and identify the specific activities which are required to achieve Completion. T**he Price List work breakdown structure is compiled to the satisfaction of the *Employer* with any additions and/or amendments deemed necessary.**

1.3.4 The *Contractor's* detailed Price List summates back to the activity/milestone provided by the *Employer* and is sufficient detail to monitor completion of activities related to the operations on the Accepted Plan in order that payment of completed activities may be assessed.

1.3.5 The Prices are obtained from the Price List. The Prices includes for all direct and indirect costs, overheads, profits, risks, liabilities, obligations, etc. relative to the contract.

Measurement and payment for contract

This part C2 of the specification as well as any reference in part **C3** will apply to determine conditions under which payments for this contract are to be made:

The basis of payment of this contract is the no. of Turnout replaced.

2.1 Item 1

The purpose of the establishment payment is for the establishment of mobile accommodation facilities to cater for all operation and support staff undertaking the service. Establishment for plant and machinery will be catered under this item. An establishment payment will be made after the contractor has fully established in each depot and will be included on the payment certificate that will be discussed on the payment meeting.

Occasionally it might be required to call on the contractor to provide a second team for turnout replacement. If the Contractor is required to establish a second team, to execute turnout replacement on special request from employer in parallel with the main team working at the same time elsewhere, then payment for this establishment against Item 1.20 will be made per team that is required to replace the turnout.

It is presumed that the equipment to be used by the second team to do the turnout replacement work will not be the same as for the main team. As such a traditional track maintenance team utilizing labour intensive conventional perway equipment as opposed to highly mechanized means as for the main team second. The application of this second team shall be on lines where relative low train traffic volumes run.

2.2 Item 2: Re-assembling of turnouts from pre-assembled turnout panels.

Re-assembling of turnouts from pre-assembled turnout panels and clearing the site will be paid against item 2. no separate payment will be made for off-loading of complete pre-assembled panels arriving on purpose-built turnout transport wagons. the rates for all re-assembly of turnouts shall be independent of mass of rails or type of sleepers (concrete or wood).

2.3 Item 3: Re-assembling of turnout from material supplied in kit form.

Re-assembling of turnouts from material supplied in kit form and clearing the site will be paid against item 3. no separate payment will be made for off-loading trucks and sorting material. the rates for all re-assembly of turnouts or track sections shall be independent of mass of rails or type of sleepers (concrete or wood).

2.4 Item 4: Removal of turnout

A payment will be made for the cutting, upliftment and complete removal of a turnout from track, regardless of whether installing a replacement turnout or track section during the same occupation will follow this action. the rates for removal of turnouts/track section shall be independent of rail mass or type of sleepers (concrete or wood).

2.5 Item 5: Installation of pre- or re-assembled turnout into track.

A payment will be made for each turnout placed into track. Only the turnout angle will determine the applicable rate. The payment will be independent of rail mass, type of sleepers (concrete or wood) or design. The types of turnouts paid for shall be those referred to under Clause 3 of Part C3 Scope of Works. This rate shall cover the payment for all work associated for the proper installation of all components as described under Clause 4 of Part C3 Scope of Works (Particular Specification) to complete the installation to the A – standard.

2.6 Item 6: Re-aligning of turnouts and track

The Contractor shall allow for the slewing of turnouts and track to centres indicated by the Technical Officer. The work shall include the loosening of fastenings, the opening up of the sleeper heads, the slewing of the adjacent turnouts and track to the correct centres, and the making good of the work, including tamping by hand.

The slewing work required from the Contractor shall be strictly limited to what is essential for the installation of the new turnout to line up with adjacent track or turnouts. The distance over which the slew will be required shall again be limited to the close vicinity of the new installation for purpose of tying up with adjacent track or turnouts to a practical but acceptable versine standard. Slewing of the track further away shall be deemed to be related to revised track layout and fall outside the scope of work provided for in this rate. Measurements will be per each slew of 500mm or part thereof.

This payment will be made irrespective of the rail mass or type of track or turnout.

2.7 Item 7: Exothermic welding.

Payment shall be per weld. The rate tendered shall include for all the supervision, labour, equipment, the whole radiographic quality control process and consumables required to provide a quality weld. Employer will provide all Thermit portions and 1 long life crucible per 10 welds on site.

All Thermit welds associated with the installation of a turnout shall be paid for separately.

The Contractor shall be responsible and accountable to repair all substandard welding work by him. Substandard work which poses a risk to train traffic shall be repaired as a highest priority with minimal delay. All cost associated with repairing substandard work and radio graphic quality control shall be for the Contractor's account.

Employer shall not be responsible or become liable but reserves the right to repair substandard welding work if such substandard welding work poses a risk to the train service. In such an event the total costs for the repair work inclusive of the radio graphic quality control process will be recovered from the Contractor.

Junction welds shall paid for as a weld equal to the bigger part of the junction i.e. a 48/57kg junction weld shall be paid as a 57kg weld.

The rate for installation of a closure rail shall include for all activities associated for the installation of the closure rail in accordance with track work specifications. This include also cutting of existing rail and closure rail, loosening of fastenings, all ballast work, installation, fastening of fastenings, alignment of closure to existing track, lifting and tamping. All Exothermic welding shall be paid for separately.

The cost to perform the radiographic quality control as required shall be included in the rates tendered and no separate payment shall be made.

2.8 Item 8 and Item 9 Released material - dismantle, sorting, stacking and loading

The Contractor shall allow for sorting and grouping together of dismantled released material in accordance with Part C3 Scope of Work (Particular Specification). No separate payment will be made for sorting and grouping of released material.

The Contractor shall allow for all the work required to dismantle, stack and load onto rail trucks or to load the released turnout in panels onto turnout transport for dispatching to Beaconsfield. Measurements will be per each turnout or meter of track panel loaded.

Distinction in rates shall be made for complete/partial dismantling and handling of released turnouts against Item 9 as opposed to the handling and loading complete released panels onto turnout transport wagons against Item 10.

This payment will be made independent of the rail mass of the track or turnout

2.9 Item 10: Handling ballast, fill material and spoil.

Handling of ballast, spoil and fill material shall be paid for in accordance with ITEM 10.

For purpose of Item 10.1 it shall be assumed that during GFB and Ore line projects, removed ballast and spoil shall not be loaded into road/rail trucks. Where it is necessary during GFB and Ore line projects to load removed ballast and spoil into road/rail trucks then additional payment as per Item 10.3 shall apply.

For purpose of Item 10.2 it shall be assumed that during Coal line projects removed ballast and spoil shall always be loaded into road trucks to be dumped at designated spoil sites. Additional payment as per Item 10.3 shall therefore not apply to Coal line projects.

It shall also be assumed that for Coal line projects fill material will always be loaded into road trucks then brought to the installation site and dumped for installation. Item 10.4 shall therefore not normally apply to Coal line projects.

On GFB and the Ore line projects, removed ballast and spoil may be spoiled at designated sites within a radius of 100m subject to the discretion of the Technical Officer.

On Coal line projects, removed ballast and spoil may be spoiled at designated sites within a radius of 2000m subject to the discretion of the Technical Officer.

2.10 Item 11 Formation repair (see part c3 scope of works (specification))

Item 11.1. Category A formation repair

This is instances where the formation material was found to meet the S410 specification in terms of grading but lacking compaction. This rate shall include for all work required to re-compacting the top 200mm of the Sub Ballast layer to 95% mod AASTHO in accordance with normal earthwork practice.

Item 11.2, Item 11.3 and Item 11.4 - Category B1, B2, B3 formation repair

Removal to spoil material from formation to specified depth of 250mm (B1) or 200mm (B2 and B3), back fill with approved material by layer work to construct Category B1 or B2 or B3 design as per Table 1. Employer shall supply all back fill material as well as all Geocell, Tensar SS30, A5/6 Bidim and Polytex PT715 materials to a station nearest to the site of installation of the turnout.

Item 11.5, Item 11.6 and Item 11.7 - Category C1, C2, C3 formation repairs Removal to spoil of formation to specified depth of 200mm, back fill with approved material by layer work to construct Category C1 or C2 or C3 design as per Table 1. Employer shall supply all back fill material as well as all Geocell, Tensar SS30, A5/6 Bidim and Polytex PT715 materials in DZ trucks to the site of

installation of the turnout.

Item 11.8 – Coal line formation repairs – Table 1.1, 2, 3 and 3.2

Excavate and construct formation repair as per Tables 1.1, 2, 3 and 3.2 for Coal line turnout replacements. Employer shall supply all backfill material, geotextile materials and pipes.

Item 11.9 Troxler Density Meter

Payment for the availability and operation of a Troxler Density or similar on site for quality control of compaction shall be made against Item 11.9.

2.11 Item 12: Overtime

Item 12.1 and Item 12.2 Overtime payments will be made for occupation time recorded in excess of a normal shift as per Normal Working Hours or the occupation time recorded in excess of 8 hours for Double Shift. Payment shall be per Operation-Hour, which shall be inclusive for the whole operation.

Overtime shall only be payable if specifically authorized by the Technical Officer in writing prior to the time worked.

2.12 Item 13: Shift allowance

A Normal Shift Allowance instead of overtime shall be paid in accordance with Item 13.1 and Item 13.2 for normal shifts worked on Saturdays, Sundays and PPH as part of 5day/7day or 10day/14day shift working. Payment shall be per Shift of maximum up to 8 hours duration, which shall be inclusive for the whole operation.

A Night Shift Allowance shall be paid in accordance with Item 13.3 for each hour that the operation is required to work between the hours of 18h00 and 06h00. Payment shall be per Operation-Hour, which shall be inclusive for the whole operation.

A Double Shift Allowance shall be paid in accordance with Item 13.4 for each hour that the Contractor is required to work a second 8 hours shift in 24 hours. Normal Shift Allowances and Night Shift Allowances shall apply, where relevant, to Double Shift.

Double Shift payment shall be for the duration of a second shift of maximum 8 hours in 24 hours. Where this second shift is required to exceed the 8 hours duration, then Overtime rates shall apply from the start of the 9th hour of the second shift. Payment at the Double Shift rate shall stop at the end of the 8th hour of the second shift regardless of what the actual duration of the second shift is. Payment shall be per Operation-Hour, which shall be inclusive for the whole operation.

2.13 Item 14: Supply, operate and maintain of lighting

If lighting is required, the supply of lighting to the whole of the worksite of a sufficient spread and intensity to allow the work to proceed efficiently and safely will be paid for against Item 14. Payment shall be paid per turnout of lighting supplied.

2.14 Item 15: Moving TRIM camp

Payment against Item 15 shall be made for the actual track kilometre distance that the TRIM consist was moved from one work site to the next.

Tendered rates shall include for supervision, crew, communication, wear and tear while moving, fuel etc. The distance moved will be the shortest distance by rail between the old and new camps

and shall be measured to the nearest kilometre.

Other than what the Program of Work entails, a minimum of four weeks' notice will be given for moves from one place to another.

The payment shall be independent of the actual time taken for the move from one work site to the next.

It shall be noted that the Employer train service as far as moving of construction trains are concerned, is very unpredictable at this stage and could result in delays for the TRP consist to arrive at its destination.

2.15 Item 16: Road transport of turnout sleepers and turnout components

In the event of Employer failing to provide rail wagons in time for the rail transport of sleepers and components respectively from the factories to station nearest to point of installation then road transport may be considered.

The use of road transport will be a rarity but may none the less be required.

Payment shall be made in two parts. A fixed payment shall be made per turnout loaded and off-loaded regardless of distance it was transported. A further per kilometre payment shall be made based on Turnout-Sleeper-Set-km and Turnout-Component-Set-km for the transported loaded leg only.

The transport of Turnout Sleepers and the Turnout Components shall be paid for independently and separately since the origin destinations are not the same.

The Turnout Sleepers and the Turnout Components referred to here shall constitute an entire complete turnout with all its sub-assemblies and parts.

Payment for the transport of Sleepers and Components shall be inclusive for transporting to point of installation and off-loading.

In the event of Employer failing to provide rail wagons in time for the rail transport of concrete sleepers and turnout components from the factories at De Aar and Bloemfontein/Kimberley respectively then road transport may be considered. The Contractor shall execute this transport of turnouts when called upon to do so.

2.16 Item 17: Cell phone costs

Cell phone costs in excess of the Talk 500 package will be paid for against Item 17 on authentic proof from the Contractor that such costs were incurred for official operational purposes associated with the replacement of turnouts.

2.17 Item 18: Miscellaneous additional work

The rate for Day Labour under ITEM 18.1 will apply in respect of additional labour approved by the Technical Officer for minor specific tasks with limited scope and duration from time to time.

The number of labourers required and the tasks to be completed must be authorized in writing by the Technical Officer before commencement of the work.

The contractor shall supply, install, remove and transport all joggle plates and clamps. Payment as per Item 18.2 shall be made for the supply, fitment, removal and transport of joggle plates and clamps for each new weld.

Item 18.2 shall include for providing a securely joggled weld utilizing a set of joggle plates complete with two clamps for the whole duration of time from when the weld was completed until the time of

final certification of the weld. Any material failure to maintain a securely joggled weld during this period shall cancel the Contractor's entitlement for payment against Item 18.2 for that weld.

Item 18.2 shall include the work for removal and re-fitting the joggles for radio graphic testing as well as final removal and transportation to the next site on final certification of the weld.

The Contractor shall be responsible for destressing a panel of 80 sleepers of track on either side and directly adjoining the installation site. The start and end of the installation site for this purpose shall be nine meters away from the installation site on either side measured from the SRJ and EOS respectively.

One payment as per Item 18.3 shall be made for the destressing the two track panels of 80 sleepers, one on either side of the installation site. This payment shall include for an A-frame quality measurement on each leg on both sides of the installation site i.e. four A-frame measurements. The tests shall be taken immediately on completion of the destressing.

The A-frame measurements shall be taken on the open track at approximately 10 meters from the start and end of the installation site.

Payment against Item 18.3 shall only be made based on an A-frame test confirming that the stress free temperature of the track is within the A-range for that area.

Item 18.3 shall include for replacement of fastenings during destressing if necessary. In the case of fist fastenings it shall include only fist pins which can be removed by maximum four blows of a 2kg hammer.

2.18 Item 19: X-ray of weld.

Occasionally it might be required to call on the contractor to provide a team for the X-rays. If the Contractor is required to provide a team, to do the X-rays on special request from employer in parallel with the main team working at the same time elsewhere, then payment for this establishment against Item 1.20 will be made per the X-ray done.

2.19 Item 20: Formation rehabilitation

Occasionally it might be required to call on the contractor to provide a team for formation rehabilitation. If the Contractor is required to provide a team, to do the formation on special request from employer in parallel with the main team working at the same time elsewhere, then payment for this establishment against Item 1.20. Please note that the payment for this item will be made per meter, therefore the contractor is required to include all cost relating to the formation rehabilitation on this rate.

2.20 Item 21: Rehabilitation of embankment

Occasionally it might be required to call on the contractor to provide a team for rehabilitation of Embankment. If the Contractor is required to provide a team, to do the formation on special request from employer in parallel with the main team working at the same time elsewhere, then payment for this establishment against Item 1.20. Please note that the payment for this item will be made per meter, therefore the contractor is required to include all cost relating to the rehabilitation of Embankment on this rate.

2.21 Item 22: Rehabilitation of Embankments

Occasionally it might be required to call on the contractor to provide a team for rehabilitations of embankments. If the Contractor is required to provide a team, to do the rehabilitation of embankments on special request from employer in parallel with the main team working at the same time elsewhere, then payment for this establishment against Item 1.20. Please note that the

payment for this item will be made per meter, therefore the contractor is required to include all cost relating to the rehabilitation of embankments on this rate.

2.22 Item 23: Construction of concrete drains

Occasionally, the Contractor may be required by the Employer to provide a team for the construction of concrete drains in addition to turnout installations. When such work is required by the Employer, payment for this establishment will be made under Item 1.20. Payment for this item will be made per meter of concrete drained constructed. The contractor shall be deemed to have included in the rate for Item 1.20 all cost associated with construction of concrete drains, but not limited to labour, supervision, plant, equipment, materials, transport, overheads and all expenses necessary to complete the work.

2.22 Item 24: Clearing site for turnout building

Occasionally it might be required to clear the site where turnout pre-building works is to be carried out. If the Contractor is required to provide a team and machinery, to perform the aforementioned works, then payment for this establishment against Item 1.20. Please note that the payment for this item will be made per square meter, therefore the contractor is required to include all cost relating to the clearing of site on this rate.

2.23 Item 25: Ballast screening by hand

Occasionally it might be required to screen and sift the ballast by hand. If the Contractor is required to provide a team, to perform the aforementioned works, then payment for this establishment against Item 1.20. Please note that the payment for this item will be made per meter, therefore the contractor is required to include all cost relating to ballast screening on this rate.

2.24 Item 26: Supply of craddle bs

The contractor shall supply a pair of cradle Bs for each turnout. The contractor shall request the specifications and designs from the employer prior to the purchasing of components. The employer will send a request in advance to the contractor with regards to the purchasing of such components. Please note that the payment for this item will be made per pair (2 Craddle Bs), therefore the contractor is required to include all cost relating to cradle Bs on this item.

2.25 Item 27: Supply of complete set of signalling rods

The contractor shall supply a complete set of signalling rods for each turnout. The contractor shall request the specifications and designs from the employer prior to the purchasing of components. The employer shall send a request in advance to the contractor with regards to the purchasing of such components. Please note that the payment for this item will be made per complete set, therefore the contractor is required to include all cost relating to these components on this item.

2.26 Item 28: Removal of skid marks.

Occasionally the contractor might be required to remove skid marks. If the Contractor is required to provide a team, to perform the aforementioned works, then payment for this establishment against Item 1.20. Please note that the payment for this item will be made per skid mark, therefore the contractor is required to include all cost relating to the whole process of removing a skid mark.

2.27 Item 29: Ramp construction

Occasionally it might be required to construct a ramp (in cuttings and embankments) where a route towards the installation point is required. If the Contractor is required to provide a team and machinery, to perform the works, then payment for this establishment against Item 1.20. Please note that the payment for this item will be made per meter, therefore the contractor is required to include all cost relating to the construction of a ramp.

2.28 Item 30: Rail replacement

Occasionally it might be required to replace long welded rails (CWR). If the Contractor is required to provide a team and machinery, to perform the aforementioned works, then payment for this establishment against Item 1.20. Please note that the payment for this item will be made per one length of 240m continuously welded rail, therefore the contractor is required to include all cost relating to rail replacement.

C2.2 Price List

Item No.	Description	Unit	Qty	Rate	Total
1	**Establishment**				
1.1	Establishment	Per Depot	1		
1.2	Hand Team Establishment (Second Team)	Per Depot	1		
2	**Re-assembly of turnouts from material supplied in completed panels**				
2.1	Scissors 1:9 wood or concrete	Each	0	Rate Only	
2.2	1:9 Turnout wood or concrete	Each	0	Rate Only	
2.3	1:12 Turnout wood or concrete	Each	0	Rate Only	
2.4	1:20 Turnout wood or concrete	Each	0	Rate Only	
2.5	1:7 Double slip wood or concrete	Each	0	Rate Only	
2.6	Track section concrete or wood	Meter	0	Rate Only	
3	**Re-assembly of turnouts from material supplied in kit form.**				
3.1	Scissors 1:9 wood or concrete	Each	0	Rate Only	
3.2	1:9 Turnout wood or concrete	Each	2		
3.3	1:12 Turnout wood or concrete	Each	13		
3.4	1:20 Turnout wood or concrete	Each	0	Rate Only	
3.5	1:7 Double slip wood or concrete	Each	0	Rate Only	
3.6	Track section concrete or wood	Metre	2500		
4	**Removal of turnouts**				
4.1	Scissors 1:41/2 wood or concrete sleepers				
4.1.1	Work areas situated between multiple lines	Each	0	Rate Only	

Item No.	Description	Unit	Qty	Rate	Total
4.2	1:9 Turnout wood or concrete				
4.2.1	Work situated in an accessible area without obstructions with an adjacent line available for ease movement and operation	Each	0	Rate Only	
4.2.2	No adjacent track available	Each	0	Rate Only	
4.2.3	Work site situated in between multiple railway lines	Each	1		
4.2.4	No service road access to site	Each	1		
4.2.5	Formation level of work in an embankment 1m and higher	Each	0	Rate Only	
4.2.6	Formation level of work in a cutting 1m and deeper	Each	0	Rate Only	
4.2.7	Track Section	Metre	500		
4.3	1:12 Turnout wood or concrete				
4.3.1	Work situated in an accessible area without obstructions with an adjacent line available for ease movement and operation	Each	0	Rate Only	
4.3.2	No adjacent track available	Each	0	Rate Only	
4.3.3	Work site situated in between multiple railway lines	Each	5		
4.3.4	No service road access to site	Each	4		
4.3.5	Formation level of work in an embankment 1m and higher	Each	4		
4.3.6	Formation level of work in a cutting 1m and deeper	Each	0	Rate Only	
4.3.7	Track Section	Metre	2000		
4.4	1:20 Turnout wood or concrete				
4.4.1	Work situated in an accessible area without obstructions with an adjacent line available for ease movement and operation	Each	0	Rate Only	

Item No.	Description	Unit	Qty	Rate	Total
4.4.2	No adjacent track available	Each	0	Rate Only	
4.4.3	Work site situated in between multiple railway lines	Each	0	Rate Only	
4.4.4	No service road access to site	Each	0	Rate Only	
4.4.5	Formation level of work in an embankment 1m and higher	Each	0	Rate Only	
4.4.6	Formation level of work in a cutting 1m and deeper	Each	0	Rate Only	
4.4.7	Track Section	Metre	0	Rate Only	
4.5	1:7 Double slip wood or concrete				
4.5.1	Work site situated in between multiple railway lines	Each	0	Rate Only	
5	**Installation of re- or pre-assembled turnout into track**				
5.1	Scissors 1:41/2 wood or concrete sleepers				
5.1.1	Work situated in an accessible area without obstructions with an adjacent line available for ease movement and operation	Each	0	Rate Only	
5.2	1:9 Turnout wood or concrete				
5.2.1	Work situated in an accessible area without obstructions with an adjacent line available for ease movement and operation	Each	1		
5.2.2	No adjacent track available	Each	1		
5.2.3	Work site situated in between multiple railway lines	Each	0	Rate Only	
5.2.4	No service road access to site	Each	0	Rate Only	
5.2.5	Formation level of work in an embankment 1m and higher	Each	0	Rate Only	

Item No.	Description	Unit	Qty	Rate	Total
5.2.6	Formation level of work in a cutting 1m and deeper	Each	0	Rate Only	
5.2.7	Track Section	Metre	500		
5.3	1:12 Turnout wood or concrete				
5.3.1	Work situated in an accessible area without obstructions with an adjacent line available for ease movement and operation	Each	0	Rate Only	
5.3.2	No adjacent track available	Each	5		
5.3.3	Work site situated in between multiple railway lines	Each	4		
5.3.4	No service road access to site	Each	4		
5.3.5	Formation level of work in an embankment 1m and higher	Each	0	Rate Only	
5.3.6	Formation level of work in a cutting 1m and deeper	Each	0	Rate Only	
5.3.7	Track Section	Metre	2000		
5.4	1:20 Turnout wood or concrete				
5.4.1	Work situated in an accessible area without obstructions with an adjacent line available for ease movement and operation	Each	0	Rate Only	
5.4.2	No adjacent track available	Each	0	Rate Only	
5.4.3	Work site situated in between multiple railway lines	Each	0	Rate Only	
5.4.4	No service road access to site	Each	0	Rate Only	
5.4.5	Formation level of work in an embankment 1m and higher	Each	0	Rate Only	
5.4.6	Formation level of work in a cutting 1m and deeper	Each	0	Rate Only	
5.4.7	Track Section	Metre	0	Rate Only	

Item No.	Description	Unit	Qty	Rate	Total
5.5	1:7 Double slip wood or concrete				
5.5.1	Work site situated in between multiple railway lines	Each	0	Rate Only	
6	**Re-alignment of turnouts and track (more than 500mm)**				
6.1	Scissors 1:41/2 (wood or concrete sleepers)	Each	0	Rate Only	
6.2	1:9 Turnout (Wood or concrete sleepers)	Each	2		
6.3	1:12 Turnout (Wood sleepers or concrete sleepers)	Each	13		
6.4	1:20 Turnout (Wood sleepers or concrete sleepers)	Each	0	Rate Only	
6.5	1:7 Double slip (wood or concrete sleepers)	Each	0	Rate Only	
6.6	Track section (Wood or concrete sleepers)	Metre	2500		
7	**Exothermic welding and Additional closures outside turnout**				
7.1	Install closure complete (excl. exothermic welds)		0	Rate Only	
7.1.1	Work situated in an accessible area without obstructions with an adjacent line available for ease movement and operation	Metre	10		
7.1.2	No adjacent track available	Metre	50		
7.1.3	Work site situated in between multiple railway lines	Metre	270		
7.1.4	No service road access to site	Meter	150		
7.1.5	Formation level of work in an embankment 1m and higher	Meter	50		
7.1.6	Formation level of work in a cutting 1m and deeper	Meter	10		
7.2	Exothermic welding 60kg SKV-F,M,L (all rail profiles) HSH/Gr900				

Item No.	Description	Unit	Qty	Rate	Total
7.2.1	Work situated in an accessible area without obstructions with an adjacent line available for ease movement and operation	Each	20		
7.2.2	No adjacent track available	Each	100		
7.2.3	Work site situated in between multiple railway lines	Each	200		
7.2.4	No service road access to site	Each	40		
7.2.5	Formation level of work in an embankment 1m and higher	Each	20		
7.2.6	Formation level of work in a cutting 1m and deeper	Each	10		
7.3	**Exothermic welding 57kg SKV-F,M,L (all rail profiles) HSH/Gr900**				
7.3.1	Work situated in an accessible area without obstructions with an adjacent line available for ease movement and operation	Each	0	Rate Only	
7.3.2	No adjacent track available	Each	0	Rate Only	
7.3.3	Work site situated in between multiple railway lines	Each	0	Rate Only	
7.3.4	No service road access to site	Each	0	Rate Only	
7.3.5	Formation level of work in an embankment 1m and higher	Each	0	Rate Only	
7.3.6	Formation level of work in a cutting 1m and deeper	Each	0	Rate Only	
7.4	Exothermic welding 48kg SKV-F,M,L (all rail profiles) HSH/Gr900				
7.4.1	Work situated in an accessible area without obstructions with an adjacent line available for ease movement and operation	Each	0	Rate Only	
7.4.1	No adjacent track available	Each	15		
7.4.2	Work site situated in between multiple railway lines	Each	20		
7.4.3	No service road access to site	Each	15		

Item No.	Description	Unit	Qty	Rate	Total
7.4.4	Formation level of work in an embankment 1m and higher	Each	0	Rate Only	
7.4.5	Formation level of work in a cutting 1m and deeper	Each	0	Rate Only	
8.00	**Released material - Dismantle, Sort, Stack and Load**				
8.1	Scissors 1:41/2 wood or concrete sleepers				
8.1.1	Work site situated in between multiple railway lines	Each	0	Rate Only	
8.2	1:9 Turnout wood or concrete				
8.2.1	Work situated in an accessible area without obstructions with an adjacent line available for ease movement and operation	Each	0	Rate Only	
8.2.2	No adjacent track available	Each	0	Rate Only	
8.2.3	Work site situated in between multiple railway lines	Each	1		
8.2.4	No service road access to site	Each	1		
8.2.5	Formation level of work in an embankment 1m and higher	Each	0	Rate Only	
8.2.6	Formation level of work in a cutting 1m and deeper	Each	0	Rate Only	
8.2.7	Track Section	Metre	500		
8.3	1:12 Turnout wood or concrete				
8.3.1	Work situated in an accessible area without obstructions with an adjacent line available for ease movement and operation	Each	0	Rate Only	
8.3.2	No adjacent track available	Each	5		
8.3.3	Work site situated in between multiple railway lines	Each	4		
8.3.4	No service road access to site	Each	4		
8.3.5	Formation level of work in an embankment 1m and higher	Each	0	Rate Only	

Item No.	Description	Unit	Qty	Rate	Total
8.3.6	Formation level of work in a cutting 1m and deeper	Each	0	Rate Only	
8.3.7	Track Section	Metre	2000		
8.4	1:20 Turnout wood or concrete				
8.4.1	Work situated in an accessible area without obstructions with an adjacent line available for ease movement and operation	Each	0	Rate Only	
8.4.2	No adjacent track available	Each	0	Rate Only	
8.4.3	Work site situated in between multiple railway lines	Each	0	Rate Only	
8.4.4	No service road access to site	Each	0	Rate Only	
8.4.5	Formation level of work in an embankment 1m and higher	Each	0	Rate Only	
8.4.6	Formation level of work in a cutting 1m and deeper	Each	0	Rate Only	
8.4.7	Track Section	Metre	0	Rate Only	
8.5	1:7 Double slip wood or concrete				
8.5.1	Work site situated in between multiple railway lines	Each	0	Rate Only	
9	**Released material - Load panels on Turnout Panell Transport wagons**				
9.1	Scissors 1:41/2 wood or concrete sleepers	Each	0	Rate Only	
9.2	1:9 Turnout on Wood or Concrete sleepers	Each	2		
9.3	1:12 Turnout on Wood or Concrete sleepers	Each	13		
9.4	1:20 Turnout on Wood or Concrete sleepers	Each	0	Rate Only	
9.5	1:7 Double slip wood or concrete sleepers	Each	0	Rate Only	
9.6	Track section on Wood or Concrete	Metre	2500		

Item No.	Description	Unit	Qty	Rate	Total
10	**Removal/Loading/Off-loading of ballast / spoil**				
10.1	Removal of existing ballast and spoil : To-Spoil (GFB and Ore line : Free Haul = 100m)	M3	9005		
10.2	Removal of existing ballast/spoil : To-Spoil (Coal line : Free Haul = 2000m)	M3	0	Rate Only	
10.3	Removal of existing ballast/spoil : Load-into-rail/road-trucks (GFB and Ore line only)	DZ Truck	0	Rate Only	
10.4	Off-Load ballast/fill material/spoil : From rail trucks	DZ Truck	300		
10.5	Box in Ballast from Stockpile by a TLB and Bobcat	Hour	1590		
10.6	Overhaul (GFB and Ore line Free Haul = 100m)	M3-KM	14500		
10.6	Overhaul (Coal line Free haul = 2km)	M3-KM	0	Rate Only	
11	**Formation repair (including Ballast bed)**				
11.1	Category A: Rip and compact (Table 1)	M3	1200		
11.2	Category B1: Excavate to spoil, Construct design, backfill and compact(Table 1)	M3	0	Rate Only	
11.3	Category B2: Excavate to spoil, Construct design, backfill and compact (Table 1)	M3	0	Rate Only	
11.4	Category B3: Excavate to spoil, Construct design, backfill and compact(Table 1)	M3	0	Rate Only	
11.5	Category C1: Excavate to spoil, Construct design, backfill and compact(Table 1)	M3	0	Rate Only	
11.6	Category C2: Excavate to spoil, Construct design, backfill and compact(Table 1)	M3	0	Rate Only	
11.7	Category C3: Excavate to spoil, Construct design, backfill and compact (Table 1)	M3	9005		
11.8	Category Coal line Excavate to spoil, Construct design, backfill and compact (Table 1.1, 2, 3 and 3.2)	M3	0	Rate Only	

Item No.	Description	Unit	Qty	Rate	Total
11.9	Supply, Operate and Maintain Troxler Density Meter	day	10		
12	**Overtime**				
12.1	Normal Over time and Saturday time	Operation -Hour	360		
12.2	Sunday and Public Paid Holiday time	Operation -Hour	20		
13	**Shift Allowance**				
13.1	Normal Shift Allowance (Saturday) maximum 8 hours	Operation -Hour	24		
13.2	Normal Shift Allowance (Sunday and Public Paid Holiday) maximum 8 hours	Operation -Hour	24		
13.3	Night Shift Allowance	Operation -Hour	108		
13.4	Double Shift (maximum 8 hours)	Operation -Hour	72		
14	**Supply, Operate and Maintain of lighting**	day	20		
15	**Moving Camp and Accommodation**				
15.1	Moving Camp by road - No TFR wagon supplied	Km	2600		
15.2	Moving Camp by rail - TFR wagons supplied	Km	0	Rate Only	
15.3	Accommodation - No TFR wagons supplied	day	25		
16	**Road transport from factory to site (Off-loading included)**				
16.1	Complete set of concrete sleepers for 1:9 turnout	Km	2200		
16.2	Complete set of rail steel and fastenings for 1:9 turnout	Km	2200		

Item No.	Description	Unit	Qty	Rate	Total
16.3	Fixed payment per complete 1:9 loaded and off-loaded	Turnout	2		
16.4	Complete set of concrete sleepers for 1:12 turnout	Km	12100		
16.5	Complete set of rail steel and fastenings for 1:12 turnout	Km	12100		
16.6	Fixed payment per complete 1:12 loaded and off-loaded	Turnout	13		
16.7	Complete set of concrete sleepers for 1:20 turnout	Km	0	Rate Only	
16.8	Complete set of rail steel and fastenings for 1:20 turnout	Km	0	Rate Only	
16.9	Fixed payment per complete 1:20 loaded and off-loaded	Turnout	0	Rate Only	
17	**Cellphone costs in excess of Talk 500**	Sum	1		
18	**Miscellaneous additional work**				
18.1	Day Labour	Man-hour	2500		
18.2	Supply, fit to new welds, remove, transport of joggle plates and clamps (2 clamps per weld)	Weld	376		
18.3	Destressing 80 meters of track on either side of the installation site	Work Site	15		
19	**X - Ray of welds and Supply of Thermit Portions**				
19.1	X-Ray of weld 60kg SKV-F,M,L (all rail profiles) HSH/Gr900	per X - Ray	375		
19.2	X-Ray of weld 57kg SKV-F,M,L (all rail profiles) HSH/Gr900	per X - Ray	0	Rate Only	
19.3	X-Ray of weld 48kg SKV-F,M,L (all rail profiles) HSH/Gr900	per X - Ray	0	Rate Only	
19.4	Supply of Crucibles	Each	0	Rate Only	

Item No.	Description	Unit	Qty	Rate	Total
19.5	Supply of Thermit Portions-48 kg SKV-F SUC Thermit Welding kits	Each	0	Rate Only	
19.6	Supply of Thermit Portions-48/57 kg SKV-F SUC Thermit Welding kits	Each	0	Rate Only	
19.7	Supply of Thermit Portions-57 kg SKV-F SUC Thermit Welding kits	Each	0	Rate Only	
19.8	Supply of Thermit Portions-57 /UIC 60kg SKV-F SUC Thermit Welding kits	Each	0	Rate Only	
19.9	Supply of Thermit Portions-UIC 60 kg SKV-F SUC Thermit Welding kits	Each	0	Rate Only	
20	Formation Rehabilitation	Metre	0	Rate Only	
21	Building of Track Superstructure (sleepers and steel)	metre	0	Rate Only	
22	Rehabilitation of Embankments	Metre	0	Rate Only	
23	Construction of Concrete drains	Metre	0	Rate Only	
24	Site Clearance for Set Building	Square Metre	11754		
25	Ballast Screening by Hand	Metre	0	Rate Only	
26	Supply of Craddle Bs (2 per set)	Set	0	Rate Only	
27	Supply of Complete set of Signalling Rods	Set	0	Rate Only	
28	Skid mark Removal	Each	0	Rate Only	
29	Ramp Construction (Cuttings and Embankments)	Metre	50		
30	Rail Replacement	240m of CWR	0	Rate Only	
Subtotal excl. VAT carried to C1.1 Form of Offer					

Machine Category: Turnout Replacement Machine Service

Number of Machine Service Packages Required = 1

Part C 3.1

Service Information by the Employer

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1. DEFINITIONS

The following definitions shall apply in addition to those of any specifications attached.

1.1 **Free-On-Rail:** Free on rail implies allowing the *Contractor* to move an On Track machine from one track destination to another with no track usage cost levied on the *Contractor*. The *Employer* provides the right of passage and the pilot required, without cost and at times whereby such a passage and pilot can be made available by the *Employer.* Free-on-rail passage will normally be allowed for at the start of a contract to deliver a machine to the starting place of work and at the end of the contract to return a machine to the *Contractor*s depot if required by the *Contractor*. Free-on-Rail movement of a machine during a contract for major workshop repairs required of a machine may only occur if specifically agreed to by the *Service Manager*. Such a move shall then occur during the *Contractor*s time.

1.2 **E7/1:** Specification for General Work and Works On, Over, Under, Or Adjacent to Railway Lines and Near High Voltage Equipment

1.3 **OEM** refers to the Original Equipment Manufacturer of the Machinery

1.4 **Turnout Installation Site:** The final installation site in the track where the *Contractor* removes the existing turnout or turnout panels, replaces this with the new assembled turnout or turnout panels, and builds and finalises the completed turnout in track.

1.5 **Turnout Assembly Area:** The levelled area adjacent to the track where the *Contractor* takes delivery of all materials and re-assembles these into a completed turnout or turnout panels, ready for subsequent installation. The *Employer* will be responsible for the levelling and preparation of this area. This area shall be as close as practically possible to the Turnout Installation Site but shall be a rail distance of no more than 2 km from the Turnout Installation Site.

1.6 **Turnout Replacement Machine**: Also referred to as the Machinery: All on-track machinery provided by the *Contractor* for executing the Work, i.e., the entire on-track machine package, complete with all fittings, accessories, and all ancillary equipment, as may be required to comply with the Contract specifications.

1.7 **Turnout Replacement Train**: The consist containing all on-track plant items used in association with the turnout replacement operation.

1.8 **Accommodation wagons**: All the wagons associated with the turnout replacement machine making up the balance of the turnout replacement train consist which are not used as integral part of the relaying operation such as wagons carrying self-contained accommodation units, lifting equipment, small plant, hand tools and equipment, vehicles, stores, consumables, spares, fuel, offices, workshops etc.

1.9 **Service Manager**. The person or juristic person appointed by the *Employer* from time to time to administer the contract according to the NEC3 Term Services Contract (TSC3) and in terms of this contract.

1.10 **Service Manager.** Any person appointed by the *Employer* to to administer the performance and quality of the works according to the NEC3 Term Services Contract (TSC3) and in terms of this contract.

1.11 **Normal Working Hours (NWH):** A single continuous shift of maximum 8 hours in each 24-hour day for 5 consecutive days out of every 7 days or alternatively for 10 consecutive days out of every 14 days. A second 8 hour within the 24 hours may be worked but shall be referred to as a Double Shift. The *Service Manager* will determine the starting times, which may vary to suit seasonal changes and train timetables. If the machines are working or travelling, the Service Manager shall advise the *Contractor* of the starting time of the next occupation before 12H00 on the day preceding the next occupation. If it is during the off-period of the machine, then the Service Manager shall advise the *Contractor* at least by 12H00 on the day preceding the start of the off-period of the starting time of the next occupation.

1.12 **Maximum Occupation Time (TOM)** means the total occupation time granted by the *Employer* to the *Contractor* to execute the *services* as per the contract agreement.

1.13 **Working time.** The time between the actual start and end times of an occupation, excluding time on the critical path of the day's replacement operations lost which may be attributed by the *Employer*.

1.14 **Overtime.** Means any time worked more than the hours of a normal working day and any time worked on Saturdays, Sundays, and statutory public holidays in excess of 5 consecutive days out of 7-day period or in excess of 10 consecutive days out of 14-day period, all on the written instruction of, or as approved by the Service Manager.

1.15 **Normal Shift Working** (not exceeding Normal Working Hours): Shifts (8 hours) worked on Saturdays, Sunday, or on Public Paid Holidays, up to Normal Working Hours.

1.16 **Night Shift Working** (Occupation time between 18h00 to 06h00): Night Shift Working will apply to any part of any shift for which occupation time has been approved and happens to fall between 18h00 and 06h00 on any day of the week inclusive of Public Paid Holidays.

1.17 **Double Shift Working**: A second shift of 8 hours within any 24 hour period. Double Shift Working may be used by the *Employer* as and when required.

1.18 **Occupation:** The formal closure of the line to normal rail traffic for a specified period of time arranged in accordance with Infrastructure Occupation Management System (IOMS) or any other system and implemented in accordance with the Protection Manual.

1.19 **Total Occupation Time (To):** shall be the total of the time from when the first on-track machine arrives on site until the last machine leaves the site.

1.20 **Train Crossing Time (Tx):** means the time for the machine to wait for train crossings.

1.21 **Travelling Time (Tt)**: means the time for the machine to travel on track between work site and the staging site (or vice-versa), or between work sites, or to clear the section.

1.22 **Movement Time (Tm):** Time allowed to move from one staging area to another when machine is required to move to new depot or area.

1.23 **Breakdown time (Tb)**: means all periods during which any machine or any part of a machine is non-available.

1.24 **Standing Time (Ts):** means the loss of Working Time (Tw) incurred by the *Contractor* due to reasons attributed to the *Employer*.

1.25 **Shutdown:** Closure of a specific line, for example the Iron Ore line once a year for limited period (e.g., 10 days) to perform a large volume of work. Shutdowns on various lines may be to varying degrees i.e., it may range from total shutdown perhaps requiring Double Shift Working where all normal train traffic on a line is suspended for the duration of the shutdown to a situation utilizing extended occupations with normal train operation windows in between. Some Shutdowns will be partial in the sense that while work is performed on one line and on one section of the line, normal train operations will proceed on adjacent line/s and adjacent sections of the same line.

1.26 **Standing Time** means the loss of Working Time (Tw) incurred by the *Contractor* due to reasons attributed to the *Employer*

1.27 **Emergency work** means unplanned work that may be requested by the *Employer* as and when an incident or risk arises. The *Employer* will make all the necessary arrangements to move the machine to and from the emergency work side.

2. DESCRIPTION OF THE SERVICE

2.1. Overview

2.1.1. This Contract requires the complete replacement of existing turnouts with new (or second hand) turnouts. It shall include: the removal, dismantling, stacking, loading of the old turnout or turnout panels, removal of ballast, formation repair and drainage construction, re-assembly of new turnout, transport of assembled turnout or turnout panels to installation site, installation of new turnout, all track welding and related work, lifting, aligning, and tamping with heavy-on-track turnout tamper, new ballast work and ballast regulating (off-loading and boxing in of ballast), and finalization. All other necessary track work for the proper completion of the works is included, including cleaning of site after completion of occupation.

2.1.2. Due to the high risk of injury related to material handling, it is a specific condition of this contract that the work be done by mechanised means involving the minimum number of manual labours. This is therefore a *Supply, Operate and Maintain Contract* for a mechanized turnout replacement machine plus all related-on track machines, the operation and maintenance of all equipment, and the provision of all associated support required to achieve the output.

2.1.3. The minimum requirements for this contract shall include a turnout replacement machine, plus one heavy on-track ballast tamper capable of tamping turnouts, plus all necessary hand labour for the finalising of the installation. Additionally, the following shall be provided: all associated labour, supervision, road vehicles, ancillary tools and equipment, fuels, lubricants, spare parts, and consumables.

2.1.4. The contract shall include the provision of, and management of a suitable number of basic crew of qualified operators and Service Managers, as well as all skilled and unskilled labour to operate machines safely in line with tendered production rates and within available occupation times. In his tender, the *Contractor* shall supply accurate and comprehensive details of all staff which will be available on site.

2.1.5. The *Contractor* will receive turnout components in kit form at the turnout assembly area, to be re-assembled by the *Contractor* and then installed at the turnout installation site.

2.1.6. The *Contractor* is required to remove existing turnout panels to a levelled area adjacent to the track, determined by the *Employer*.

2.1.7. The contract shall include provision of flagmen for protection at every worksite.

2.1.8. The *Contractor* is required to remove and install bonds.

2.1.9. Points machine installation (i.e., Signals Department works related to the points) is excluded from this contract.

2.2. General Machine Requirements

2.2.1. Turnout replacement shall entail the removal of existing turnouts and installation of new turnouts using an on-track turnout replacement machine capable of delivering at least the minimum production rate as specified.

2.2.2. The turnout replacement machine shall be capable of mechanised removal of an existing turnout, or panels of an existing turnout, and complete installation of an assembled turnout by mechanised means, at the turnout installation site.

2.2.3. The turnout replacement machine shall be self-propelled and capable of operating as a rail bound machine, i.e., permitting rail-based transportation of an assembled turnout, or turnout panel, from turnout assembly area to turnout installation site.

2.2.4. Due to the turnout replacement work being executed in an environment where occupation time is at a premium, the turnout replacement machine shall be able to operate on one line of a double line section while

allowing normal operation of train traffic on the adjacent line without fouling the structure gauge for the adjacent line or interrupting the rail traffic on the adjacent line.

2.2.5. All machinery shall be able to work safely near or under live OHTE conditions.

2.2.6. All machinery shall be able to work at any time of the day or night with no restrictions (e.g., rainy conditions, etc.).

2.2.7. All machinery shall comply with all *Employer's* safety requirements while working, travelling or when staged.

2.2.8. The *Contractor* shall include in his tender a work breakdown structure of the entire turnout replacement process (i.e., the removal of existing turnout, handling and transportation, and installation of new turnout), including the process for formation repair, ballast work and welding, from start to finish. This shall indicate the exact sequence of events and detail of the process he intends to implement for execution of the installation of a turnout.

2.3. Machine Capacity

2.3.1. The following turnout replacement machine capacity is required:

Machine and/or Type of Machine output required	Planned depot or area where machine is required to work	Estimated Workload:	Estimated Total Workload:
Turnout Replacement Machine	Western Region Depots (Bloemfontein, Port Elizabeth, East London, Krugersdorp, Kimberly North & South)	Approximately 13 turnouts to be replaced in 30 days machine	Approximately 13 turnouts to be replaced in 30 days machine

** Final quantity of turnouts is not guaranteed production, i.e., the above workload is estimated for tender purposes only and is therefore not guaranteed by Transnet.*

2.3.2. The *Contractor* shall be capable of removing an existing turnout and fully installing a new turnout (i.e., completely finalised, including formation repair and all work associated with the project), within two successive continuous shifts of 8 hours each.

2.3.3. The production rate is a factor which shall be considered for the award of the contract. Any machine combination offered shall however meet the minimum requirements outlined above and shall have the capacity to work at the rates defined above.

2.3.4. The *Contractor* shall in his tender give clear details of any relevant factors that might have an influence on his production rates.

2.3.5. The *Contractor* shall provide concise and detailed information in his tender of the Total Occupation times required from the start of the occupation until the line is again open to normal train traffic.

2.3.6. The *Contractor* shall provide concise and detail information in his tender of the Between-Trains Occupation times required for the finalization of the installation following opening the track to normal train traffic at the end of the Total-Track-Occupation.

2.3.7. In the case of failure by the *Contractor* to execute the work in accordance with the specifications and within the tendered occupation times, the *Employer* shall reserve the right to cancel the contract with immediate effect. Monies owed to the *Contractor* for work done and accepted up to the time of cancellation shall first and foremost be applied by the *Employer* to remedy the non-performance of the *Contractor* in terms of the contract for purpose of limiting damages to the *Employer*.

2.4. Machine Specification

2.4.1. Types of turnouts to be installed and tamped:
- 48kg 1:9 Turnout LH and RH on concrete sleepers.
- 60kg Tangential design 1:9 Turnout LH and RH on concrete sleepers.
- 48kg 1:12 Turnout LH and RH on concrete sleepers.
- 60kg Secant design 1:12 Turnout LH and RH on concrete sleepers.
- 60kg Tangential design 1:12 Turnout LH and RH on concrete sleepers.
- 60kg Latest Design 1:20 Swing-nose Turnout LH and RH on concrete sleepers

2.4.2. Types of turnouts to be removed: Any type of 1:9, 1:12 and 1:20 turnouts, on any type of sleeper

2.4.3. The turnout replacement machine shall be able to remove turnout panels, handle/ lift turnout panels, transport turnout panels, and install turnout panels of at least 27 m in length, and at least 35 tonnes in weight.

2.4.4. All machines shall be designed and able to work under the following conditions:

- All on-track machines shall fit within the vehicle gauge given in Annexure 2 of the Manual for Track Maintenance during travelling and working. Should any machine or any part of the load of any machine exceed the vehicle gauge in any respect, this shall be clearly indicated by the Tenderer by means of suitable drawings. The *Contractor* shall submit vehicle gauge drawings with the tender document.
- All on-track machines shall be able to travel and work within the structure gauges given in Annexure 1 of the Manual for Track Maintenance.
- All on-track machines shall be able to work and travel on single lines or multiple lines with a minimum distance between track centre lines of 3.8m.
- All on-track machines shall not exceed a loading of 20 tonnes per axle, fully loaded.
- Track gauge: 1065mm.
- All on-track machines shall be capable of travelling self-propelled on a maximum uphill track gradient of 1 in 40.
- All on-track machines shall be capable of travelling self-propelled on curves of minimum radius of 90 m.
- The tamping machine shall be self-propelled and be capable of travelling free on level track at a minimum speed of 60 km/h.
- The turnout replacement machine shall be self-propelled and be capable of travelling free on a maximum uphill track gradient of 1 in 50 and on curves of minimum radius of 125 m at a minimum speed of 5 km/h, when fully loaded with a turnout panel.
- Work site altitude range: 0 to 2000m above sea level.
- Rail temperature range: -10ºC to +60ºC.
- All machines shall have power service brakes with independent operation to each axle capable of providing a minimum retardation on dry rail of 12.5% of gravitational acceleration at travelling speed.
- All machines shall be equipped with emergency brakes which function independent of the service brakes and which shall operate on at least one wheelset and be capable of providing a minimum retardation on dry rail of 6.5% of gravitational acceleration at travelling speed.
- All machines shall be able to actuate all colour light signals working reliably and consistently on the principle of either track circuits or axle counters.
- All machines shall have an adequate lighting system for operation at night.
- All machines shall be fitted with two electric headlamps of at least 100W each and two red warning lights at each end of each machine.

2.4.5. The design of the turnout replacement machine shall be such that it does not damage turnouts, or any turnout component, in any way, during handling, lifting, transportation or installation or construction. The turnout replacement machine shall specifically not cause stresses in excess of the design stresses to be induced on any component of the turnout. When the turnout is handled by the machine the *Contractor* shall also ensure that deflection of the turnout and its components does not exceed the maximum

allowable. The machine shall always handle the turnout in such a way as not to allow the deflections on the turnout to exceed the A-standard. A detailed description of the deflection limits which will apply to the machine during handling, transportation, and installation of all types of turnouts must be submitted with the tender.

2.4.6. The *Contractor* shall supply in his tender accurate and comprehensive details of all Machinery and equipment, which will be available on site for the works.

2.4.7. Specific Requirements: Heavy On-Track Turnout Tamper

2.4.7.1. The heavy on-track turnout tamper shall be capable of tamping all the above-listed types of turnouts at a minimum rate of 10 sleepers per minute.

2.4.7.2. The heavy on-track turnout tamper shall be capable of lifting the track up to 50 mm per pass and of slewing the track up to 25 mm per pass.

2.4.7.3. The heavy on-track turnout tamper shall lift the track, tamp the ballast under the sleeper(s) and align the track to an automatically determined line and level, in one continuous action.

2.4.7.4. The heavy on-track turnout tamper shall be capable of tamping between 230 mm and 440 mm below rail level with the top of the tines adjusted to be 10 mm below the underside of the sleeper.

2.4.7.5. The squeezing time shall be within a range of 0.8 to 1.0 seconds.

2.4.7.6. The vibration frequency of the tamping tines shall be between 33 and 37 Hz.

2.4.7.7. The tamping assembly for one sleeper (i.e., both rails) shall consist of at least 16 tines. Individual control of the tamping assembly for each rail must be possible.

2.4.7.8. The method of tamping shall provide for an equal positive horizontal force between opposing tines. The tine closing force shall be applied hydraulically and the system shall be fitted with an adjustable pressure control.

2.4.7.9. The tamping cycle shall be automatic. Once initiated by the operator, the closing and extraction of the tines and synchronisation thereof with the track lifting and levelling operations shall follow automatically. By-pass switches to engage manual operation will not be permitted.

2.4.7.10. Each tamping tine's tip size (frontal surface area) shall not be less than 7000 mm^2 when using 16 tines/sleeper. The *Service Manager* shall perform measurement by tracing the tine on graph paper and determining the area.

2.4.7.11. The turnout portion of a turnout, up to the end of turnout (ES), shall be tamped during the same pass as the straight of the turnout. The *Contractor* shall indicate which tamping positions his machine cannot tamp, and the extent to which the turnout portion of a turnout can be tamped with the machine during the same pass as the straight of the turnout.

2.5. **Location of the Service**

2.5.1. The contract area will be all track owned, or maintained, by Transnet Rail Infrastructure Manager country wide, in addition to neighbouring countries.

2.5.2. The *Contractor* may be required to work in areas where varying degrees and types of security situations are prevailing such as may occur in remote rural areas through to densely populated metropolitan areas.

2.5.3. TRIM will make available to the *Contractor* lines where the machine may be commissioned and tested. Services provided during the commissioning or testing period is not eligible for payment under the Contract unless provided the standards as per Contract specification are met.

3. PROCUREMENT

3.1. **Subcontracting**

No part of the contract may be sub-contracted in any way without written approval from *the Employer.*

4. ENGINEERING

4.1. It is a specific requirement of this Contract that all wagons for use with the machine, including any modifications, shall be pre-approved at the design stage by TRIM Train Design Department.

4.2. During commissioning and before putting any wagons into service, these shall be finally approved by TRIM Train Design Department as being “Rail Worthy”.

4.3. It is also a specific requirement that all wagons for use with the machine, including any modifications, shall comply with the requirements of the Rail Safety Regulator (RSR).

4.4. The *Employer* will test all on-track machines regularly for rail-worthiness before being permitted onto operational tracks. The *Employer’s* approval in this regard shall under no circumstances mean to imply that the *Contractor* is released from his liability and/or responsibility for ensuring that all machinery is operationally safe and rail worthy. The *Contractor* shall remain ultimately responsible for the safety and condition of his machines and equipment. These tests will include:

- Regular testing of braking efficiency. The minimum required braking is measured by Tarpley meter, for the service and emergency brakes respectively. Brake testing shall also include for checking for pressure loss on brake cylinders and circuits, wear and setting of brake shoes.
- Maximum wheel-tread and rim wear, distance between wheel-flanges and ultrasonic testing for flaws in running axles all measured for compliance with the standards of the *Employer*.
- Speedometer, sirens, drawbars, and mechanical locks on hydraulic components to function properly.

4.5. Should a joint inspection of the Machinery by representatives of the *Employer* and the *Contractor* reveal that any on-track machine or wagon is not in a safe working condition, the *Service Manager* may order the temporary withdrawal of the machine from the service.

5. CONSTRUCTION

5.1. **Works Specifications**

The following additional specifications shall apply:

- TRIM Trains Working Rules
- TRIM Protection Manual
- TRIM Electrical Safety Instructions

- TRIM Infrastructure Safety Guidelines.
- TRIM S410 Specification for Earthworks
- E10: Specification for Railway Trackwork.
- E10/1: Specification for laying of rails.
- E10/2: Laying of sleepers.
- E10/4: Ballasting and tamping.
- E10/5: Destressing of rails.
- E10/6: Building and Replacement of sets.
- E10/7: Field welding of rail joints.
- E10/9: Slewing and Alignment.
- E10/11: Surveying and setting out of track alignment and referencing.
- E10/12: Installation of insulated rail joints
- E4B (November 1996): Minimum Communal Health Requirements in areas outside the jurisdiction of Local Authority
- E4E SHE Specification for *Contractor*s
- Addendum No 1 to Specification E7/1 (May 2011)
- Specification E7/1 (May 2011): Specification for works on, over, under or adjacent to railway lines and near high voltage
- Manual for Track Maintenance
- Track Welding Manual
- SANS 1921-1-2004 Part 1

5.2. **Materials**

5.2.1. The *Employer* will supply all permanent way materials required for the execution of the works, including turnouts, formation materials and ballast. Turnout components will be supplied strictly sufficient for one turnout only, leaving no surplus material requiring further handling, storage, or transport onto subsequent re-assembly sites.

5.2.2. Materials will be provided in railway wagons. In the event of *Employer* failing to provide rail wagons in time for the rail transport of turnout components to the turnout assembly area, then road transport may be considered by the *Employer.*

5.2.3. Turnout components will be made available allowing at least 5 calendar days before the start of the scheduled occupation.

5.2.4. The *Employer* shall offload, distribute, and stack turnout components for the works at the turnout assembly area designated by the *Service Manager*. The *Contractor* must keep record of such receipts, indicating rail truck numbers and the date of unloading. The *Contractor* shall accept full responsibility for safe custody of the material from the time the material is offloaded by the *Employer* just prior to commencement of construction of the turnout. The material is thus handed over into the custody of the *Contractor* from the time that the material is offloaded.

5.2.5. The *Contractor* shall always handle turnout components by means of prescribed spreader beams and slings.

5.2.6. Relevant turnout components are as follows:

<u>Sub-assemblies</u>

- Stock and switch - left hand.
- Stock and switch - right hand.
- Stock and guard rail - left hand.
- Stock and guard rail - right hand.
- Crossing frog.

Lead rails
- Curved lead rail
- Straight lead rail

Closure rails
- Curved closure rail
- Straight closure rail
- Two closure rails at SRJ
- Four x closure rails (including one block joint) at ETO and EOS.

Block joints
- Block joints shall be supplied pre-drilled by the supplier for fixing signal cable. Three holes will be available on either side of fishplate. Three block joints will be provided by the *Employer* to be installed as follows
- Two block joints inside of turnout, either on turnout- or straight part of the turnout
- One block joint outside of turnout at either ETO or EOS.

Fastenings:
- All rail steel material for complete turnout.
- Resilient clips
- GPI's
- Slide plates
- Chair plates
- Cast slide plate clips
- HC Screws
- High tensile M24 bolts

Sleepers
- Complete set of Concrete turnout sleepers
- Concrete switchbox sleepers.
- Hollow steel sleepers.
- Finally install covers for hollow steel sleepers.
- Additional flat concrete sleepers i.e., for 48kg 1:12 turnout =14xP54 and for 60kg 1:12 turnout =20xP84 concrete sleepers.
- Cradles A or B or both. (Supplied and fitted by *Employer*).
- Twelve HC screws (Supplied and fitted by *Employer*).
- Twelve double coil springs. (Supplied and fitted by *Employer*).

Welding material
- All normal and junction Aluminothermic welding portions (Supplied by *Employer*).
- Single-use crucibles. (Supplied by *Employer*).
- Joggle plates and clamps to joggle Aluminothermic welds until final certification by radiograph is completed by *Employer*. (Supplied and fitted by *Contractor*)

Signalling Equipment (Supplied and installed by the *Employer*)
- Drive rods
- Extension plates
- Signal box
- Points blade rollers
- Cables
- Jumper cables (supplied by and installed by *Contractor*)

Electrical Equipment. (Supplied by *Employer* made up and installed by *Contractor*)

- Mast to rail bonding cables complete
- Bonds at frog both sides
- Bonds at Stock and Switch
- Bonds at block joints inside turnout (Z-Bond).

5.2.7. The *Employer* shall provide all ballast in AY wagons, to be off-loaded by the *Contractor*.

5.2.8. The *Employer* shall provide all fill material, water for construction, geo-textiles, and geo-cells to site in either DZ type trucks or road trucks, to be off-loaded by the *Contractor*.

5.2.9. The *Employer* shall supply all bonding consumables (excluding drilling bits) such as cable, cups, and fasteners etc in bulk format.

5.2.10. Should any material be lost or damaged by the *Contractor*, and subsequently replaced by the *Employer*, the value of the material plus the cost of transport, including re-railing at the normal tariffs applicable to the public, will be deducted from any moneys payable to the *Contractor*.

5.2.11. Released material shall be managed as follows:

- Released material shall be neatly and safely stacked at a road-accessible levelled area/s designated by the *Employer*, considering also unauthorized persons who may enter onto the site after the *Contractor* has left the site. Warning signs, if necessary, shall be provided and placed by the *Contractor*.
- Where suitable transport is made available by the *Employer* while the *Contractor* is on site, the *Contractor* shall also load the released material
- The Service Manager will classify all materials to be released and if possible, arrange for the rail trucks required for loading of released material.
- Released permanent way material shall be broken up into its basic components with due regard to weld positions, and shall be grouped into types for loading, or stacking
- Losses shall be kept to a minimum. Any material to be scrapped shall be collected in material camps and disposed as directed by the Service Manager.
- Re-usable material loaded into rail trucks for dispatching or stacked at designated sites shall be neatly stacked in such a manner that: they are not damaged during the loading operation; the rail journey to its destination may be made with no damage to the material or shifting of the load; and the loading from stacks onto wagons or trucks by others or off-loading from wagons by others at its destination may be undertaken safely not involving undue risks and without difficulty.
- Released rails shall be cut into 12m lengths. The *Contractor* shall load scrap rails into rail trucks. Re-usable rails shall be placed and stacked as directed by the Service Manager.
- Released fastenings shall be grouped together prior to loading by binding wire, sturdy bags, or any similar approved method.
- Released turnouts and block joints shall be grouped together and loaded into separate rail trucks or stacked as directed by the Service Manager
- The *Contractor* shall keep record of all materials loaded into trucks or stacked for dispatching. The lists reflecting the full contents of each truck or stack shall be submitted to the *Service Manager*
- Only components designated as scrap may be flame cut and handled without the prescribed *Employer* spreader beam

5.3. Plant

5.3.1. The following items of Plant will be provided on loan for the duration of the Contract at no cost to the *Contractor*:

- One set of diesel locomotives capable of handling a load equivalent to 15 loaded DZ or AY type trucks will be allocated for shunting and for movement purposes. It will be advantageous should the machinery be able to move by itself without assistance of locomotives.

- The locomotive set will be available (inclusive of fuel and driver crews and shunt crew) from commencement of occupations at each turnout installation site, for the duration of the shunting work required.

5.3.2. The *Contractor* shall take all reasonable care to prevent damage to Plant supplied by the *Employer*. Any damage through neglect shall be made good, in accordance with the instructions of the *Service Manager*, to the cost of the *Contractor.*

5.4. Construction Equipment

The *Contractor* shall in addition to what is stipulated, provide the following additional facilities and support for the contract:

5.4.1. The *Contractor* shall provide lighting to all workplaces where work is to be taking place during the hours between 18:00 and 06:00. The lighting shall be of intensity and spread to satisfy the *Service Manager* that work can proceed efficiently and safely.

5.4.2. All Machinery, tools/equipment, small plant, earthworks plant, cranes, lifting equipment and vehicles of every description necessary for the execution of the works shall be supplied by the *Contractor,* complete with fuel, spares, maintenance, competent operators and legally compliant with all applicable safety legislation. All ancillary and associated equipment together with all transport, accommodations, fuel, lubricants, spare parts for maintenance and repairs and consumables and any other resources necessary for the complete and effective and safe functioning of all Machinery shall be included in this contract to consistently and sustainable operate the machine safely in line with tendered production rates and within available occupation times.

5.4.3. All G-clamps and “joggle” plates necessary for the work shall be supplied, fitted, removed, controlled, and transported between points of use by the *Contractor*.

5.4.4. The *Contractor* shall supply all wagons that are being part of a work train and essential for the execution of the contract. Examples of such wagons:

- Wagons forming part of the basic machine as part of the machine operation.
- Wagons to move support machines with machine package (e.g., heavy on-track turnout tamper)
- Wagons for Water/fuel tanks (water tankers not included)
- Any other critically required wagon specifically being part of a machine package. (Tenderers to clearly specify what wagon and for what critical process used as well as consequence if wagon is not available.)

5.4.5. Complete sets consisting of three two-way radios for the work site complete with battery chargers and spare batteries shall be supplied by the *Contractor* for use in the protection function between the work site and the flagmen posted +1500m from the worksite. The abovementioned radio equipment shall operate on 12.5 kHz channel spacing and shall comply with specification SABS-1069. The costs associated with the provision of these radios shall be included in the rates tendered and no separate payment will be made.

5.4.6. The *Contractor* shall provide a cell phone with a minimum airtime of 500 minutes per month to the worksite for the exclusive use of the *Employer* for logistical and operational arrangements. Should the airtime be exceeded during any month, the *Employer* will reimburse the *Contractor* subject to authentic proof being submitted by the *Contractor*.

5.4.7. The *Employer* shall supply and control all flags and detonators for protection of the work sites.

5.5. Storage and Transport of Dangerous Substances

5.5.1. The *Contractor* shall provide such safe storage facilities as might be required by law for dangerous or flammable substances and/or equipment.

5.5.2. The *Contractor* shall comply with all legal requirements regarding the transport of such dangerous substances and or equipment.

5.5.3. Suitable, adequate, and functional firefighting equipment shall be always available for the duration of the contract, provided by the *Contractor* at his cost. Competent and trained people shall be appointed and be available to operate such equipment in case of fire.

5.6. Existing Services

5.6.1. The *Contractor* shall take note of all OHTE equipment, red and other electrical bonds on the work Site and shall not interfere, damage, or work on them unless under direct supervision of a designated and competent Transnet Rail Infrastructure Manager (TRIM) Electrical Officer.

5.6.2. The *Contractor* shall take note of all signalling equipment on the work Site e.g., signals, signal cables, block joints, signal bonds, axle counters, etc and shall not interfere, damage, or work on them unless under direct supervision of designated and competent Transnet Rail Infrastructure Manager (TRIM) signal technicians.

5.6.3. Before doing excavation work anywhere on a work site the *Contractor* shall be sure to consult on the presence of existing electrical/signal/telecom cables, water pipes or other services with the *Employer's* Maintenance Manager (Track). Only on his specific and written authorization shall any excavation work be carried out.

5.6.4. In the event of contact or damage to any overhead or underground cable on the work site, work shall be stopped, and the work Site evacuated. The Electrical Officer Contracts shall be notified immediately. Only subject to him or other competent Transnet Rail Infrastructure Manager (TRIM) Electrical Officer certifying the work Site safe, shall work be allowed to proceed again.

5.6.5. Where existing water supply is available within the railway reserve and is deemed sufficient by the *Employer's* Depot Engineering Manager to also supply the construction activities, this supply may be made available to the *Contractor* for use. If not allowed by the *Employer's* Depot Engineering Manager or where not available, the *Contractor* shall make his own arrangements to obtain suitable supplies.

5.6.6. It is the responsibility of the *Contractor* to provide water to his staff and machine. It shall be noted that it is not the responsibility of the *Employer* to stage the machines in areas where water is available; it will be an advantage if such places are available, but it is not a requirement.

5.7. Site Access

5.7.1. All *Contractor's* personnel shall be inducted before providing the service. Access certificates will only be issued after all inductions have taken place.

5.7.2. Access will be denied to the *Contractor* should the access certificate not be issued.

5.7.3. The *Contractor* shall note that not all sites will be accessible via service road. Many sites may be in cuttings, on high banks, in between multiple railway lines, with no service road access whatsoever. The *Contractor* shall have a plan to make the sites accessible to him/her to do the work at his own cost. The basis of the payment items shall assume restricted site access, and no additional payment will be made for any categories of site access restriction. In particular, the turnout installation site may or may not be accessible by road and the turnout replacement action shall be able to be completed where road access is

not available**.**

5.7.4. The *Employer* will not be responsible for any earthworks to provide access to work sites.

5.8. Site Establishment

5.8.1. Subject only to the discretion of the Depot Engineering Manager responsible for the area, yard lines within the railway reserve may be made available to the *Contractor* for staging the wagons making up the consist of the machine.

5.8.2. Subject only to the discretion of the *Employer's* Depot Engineering Manager, areas within the railway reserve may be made available to the *Contractor* for accommodation, offices/workshops, or stores. Where not allowed, the *Contractor* shall make his own arrangements elsewhere, at the expense of the *Contractor*.

5.8.3. If the *Contractor* is allowed by the *Employer's* Depot Engineering Manager to utilize areas within railway reserve for his purposes of whatever nature, it shall be noted that normally electrical, water supply and sanitation will not be available. The *Contractor* shall be required to make his own provisions for electrical, water supply and sanitation. Additionally, the *Contractor* shall comply with Environmental Health and Safety legislation when utilizing areas within railway reserve. On vacating the site, the site shall be cleared up and re-instated to the acceptance of the *Employer*'s Depot Engineering Manager.

5.8.4. Security of the *Contractor's* property, equipment, materials, vehicles, and workforce shall always during the contract be his sole responsibility. No claims will be entertained by the *Employer* in this regard.

5.8.5. The *Contractor* shall be required for each work site to have available for his work force suitable sanitation in accordance with the Act 85 Regulations.

5.8.6. On some lines or for some yards of *Transnet Rail Infrastructure Manager* (*TRIM*), the *Contractor*'s staff will be required to obtain security permits from *Transnet Rail Infrastructure Manager* (*TRIM*) before being allowed to work there. These permits will be issued free of charge.

5.9. Preparation Work and Temporary Works

5.9.1. The *Contractor* shall off-load turnout material components from road or rail trucks supplied by *Employer* and transport these to the turnout assembly area.

5.9.2. A re-assembled turnout or turnout panel is a turnout or turnout panel that has been manufactured and pre-assembled in the factory, quality verified, then marked, dismantled, and packaged into kit form, transported to the turnout assembly area where the *Contractor* takes delivery of all materials as they arrive on site.

5.9.3. The *Contractor* shall then re-assemble the turnout materials into completed turnouts at the turnout assembly area. Turnout assembly shall be completed to the A-standard, without Aluminothermic welding, at least 72 hours before the start of the occupation. Only after a quality certification and sign-off by an *Employer* Platelayer/Track Inspector may welding of the turnout proceed. This sign-off must take place in such a way as to allow the *Contractor* at least 3 days to complete the Aluminothermic welding where applicable, before the start of the occupation.

5.9.4. The nature of these temporary works in the turnout assembly area must be such that these do not present a physical obstruction for the trains or result in delays for trains that are required to pass over the work site.

5.9.5. Copies of Design drawings for the turnouts will be supplied to the *Contractor* on request.

5.10. Specifications for Construction

5.10.1. Once re-assembled, the completed turnout or turnout panel is then lifted and loaded by the turnout replacement machine, transported to the turnout installation site using the turnout replacement machine, and installed into track using the turnout replacement machine. The activities to replace a turnout shall include at least (but not be limited to) the following actions:

Total-Track Occupation

- ***Loading of pre- or re-assembled turnout/track section.
- Transporting re-assembled turnout/track section to point of installation.
- Rail cuts and removal of the existing turnout or track section from track.
- Remove old ballast.
- Formation repair as per category.
- Placing, preparing and compaction of new ballast bed to within 50mm of final level for underside of concrete turnout sleepers
- ***Dismantle and stack or load released turnout or track section if required.
- ***Destressing both rails for 80 sleepers on either side of the installation and perform 6 x A-frame quality test.
- Install 6 closures to connect new turnout to adjacent track.
- Nominal slewing (500mm) of adjacent track/turnouts to align with installed turnout
- Place, lift, align, joggle, and tamp of the new turnout/track section complete with all bonding.
- ***Weld turnout/track section complete to adjacent track by means of Aluminothermic weld process.

In-Between-Trains Occupation

- Finalize turnout installation project i.e., trimming ballast, cleaning of turnout and site, cleaning dust and ballast from hollow steel sleepers, installing cover plates to hollow steel sleepers, lubrication of slide chairs, processing released material, etc within 24 hours after completion of installation. This will be followed by radiographic testing of welds and removal of joggles when appropriate.

****These items may partly or in whole be included into the OBT Occupation period depending on site specific conditions.*

5.10.2. Ballast Work

5.10.2.1. After uplifting the existing turnout or track section, the existing ballast might be removed either to spoil or to stockpile for re-use. Re-using it may be the consequences of a decision to either screen the ballast before or after the turnout replacement or alternatively the fouling index might be low enough to not warrant replacement with new ballast. Depending on the case, the *Contractor* might be required to remove the existing ballast to nearby stockpile or spoil site (within 100m) or to load it into rail or road trucks. On installation of the replacement turnout or track section, the *Contractor* shall then be required to place new or re-usable ballast from stockpile or by off-loading new ballast from DZ or AY type trucks.

5.10.2.2. The normal process required from the *Contractor* shall be to place the compacted new ballast bed to within 50 mm (+0 mm, -19 mm) of the final level of the underside of the turnout sleepers. The ballast bed shall be compacted in layers of not more than 150 mm with at least 3 passes of a BOMAG BPR 30/38-3 or equivalent plate compactor with a plate width of at least 580 mm.

5.10.2.3. The assembled turnout shall then be placed on this compacted ballast bed, more ballast off-loaded onto the turnout and the turnout then lifted, aligned with adjacent track, and tamped in accordance with the E10 Specification for Trackwork. The off-loading of this additional ballast shall be done in such a way as not to negatively impact on the fast and efficient production of the heavy-on-track turnout tamping machine.

5.10.2.4. The installed turnout shall not be presented for lifting, alignment and tamping by the heavy on-track turnout tamper unless first brought into the B-standard by means of hand labour.

5.10.3. Formation Repair

5.10.3.1. The length of track over which formation repair might be required can vary from the length of the standard turnout to an additional 25 meters on either side of the turnout. The standard length for purpose of Tendered Occupation time shall be the length of the standard turnout. The *Service Manager* shall indicate for each turnout at least 1 month prior to its occupation date, the Category of formation repair to be executed as well as over what length of track the formation for that specific site shall be repaired. The *Contractor* is required to base his tendered prices and occupation times, on the standard turnout length inclusive of the long sleepers after the ES and ET. A 1:9 turnout for this purpose will be considered as approximately 30m in length, a 1:12 turnout will be considered as approximately 40m in length and a 1:20 turnout as 70m in length. Additional length shall be allowed for as additional payment and occupation time.

5.10.3.2. For all sets replaced, an additional between-trains-occupation may be arranged for finalizing a worksite after replacement.

5.10.3.3. Formation Repair on any turnout will be instructed by the *Employer*, typically consisting of one the following:

a) Executing formation repair as per classification and design. Rip and Compact or excavate top 200mm/250mm of formation and construct formation repair design, OR
b) Executing formation repair as per classification and design. Excavate formation and construct formation repair. The construction of the “deep drain” as indicated on shall always be the responsibility of *Employer*. When the “deep drain” is required to be below the “box” of formation repair then this shall be the *Contractor*’s responsibility to construct as part of the formation repair. Payment for constructing this drain with all associated work shall be per m3 under Formation Repair item. Construction of all signal pipe and chamber systems shall in all cases be the responsibility of *Employer* and not form part of this contract

5.10.3.4. The *Employer* S410 Specification for Earthworks shall apply to this contract and all earthworks and layer works for formation repair shall be executed in accordance with this specification.

5.10.3.5. The *Contractor* shall supply, operate, and always maintain a Troxler density meter or similar for quality control during layer works of earthworks and the costs thereof shall be paid for separately.

5.10.3.6. Laboratory tests to determine maximum density and optimum moisture content for fill material shall be arranged and paid for by *Employer*.

5.10.3.7. No claims or extra-over/additional payment to excavate any hard layer (e.g., hard cement stabilized sub ballast layer) will be considered. The costs to remove such layers will be considered included in the rates tendered.

5.10.4. Aluminothermic Welding

5.10.4.1. This Contract includes for each turnout the Aluminothermic welding of all rail joints inside the turnout as well as all associated welds outside the turnout. All Aluminothermic welds shall be paid for separately. *Employer* shall supply all required Aluminothermic weld portions for each set as well as extra provision in case of runouts on site to the *Contractor*. Although supplied by *Employer*, any additional Aluminothermic portions e.g., for runouts, shall be for the *Contractor’s* account. The number of Aluminothermic welds supplied by *Employer* shall be sufficient only for each workday such that the *Contractor* shall not be required to transport or store *Employer* Aluminothermic weld portions.

5.10.4.2. The Radiographic testing and reporting of all Aluminothermic welds shall be performed by the *Contractor* and be included in the rates tendered.

5.10.4.3. Aluminothermic welds on all lines shall be joggled until radio graphically tested and quality confirmed by *Employer*. The *Contractor* may opt to remove joggle plates from selected welds after consideration of the outcome of his own preliminary evaluation of the radiographs. Should the *Contractor* choose to exercise this option prior to the *Employer* Final verification for a specific weld being available the *Contractor* shall accept responsibility and liability for any incident resulting from such a weld breaking. Once the *Employer* Final verification is available this responsibility and liability shall shift entirely to *Employer*.

5.10.4.4. The *Contractor* shall supply, fit, remove and control all joggle plates as well as clamps for the duration of the contract. The *Contractor* shall joggle the welds by using 2 joggle plates secured with at least two firmly secured G-clamps. The *Contractor* shall remain responsible for ensuring that the welds are firmly clamped until such time that the joggles may be removed. Alternative ways to joggle the welds may be considered but remains subject to approval by *Employer*.

5.10.4.5. All new joints to be welded are to be consecutively numbered prior to welding.

5.10.4.6. The *Contractor* shall ensure that the Welder's identification number be stamped on the field side of the rail crown after the weld has been finished off.

5.10.4.7. Furthermore, the *Contractor* shall record the following information for each weld on a format acceptable to the Service Manager.

- Identification of Welder.
- Date and time of weld.
- Rail temperature at time of weld.
- Number and position of weld - referenced against nearest electrification mast.

5.10.4.8. The Infra depot-welding representative will furnish an inspection report based in a visual inspection of all welds. This report together with the final radiographic evaluation of welds will indicate:

- Which welded joints are accepted.
- Which welded joints require minor corrective attention; and
- Which welded joints are rejected and will need to be cut out.

5.10.4.9. All Aluminothermic welds shall be radio graphically tested by taking clear x-ray/gamma-ray photographs of the web and the flange of each weld performed by the *Contractor*. The quality of all radiographs shall comply with *Employer* Specification BBB2912. These radiographs shall be taken within 7 days after installation of the turnout and the developed radiographs submitted to *Employer* accompanied by a formal cover letter quoting the Turnout Replacement Contract number not later than 14 days after installation of the turnout. *Employer* shall complete the final verification and present the Service Manager with a report on any batch of radiographs within 7 days of it being submitted for approval.

5.10.4.10. A preliminary evaluation by the *Contractor* of the welds based on the radiographs shall be executed and the radiographs together with information for each weld then submitted to *Employer* for final verification. Only welds uniquely identified as above complete with radiograph will be eligible for payment. Welds shall be eligible for 50% of payment on submission of radiographs to *Employer* for final evaluation. The balance of 50% shall be eligible for payment on the final verification from *Employer* becoming available or on expiry of the 14 days *Employer* final verification period.

5.10.4.11. The *Contractor* shall be offered an opportunity to replace all defective welds inclusive of the prescribed radiographic quality verification at his cost. Should this not be completed within 14 days then *Employer* reserves the right to repair welds where necessary to safeguard the save passage of trains. A standard Cost of R10000 shall be recovered from the *Contractor* for each weld repaired by *Employer*.

5.10.4.12. The payment for welds on various types of rails utilizing various types of Aluminothermic portions will be independent from the type of Aluminothermic portion or rail involved e.g., Payment for welding

350LHT or “HSH” rails will be the same as for any other type of rail e.g., Grade 900.

5.10.4.13. All costs associated with the weld quality assurance shall be deemed to be included in the rates tendered. No separate payment shall be made for any part of this quality assurance.

5.10.5. Finalizing of Turnout and Track Section

5.10.5.1. The *Contractor* shall maintain the turnout and site for the first 72 hours after installation was completed. The *Contractor* shall then finalize the turnout and site ready for takeover by *Employer* as soon as practical possible after the 72 hours has expired. The turnout and site shall be inspected, and quality measured jointly by the *Contractor* and an *Employer* representative. This inspection and measurement shall be documented, countersigned by both parties, and be completed as near as practically possible to 72 hours after completion of installation. Only on completion of this inspection shall the *Contractor*’s Maintenance Period for the set end and will responsibility for the maintenance of the set pass from the *Contractor* to *Employer*.

5.10.5.2. The *Contractor* shall be required to do any other work arising out of or incidental to the above or required of the *Contractor* for the proper completion of the works in accordance with the true meaning and intent of the contract documents.

5.10.6. Destressing

5.10.6.1. The *Contractor* shall ensure that all installation of turnouts shall always be accompanied by destressing of all rails for 80 sleepers on either side of the installation.

5.10.6.2. Prior to the turnout replacement, the *Contractor* shall inspect the fastening condition and report any need for fastening replacement over the 80 sleepers for the destressing to be effective, timeously to the Maintenance Manager (Track) and the Service Manager.

5.10.6.3. The *Employer* shall supply the fastenings together with turnout material and the *Contractor* will execute the replacement of fastenings as part of the destressing

5.10.7. Copies of Rule Books for Construction of turnouts may be made available to the *Contractor* on request from the *Contractor*.

5.10.8. An *Employer* depot representative shall physically mark the position of the SRJ and PI for each new turnout. The *Contractor* shall check such information for accuracy and correctness before starting any work and advise the *Service Manager* immediately of any discrepancy before incurring any possible fruitless expenditure.

5.10.9. No activity shall present any undue risk to workers, *Contractor* or *Employer* during the any stage of the works.

5.10.10. Before vacating the site, the *Contractor* shall ensure that the site in general is free from pollution and risks of injury to public or *Employer*.

5.10.11. At the end of each occupation on completion of the work the site shall be formally inspected and signed-off by *Employer* as accepted. Until this sign-off has been affected, the *Contractor* may be stopped by the *Employer* from proceeding to the next site.

5.10.12. The *Employer* will provide a Signals Technician with labour team for installation, setting up and commissioning of all Signal Equipment on the new turnout.

6. MANAGEMENT

6.1. Planning

6.1.1. Monthly Project Meetings will be conducted to monitor progress and discuss contractual issues. These meetings shall be attended by *Contractor*, Service Manager, and the Service Manager. A register will be kept of attendance and a minute of the proceedings will be recorded and distributed afterwards.

6.1.2. A concise maintenance programme showing the *Contractor*'s planned programme for the following month and the order in which he intends to execute the daily operations shall be provided by the *Contractor* based on the work area required by *Transnet Rail Infrastructure Manager*. The detail program will be agreed upon between the *Service Manager* and the *Contractor*.

6.1.3. TRIM will provide the plan of work sites to be covered. Furthermore, it is a specific requirement of this contract that the *Contractor* pre-plan the production of each month ahead. Monthly production shall be pre-planned directly with the *Service Manager* and be conducted on-site and include:

- Material requirements e.g., turnout Groups, fastenings, or ballast.
- Welding required.
- Occupations.

6.1.4. The *Contractor* is required to do inspection of each work site prior to the project and starting and when task orders are issued to execute appropriate preparation for the work focused on ensuring maximum production during occupation time by minimizing delays. Any issues requiring the *Employer*'s inputs to avoid delays during the occupation time shall be brought timeously to the attention of the Service Manager. This includes amongst other things: turnout condition, condition/ volume of ballast, length of turnout panels, level crossings, negative returns, tunnels, and structural clearances. The *Contractor* and Service Manager shall do all the required measurements of the above mentioned and draw up programme to meet the planned targets.

6.1.5. All turnouts requiring replacement are to be fully evaluated/inspected (by *Service Manager* or representative and the *Contractor*) in terms of estimating requirements and costs. Details may be provided by the depot if already available.

6.1.6. The weekly progress and revisions to the monthly programme will be determined by the *Service Manager* and the *Contractor*'s representative at a weekly site meeting. Decisions made will be recorded in a designated site book provided by the *Contractor*. The weekly site meeting will be held during occupation time but must not interfere with working time (Tw).

6.1.7. Should any preparation be required before the occupation, the *Service Manager* and *Service Manager* shall be made aware in writing regarding this. The number of people required, and hours should be stated and how much work was done. This shall be recorded on the site diaries.

6.2. Site Records

6.2.1. A *Site* Instruction Book with triplicate pages shall be provided by the *Contractor*. The format for written communication on *Site* shall be the *Site* Instruction Book. A new page shall be used for each *Site* Instruction. *Site* Instructions shall be deemed to have been noted by the other party at the end of each workday. For this purpose, the *Site* Instruction Book shall be checked and new *Site* Instructions signed-off by both *the Employer* and the *Contractor* at the end of each workday.

6.2.2. A Site Diary with triplicate pages shall be provided by the *Contractor* and be always available on site. The number of staff and plant on site for every day shall be recorded. The hours of actual work and the accurate amount of work measured per item as in the Schedule of Quantities completed for each day shall also be

recorded and signed off by both by the *Employer* and the *Contractor* at the end of each day. The *Contractor* shall record following in the *Site* dairy:

- Occupation and Working time
- Details of performance of the machines
- An accurate recording of all material received or purchased.
- Details of plant, machinery, and labour on Site, clearly indicating the staff used to perform various functions.
- Minutes of the Site meetings.
- The Site diary shall be signed daily by both parties.
- Information shall be reported as per the daily report, emailed electronically including train crossing numbers and minutes delayed, the following day before 08h30.

6.2.3. The information in the Site Diary shall be identical to the report generated by the machine. The *Employer* shall provide a template and it shall be the source document for monthly payment certificates.

6.2.4. The daily report as well as production figures shall always be recorded and submitted to the Service Manager and Service Manager daily every morning for the previous day's occupation by email at 08:00.

6.2.5. A *Transnet Rail Infrastructure Manager* (*TRIM*) Track Inspector shall on completion of each project inspect and measure for purposes of verifying quality for payment purposes. A formal handing over of the completed project shall be signed off by the *Service Manager*, for the project to be eligible for payment.

6.3. Occupations

6.3.1. Although not guaranteed, the *Employer* will realistically arrange occupations according to the approved programme of typically 8 hours for any one occupation.

6.3.2. It may be possible to arrange extended occupations and even double shifts on some sections of the line, on certain days, during which the machines may remain in the section. It is a strict requirement for the machines to work double shifts as and when required by the *Employer*, therefore the *Contractor* shall allow in his rates for double shift working during shutdowns or during normal occupations as and when required. In these cases, occupation time will be calculated as the total period that all or any of the on-track machines worked.

6.3.3. Travel time from the staging site to the work site and back to staging site will be included in the Occupation Time (To).

6.3.4. During the occupation the line will be closed to normal rail traffic over the section on which the *Contractor* is working. Protection of the site shall be as per the protection manual under direct control and supervision of the *Employer* Platelayer/Track Inspector.

6.3.5. Before midday during any shift the commencement time and duration of the following occupation will be advised in writing.

6.3.6. Occupations may commence at any hour of the day or night and on any day of the week. The Employer requires that all the on-track machines may work double shifts and therefore the *Contractor* is expected to price his tender based on similar requirement. The double shift will be paid against the tendered items.

6.3.7. The *Contractor* shall control and be responsible for the movements of all plant including that of the *Employer*, within the confines of the area of the occupation of the loading and off-loading operation and during its duration. At all times, the movement of plant will be undertaken as laid down by the *Service Manager*.

6.3.8. Any adjacent track will run normal train services at normal section speed. The *Contractor* will be required to apply his Safety Procedure to safeguard his employees against the danger of normal rail traffic passing close by on the adjacent line.

6.3.9. Occupations shall be called for on any day of the week or month of the year. The *Contractor* shall allow in his tender for the normal builder's break from middle December to 2nd week in January every year with the specific provision that in the case of an emergency, the *Contractor* may be called from leave during the builder's break.

6.3.10. Emergency Work and Standby during December break:

- The Service Manager shall notify the *Contractor*, one (1) month prior to *Contractor*'s Annual Holidays, of the requirement of standby staff for emergency work during *Contractor*s Annual Holidays.
- When required, the *Contractor* shall supply standby staff (fitter, operator, and plant assistant) for emergency work.
- The *Contractor* shall supply 2 contact phone numbers for emergency call out purposes (the standby staff shall be available 24 hours a day, 7 days a week)
- The call out reaction time shall not exceed 24 hours from time of the call out to the time the machine is at staging point. Consideration must be given in respect of the standby staff getting sufficient rest before commencing work.
- The *Contractor* shall make the necessary arrangements for accommodation of standby staff and all costs shall be included in the rates tendered.

6.3.11. The *Contractor*'s Track Master/Track Inspector shall take full charge of the *Contractor*'s resources on the work *Site*. An employee/agent appointed by the *Contractor*, will not act as, or be allowed to take on any responsibility of *TRIM Track Master/ Track Inspector.* The function of the *TRIM Track Master/ Track Inspector* is restricted to competent *Transnet Rail Infrastructure Manager* (*TRIM*) employees only

6.3.12. The *TRIM Track Master/ Track Inspector* shall be a competent *Transnet Rail Infrastructure Manager* (*TRIM*) employee, reporting to the *Transnet Rail Infrastructure Manager* (*TRIM*) Depot Engineering Manager. This *TRIM Track Master/ Track Inspector* shall be responsible for the following on a work *Site*:

- Taking occupations
- Placing and controlling the flagmen
- Declaring the track safe for the passage of trains
- Cancelling the occupation and recalling the flagmen
- Communication with train traffic control regarding occupation matters.
- The issue and control of all flags and detonators

6.3.13. The *Employer* will provide a Competent Overhead Electrical Traction Service Manager to supervise Switching of power and permit arrangements.

6.3.14. When working on a line, the Track Structure Gauge for the adjacent line shall not be fouled unless an occupation has been arranged for that line.

6.4. Protection

6.4.1. All work shall always comply with *Transnet Rail Infrastructure Manager* (*TRIM*) Specification E7/1.

6.4.2. Normal protection measures in accordance with the *Transnet Rail Infrastructure Manager* (*TRIM*) Train Working Rules shall apply.

6.4.3. All protection arrangements shall always remain under the supervision and responsibility of a *Transnet Rail Infrastructure Manager* (*TRIM*) Track Master/ Track Inspector.

6.4.4. The *Contractor* shall supply at least two flagmen per work Site for protection duties. The cost for these flagmen will be deemed included in the rates tendered and no separate payment shall be made.

6.4.5. Additionally, the *Contractor* shall appoint at each work *Site* a person whose sole task shall be to be on the lookout for approaching rail traffic. This employee shall operate an audible warning device to timeously warn all people on the work *Site* of approaching rail traffic. The cost for this person will be deemed included in the rates tendered and no separate payment shall be made.

6.4.6. The *Contractor* shall not allow any persons on the work *Site* to venture within the structure gauge when this warning procedure is not operating effectively.

6.4.7. The warning device shall be such that its sound can be clearly and effectively heard above the noise on the work *Site* by all personnel within a radius of 100m around the centre of each work *Site*. The cost to the *Contractor* of providing the lookout as well as the warning device shall be deemed to be included in the rates tendered and no separate payment shall be made.

6.4.8. An effective safety procedure to be followed by all personnel on any work *Site* in the case of approaching rail traffic on adjacent lines shall be compiled by the *Contractor* and implemented before any work commences. This procedure shall be updated whenever the need arises, and any changes shall be communicated to all employees on a *works Site* before work proceeds.

6.4.9. The *Transnet Rail Infrastructure Manager* (*TRIM*) Depot Engineering Manager remains ultimately responsible in terms of the requirements of Act 85 for the safe working environment of his own personnel as well as *Contractor*'s personnel within the track maintenance environment on his depot.

6.4.10. The Depot Engineering Manager is therefore also responsible for ensuring that any changes in the Protection Procedures that may occur over time are effectively communicated to any flagmen prior to them being used for Protection Duties

6.5. Machine Movement

6.5.1. A free on rail facility will be made available to the *Contractor* for the conveyance of plant, equipment, or material of the *Contractor*. This will apply to *Contractor's* items coupled to a train or loaded onto railway trucks. This arrangement will be valid for the duration of the Contract and apply to all items for use under the contract. These wagons will be moved “free on rail” together with the relevant on-track machines in accordance with the requirements and processes applicable to normal train traffic.

6.5.2. The *Contractor* shall specify how many wagons and what type does he want for the usage of moving his Machinery and equipment as well for accommodating his employees during the contract. The *Contractor* to return the *Employer* wagons at the end of the contracting period. These shall be in the similar condition as when the *Employer* gave them away to the *Contractor*.

6.5.3. Arrival of these wagons at destinations during movement from depot to depot on *Employer's* network could be problematic and erratic in terms of predictability and no claims regarding delays or standing time resulting from the use of these wagons will be entertained by the *Employer*.

6.5.4. The *Contractor* will be allowed to effect modifications to these trucks to suit his requirements for work under the contract. Such modifications will be the *Contractor*'s responsibility and for the *Contractor*s account. The *Contractor* may have full use of the rail trucks associated with this contract, if he adheres to the structural, mechanical and safety limitations laid down by the Service Manager.

6.5.5. The *Contractor*, at his own cost shall have the trucks re-instated to their original condition and shall remove the modifications at the end of the contract.

6.5.6. Before the *Contractor* commences to carry out any alterations to the trucks, he shall provide the *Service Manager* with sufficient information of the alterations to enable him to approve that dimensional and structural tolerance will not be exceeded.

6.5.7. The *Contractor* may make use of this facility for transport from the *Contractor's* workshop or depot to the area of operation or vice versa, or from one area of operation to another, or, in the case of plant imported

specifically for use on this contract, from the port of off-loading to the worksite. Prior approval for the movement of any machines shall be obtained from the *Service Manager* in writing.

6.5.8. The initial move of the Machinery from the *Contractor's* premises to the first installation site as well as the final move on completion of the contract from the last turnout installation site back to the *Contractor's* premises shall not be paid for. A free-on-rail facility will however be available for this purpose.

6.5.9. Should the *Contractor* elect to transport any Machinery or equipment by road, the *Contractor* shall not be entitled to separate payment. The cost of such road transport shall thus be deemed to be included in the rates tendered.

6.5.10. The *Contractor* will make all the arrangements directly with the National Command Centre (NCC) to move the Machinery by rail based on the programme agreed with the *Service Manager*. Movements inside a depot area will be arranged by the *Service Manager* for the depot. Each application shall reflect all relevant and specific details of special conditions for the handling of the machine consist by *TRIM* during each move. It is the responsibility of the *Contractor* to make sure that his machines are shunted and prepared for movement.

6.5.11. When required for productivity reasons, it will be necessary to move machines over an off period. The *Contractor* will then be required to arrange for security and supervision to have the machines moved by rail over this off-period. The *Contractor* will be required as part of his tender to have an additional team available to facilitate the movement of the machines during the off periods. No overtime or additional move cost shall apply for such a move. *The Contractor* must therefore provide for, in his tendered price, the movement of all machines and all plant and equipment from one depot area to another during the off periods of the crew.

6.5.12. Included in the application for the move the *Contractor* shall provide name, identity number and grade of all employees travelling on the train. Specific details shall be given separately of the person in charge as well as staff required, to travel on machines.

6.5.13. Should the *Contractor* delay a move, the full occupation times thus not utilised will be counted as working time for the purpose of calculating required production.

6.5.14. Should *TRIM* delay a move of the Machinery from one Depot to the next by not starting the move on the scheduled day, no payment of standing time shall apply.

6.5.15. The distance of moving the machine from the *Contractor*'s premises at the commencement date to the first Depot will not be paid for, although the free on rail facility will be available to the *Contractor*.

6.5.16. The distance of moving the machine from the last Depot to the *Contractor*'s premises on completion of the Contract will not be paid for, although the free on rail facility will be available to the *Contractor*.

6.6. Abnormal Load Procedure

6.6.1. The *Contractor* shall clearly stipulate in his tender all conditions and provisos applicable for handling of the machine when moving or travelling or coupled into or loaded onto a normal train. If damage would occur to the machine while in transit and *Employer* happen to have complied with all the stipulated conditions for handling of machine, then *Employer* will be exempted from any liability for the damage due to handling of the machine in transit

6.6.2. In the case where the Machine does not fit *Employer*'s structure gauge, the Machine shall be moved in accordance with *Employer*'s Procedure for Transport of Abnormal Loads.

6.6.3. In the case of the Machine being classified as an abnormal load, the *Contractor* will be expected to compile a list of all special conditions for the safeguarding of the Machine which he requires to be observed during the process of handling the Machine when it is moved as a train by *Employer*. The *Contractor* must update

these special conditions whenever the need arises.

6.6.4. An up-to-date copy of these special conditions must always accompany the *Contractor*'s Application (form A/NOC/003) to the Technical Command Centre (TCC) for the moving of an Abnormal Load. On receipt of the request for the move of the machine, TCC will process it through the Abnormal Load Procedure and National Command Centre (NCC).

6.6.5. On receiving the approval of his application in the format of a Special Train Notice Running Times and Conditions, the *Contractor* must carefully review the Special Train Notice to ensure that all requirements set by him in his application have been noted and included in the Special Train Notice. The *Contractor* must review and note all additional conditions set by the NCC and ensure that it is effectively communicated to all relevant staff under his control.

6.6.6. On the day of the movement before the train departs the supervising crew of the *Contractor* who will be travelling on the train, must introduce themselves to the train crew and hand them a copy of the Special Train Notice Running Times and Conditions.

6.6.7. The *Contractor*'s supervising crew must also hand a functional two-way radio to the train crew. This radio shall be used for communication between the train crew and the *Contractor*'s supervising crew. The cost of this shall be deemed included in the rates tendered.

6.6.8. Before the first move is to take place at the start of the contract, the *Contractor* shall supply a list of names of employees, complete with post description and identity numbers, who will be travelling on the machine when moving it as a train between work sites. This list must be updated whenever necessary and an up-dated version submitted to *Employer* before the next move of the machine is to take place. These employees will be considered as being on duty for purposes of supervising the abnormal load and will therefore be allowed to travel on the train. No other personnel shall be allowed on the train unless travelling inside approved accommodation facilities.

6.6.9. Where a specific move of the machine takes longer than a normal shift, only one supervising crew per shift shall be allowed on the train. Any other crews must either be accommodated in approved accommodation facilities on the train or alternatively accompany the train by road vehicle.

6.6.10. The *Contractor* must make application for movement of abnormal loads at least 4 weeks in advance.

6.7. Stoppages

6.7.1. Temporary stoppage, which may result from a non-continuous flow of the work program, as and when required and shall be allowed for in the tendered rate.

6.7.2. The *Employer* will advise the *Contractor* of any temporary stoppage in the work, 30 days' notice will be given of such an impending stoppage. Thirty days (30 days) notice will also be given to commence work when the Machinery was standing due to a temporary stoppage.

6.7.3. No Payment for De-establishing from *Site* when temporary stoppage begin as well as Re-establishment on commencing of the work after a temporary stoppage will be made.

6.7.4. The *Contractor* shall allow that weather conditions may adversely affect his rate of progress and plan his progress as well as plant and labour capacity accordingly.

6.7.5. Should rain or snow falling during the period of occupation, make it impossible for the *Contractor* to make use of such occupation no claims for Standing Time will be entertained by *the Employer*.

6.7.6. The *Contractor* shall not claim any Standing Time against *Employer* for any force majeure and no penalties shall be imposed by the *Employer* to the *Contractor* for the same

6.8. Traction and Signal Bonds

6.8.1. The *Contractor* shall remove and install bonds under supervision of the *Employer*. The *Contractor* shall have the necessary tools to install the bonds. The *Contractor* shall be aware that where maintenance of the signalling and electrical equipment machines or assets change, he shall keep up with the latest technologies.

6.8.2. The *Contractor* shall be responsible for making up and installation of all bonds under supervision of the Maintenance Manager (Electrical) or authorized representative. A Competent Overhead Electrical Traction Service Manager will be provided by the *Employer* to supervise installation and removal of Jumper cables and electrical bonds.

6.8.3. The *Contractor* shall repair all bonds / cables removed or damaged or broken off during works during the period of the occupation.

6.8.4. The *Employer* shall supply all the material required for replacement of bonds and cables on a one-to-one exchange basis (used material for new material.)

6.8.5. The *Contractor* shall supply all Jumper Cables as per *Employer*'s requirement for the duration of the Contract. Details of these requirements may be supplied on request.

6.8.6. The cost to supply the Jumper Cables shall be deemed to be included in the rates tendered and no separate payment shall be made.

6.8.7. The *Contractor* shall provide labour and equipment (inclusive of expanded collar fastening consumables and lugs) required to remove, repair new bonds where required and replace signals and electrical bonds.

6.8.8. If holes are required for bonds, a rail drill shall either be supplied by the *Employer* or the holes shall be drilled by *Employer*. The drilling shall meet the requirements of drilling holes in rails as per the latest Manual for Track Maintenance

6.8.9. Where cables are required to be cut, the cut cable shall be cut to the correct lengths and be the crimping of lugs onto cables be done by the *Contractor*. No splices will be allowed in bonding cables.

6.8.10. Bonding shall be performed by a bonder qualified to the *Employer*'s standard manual for "Earthing and Bonding for 3kV DC, 25kV and 50kV AC bonding" B_023 Issue 3 and B_028 Issue and subsequent instructions which includes the steel wire standard in lieu of existing copper bonds, and the expanded collar fastening system. The cables shall be correctly buried in the ballast as per instruction.

6.8.11. The *Contractor* shall supply, operate, and maintain the latest Dubuis or WAM systems inclusive of all drill bits, for fastening of bonds in accordance with *Employer* drawing BBC7864. WAM item numbers 54/020848 (WAM mast side), 54/020824 (WAM rail side) and 54/023687 (Dubuis).

6.8.12. Signalling bonds may not be removed without the consent of the *Employer* or the authorised *Employer's* Signalling representative. Where signalling bonds are damaged or removed, the *Contractor* shall provide the support labour to reinstate the bonds. The *Employer* will however be responsible to ensure the correct method of re-connection to ensure the correct functioning of the signalling system.

6.9. Recording of Activity Times

6.9.1. The tendered occupation times shall be based on a standard site. i.e., standard ballast profile, standard depth and length of formation repair, haul within the free haul distance, standard number of closures. A proportional adjustment to the length of the occupation time will be made by *Employer* to allow for non-

standard conditions. i.e., non-standard ballast profile, non-standard depth and length of formation repair, haul in excess of the free haul distance and additional number of closures.

6.9.2. The mutually agreed time the machine shall be available at its staging point, shall be the start of the occupation time (To) for the task order. Therefore, arriving late shall be deemed as breakdown time (Tb).

6.9.3. During the work activity the productivity, availability and utilization of the machine shall be recorded.

6.9.4. The time shall continuously be recorded for all work performed. The following types of time activity shall continuously be recorded to clearly define what time is available for working.

To = Total Occupation time for the day.
Ts = Standing time because of *Employer* reasons, not related to any fault of the *Contractor*.
Tb = Breakdown of machine

Daily production report shall be e-mailed to the *Service Manager* at 08:00 am in the morning of the next day after each shift and shall be in excel format.

Tw = Working time

6.9.5. Monitoring of machine availability will be calculated as: Availability (A) = $\frac{To - Tb}{To}$

6.9.6. Monitoring of machine utilization will be calculated as: Utilization (U) = $\frac{Tw}{To}$

6.9.7. A productivity factor, P shall be calculated every month to continuously monitor whether the machine consistently produces at the rates of production tendered.

Monitoring of machine productivity will be calculated as: Productivity (P) = $\frac{TR}{AR}$

TR = Tendered Rate (Tendered time (To) per finalised turnout, including removal of existing turnout and installation of new turnout)
AR = Actual Rate (Time per finalised turnout: To)

6.9.8. The tendered nominal production rate shall be maintained over a calendar month.

6.9.9. All Tb shall be always recorded.

6.9.10. Where a machine becomes unreliable and continues breaking down and results in train delays or occupations having been taken with insufficient production, the *Service Manager* may decide on placing a machine on breakdown until such time that the *Contractor* can prove that the machine can be consistently available. The machine will always be required to produce the required standard of work required at full production rate.

6.10. **Provision of Electronic Production Report to the *Employer*.**

6.10.1. The *Contractor* shall send daily, weekly, and monthly reports to the *Service Manager*, in a format that will agreed between him and the *Service Manager*.

6.10.2. The *Contractor* shall provide the *Employer* with the daily production statistics of the work.

6.10.3. The production report shall be in an agreed-on format providing the following basic type of information:

- To, Tw, Tt, Ts, Tb, etc. of each machine applicable.
- Details and number of turnouts completed for the day.
- Reasons / comments on production shortfall including minutes per reason.
- Train numbers and minutes delays per train number.
- CTC names and CTC panel member details.
- Graphical presentation of data as and were agreed on.

6.10.4. The report shall be e-mailed daily to the Service Manager, Service Manager and nominated *Employer*'s representatives.

6.10.5. Where problems exist of transmitting the data, the *Contractor* shall state what measures shall be taken to ensure transmission of data as soon as possible.

6.10.6. All data shall be summarised per week and then per month. Data may be used as a preliminary indication of payment but shall not be used specifically for payment purposes. Final payment data shall be dealt with as specified elsewhere.

6.11. Quality, Standards of Workmanship & Accuracy

6.11.1. At the end of each occupation on completion of the work the track shall be entirely normalized to the A-standard in terms of track geometry, ballast profile, and formation standard before the site will be accepted by the *Employer*.

6.11.2. The *Employer's* Track Inspector shall on completion of each project inspects and measures each completed project for the safe passage of trains.

6.11.3. The *Service Manager* shall on completion of each project inspect and measure each completed project for purposes of verifying quality for payment purposes.

6.11.4. Payment for all work not specifically scheduled separately in the Pricing Data shall be deemed to be included in the rates tendered.

6.11.5. Standards for acceptance of track shall be in accordance with the Manual for Track Maintenance, the E10 Specification for Track work, the S410 Specification for Earthworks, and the Welding Specifications.

6.11.6. All track work shall be completed to comply with the A-standard. Should the *Contractor* observe conditions which may prohibit him from completing a project to the A-standard then he shall bring this timeously to the attention of the Service Manager prior to starting work on a specific project, unless the Service Manager is prepared to make a concession the A-standard shall still apply, and the *Contractor* may then refuse to continue with the specific project if he deems it impossible to achieve the A-standard on final quality.

6.11.7. Any substandard work shall be repaired by the *Contractor* at his cost. This includes rectification of any defects, including any failed aluminothermic welds, within a period of 45 days after the installation of the turnout.

6.11.8. <u>Track Geometry</u>

6.11.8.1. The *Contractor* and *Employer*'s representatives shall jointly measure and record for each turnout all measurements required to determine the standard of construction. A hard copy, countersigned by both parties, of these measurements shall be made available to the Service Manager by the *Contractor* on completion of the work for evaluation purposes.

6.11.8.2. Measurements for the vertical alignment shall be made with a Geismar type track gauge or equivalent, equipped with approved void meters.

6.11.8.3. Deviations from straight line (slack): Determine position of the slack by visual means. Measure the depth of the slack with a Geismar type track gauge. Measurements shall be taken along the top of the rail also before and after the points of deviation.

6.11.8.4. Measurement for the horizontal alignment shall be made with a nylon line on the running side of the reference rail at two points 10 m apart and a feeler gauge calibrated in 1mm intervals.

6.11.8.5. On the straight track, each deviation between the two points 10 m apart must be measured by inserting the feeler gauge between the nylon line and the rail at the centre of the deviation. The number of sleeper spaces between the beginning and end of the deviation must be recorded.

6.11.8.6. Curved track shall be marked out at 5 m intervals and each mark shall become a measuring station. Measuring and recording the offset at each station from the 10 m chord strung across alternative stations shall determine the Track standard.

6.11.8.7. The measuring stations specified above shall be numbered consecutively on the flange of the left handrail with white chalk for each section being evaluated and shall be prefixed with the letter A.

6.11.9. Ballast Profile

6.11.9.1. The height, width, and evenness in the longitudinal and lateral direction of the compacted ballast bed shall be measured, recorded, and signed off before proceeding with placement of turnout panels.

6.11.9.2. Ballast depth shall be 50 mm from the final level of the underside of the concrete turnout sleepers with a tolerance +0 mm and -19 mm.

6.11.9.3. The width of the ballast bed shall be to a tolerance of +100 mm and -100 mm.

6.11.9.4. The final ballast profile shall be trimmed neatly, and the top of the sleepers, chairs and turnout components cleaned from ballast and ballast dust.

6.11.10. Formation Repair

6.11.10.1. Formation work shall be executed to comply with the S410 Specification for earthworks. Compaction shall be done strictly in line with layer work layer by layer.

6.11.10.2. The moisture content of fill material shall be closely monitored and compaction of dry fill material without water will not be allowed.

6.11.10.3. Troxler compaction tests shall be conducted on each layer to verify compaction to the standard required.

6.11.10.4. The levels of the formation on completion of the earthworks shall be measured, recorded, and signed off before the start of placing the ballast bed.

6.11.11. Measurement of Contact Wire Height & Stagger

6.11.11.1. The height of the contact wire shall be measured after the final tamp. Heights below or above the allowable limit quoted will not be acceptable.

6.11.11.2. The stagger of the contact wire, (offset from the perpendicular on the track centre line) shall be measured after the final tamp at all support structures, pull-off and knuckle points. Where more than

one contact wire exists, the stagger of the innermost wire shall be measured. The stagger on both the through and turnout lines of sets of points shall be checked.

6.11.11.3. Contact wire height and stagger measurements shall be reported to the Service Manager in writing (or computer printout) at the end of each shift. Measurements exceeding the allowable limits specified shall be immediately reported to the *Employer* for rectification. Each measurement shall indicate the mast location number.

6.11.11.4. The accuracy of contact wire height measurements shall be ± 10mm and the contact wire stagger measurements shall be ± 20mm.

6.11.11.5. All overhead clearance and stagger measurements are to be done electronically with a Rail rod. The rail rod should be calibrated once every 12 months unless found to be inaccurate. A calibration certificate shall be always available on Site. Random checks by *TRIM* electrical measuring staff will be carried out by the *Employer* to ensure the accuracy of measurements

7. HEALTH AND SAFETY

7.1. The *Contractor* shall comply with all applicable legislation as well as Transnet Safety requirements. The cost for such compliance shall be borne by the *Contractor* and shall be deemed to have been allowed for in the rates and prices of the Contract. Specifically, important in this regard is compliance with:

- TRIM Safety Guidelines for Infrastructure (Latest Edition).
- The Compensation for Occupational Injuries and Diseases Act (Act 130 of 1993).
- The Occupational Health and Safety Act (Act 85 of 1993).
- TRIM Specification E.4E, SHE Specification for *Contractor*s
- Basic Conditions of Employment Act as well as all other relevant labour legislation.
- TRIM Specification for Work on, under or adjacent to Railway Lines and near high Voltage Equipment – E7/1.

7.2. The *Contractor* shall also comply with all other safety requirements, regulations, and guidelines of Transnet applicable to the nature of work carried out under the Contract and shall obtain the particulars thereof from the Service Manager.

7.3. A formal risk assessment on the works has been conducted by *the Employer* and the under mentioned safety critical risks have been identified. The *Contractor* shall conduct his own formal risk assessment on the machine offered by him and add any additional risks identified by him, to this list.

7.4. The *Contractor* is required to prepare and submit with his tender a comprehensive safety case in accordance with the requirements of Act 85 and the Construction Regulations.

7.5. The *Contractor* shall specify in his safety case the list of all risks identified by *the Employer* together with any additional risks identified by his own risk assessment and indicated specific rules, processes, methods, and designs of how he intends to mitigate these risks should he be awarded the contract.

7.6. Safety Critical Risks identified by *the Employer* for the turnout replacement machine and associated works and activities are:

- Fastening of new or removed turnout or turnout panel to turnout replacement machine
- Other material handling, including loading and off-loading of turnouts or turnout panels
- Compatibility with turnout supplier's loading, handling, and off-loading specification
- Lateral or longitudinal shifting of turnout or turnout panel while being handled or transported on turnout replacement machine
- Capsizing of turnout replacement machine during any stage of the process
- Occupation - double line occupation
- Executing work on one line while a normal train service is running on adjacent line/s

- Excessive Working hours
- Working at night
- Emergency procedure – to stop process due to wagon or equipment failure
- Material handling and working near or under live OHTE equipment: 50kV, 25 kV and 3.3kV
- Staging the accommodation units of workers in yards in proximity of live OHTE and lines on which rail traffic runs continuously.
- Danger area
- Competent operators
- Train driver/operator/ interaction/competency
- Site conditions
- Infrastructure equipment damage
- Machine working on sharp curves and steep gradients
- Machine working on embankments and in cuttings
- Machine working on fouled ballast
- Clearances
- Maximum and minimum temperatures
- Precipitation
- Integrity, i.e., Rolling stock structure, drawgear, brakes, wheels; and machine structural integrity
- Unauthorised access
- Use of various petrol and electrically driven small plant within team context i.e., disk cutters, MP12 and MC2 rail grinders, rail drills, handheld tampers, generators and associated electric equipment, joggle plates and joggle clamps etc.
- Environmental pollution/ damage

7.7. The *Contractor* shall report all the incidents to the *Service Manager,* the type of injuries sustained as well as quantifying delays or impact on production per incident in minutes.

7.8. **Safety Compliance**

7.8.1. The *Contractor* shall prepare and implement a comprehensive health and safety plan covering all relevant legal safety aspects for their work teams. It shall include details of the *Site* management structures, all safety legal appointments as well as the written safe working procedures for all equipment used on *Site* considering the above risk assessments.

7.8.2. The *Contractor* shall be responsible to ensure the use of only technically competent trained staff on all types of work.

7.8.3. The Health and Safety plan together with all supporting documentation shall always be available in a health and safety file on site for compliance audit.

7.8.4. The *Contractor* shall ensure that all *Site* staff are trained and inducted in the written safe working procedures for all equipment used on *Site*.

7.8.5. The *Contractor* shall ensure that all workers are appropriately equipped and wearing Personal Protective Equipment (PPE) and that Safety Talks are conducted and noted in the *Site* Diary before the start of every shift.

7.8.6. The *Contractor* shall be responsible to ensure that *Site* staff is always competently trained with regards to Electrical Awareness Training and such training material should be acknowledged and approved by the *Employer*'s School of Rail.

7.8.7. The *Contractor* shall be responsible to ensure that workers working on machines (high risk areas), operators, machine fitters, area Service Managers and contract Service Manager's *Site* staff are always competently trained with regards to PWC Electrical Educational Training.

7.8.8. The *Contractor* shall also be responsible to ensure that contract managers in charge of *Site*s are always competently trained with regards to COM Competency Electrical Training (to follow onto PWC Training).

7.8.9. Non-compliance with safety requirements will result in an immediate suspension of work without payment.

7.8.10. Non-compliance with environmental requirements such as oil spillages, waste, will result in penalties being levied against the *Contractor*. The *Employer* will appoint a private company to make the situation good and claim compensation from the *Contractor.*

8. TRAINING

8.1. The *Contractor* shall ensure that all staff working on or with the contract is adequately trained, to comply with any relevant safety and quality requirements.

8.2. It is the *Contractor*'s responsibility to ensure that his staff is trained. At the commencement of the contract, *Transnet Rail Infrastructure Manager* (*TRIM*) shall assist the *Contractor* with the initial on-the-job training for the staff as specified below, to assist the *Contractor* to qualify the worker's / staff. The *Contractor* shall ensure that he has a core group of workers with sufficient previous experience to take the lead in undertaking maintenance tasks.

8.3. Where training is required by the *Contractor* and *Transnet Rail Infrastructure Manager* (*TRIM*) is committed to provide training, the *Contractor* shall qualify his tender as to what and how many staff, training will be required for. After award of the contract, the *Contractor* shall then arrange with the appropriate *Transnet Rail Infrastructure Manager* (*TRIM*) Perway Production manager, through the *Service Manager*, for this training / testing.

8.4. Training of Track Inspectors, Track Masters and or Trade hands (Perway)

8.4.1. This training shall be solely the responsibility of the *Contractor*. Only fully qualified people shall be used by the *Contractor* for these positions. The *Contractor* shall ensure that staff used, do comply with requirements for the industry.

8.5. Training of Flagmen

8.5.1. The appropriate training for the flagmen provided by the *Contractor* can be provided by *Transnet Rail Infrastructure Manager (TRIM)* at the start of the contract.

8.5.2. *Transnet Rail Infrastructure Manager* (*TRIM*) requires flagmen, and the pre-requisites for such persons to qualify to be trained, shall be basic literacy skills and Basic English language ability.

8.5.3. The *Contractor* will be required to supply at least six of his employees to be trained and certificated in performance of protection duties.

8.5.4. *Flagmen* shall be officially trained, evaluated, and certified competent, (*Transnet Rail Infrastructure Manager* (*TRIM*) 407 – Item Number 37/270451 - "Certificate of Competency") by a designated competent person, before being used on protection duties. This certificate of competency shall remain valid for one (1) year only after, which re-testing and re-certification of competency will be required.

8.5.5. In cases where a person was not performing flagmen duties for a period of 6 months or longer, shall be re-tested and again be re-certified competent, before he may be re-used for Protection Duties. Retraining of Flagmen after 6 months of inactivity shall be for the *Contractor's* account.

8.6. Training of Bonders

8.6.1. Bonders removing, replacing, or repairing damaged bonds, shall be trained to ensure that only work, which they are trained and allowed to do, is done by them.

8.6.2. The initial training of bonders for this contract can be arranged for with the *Employer*'s accredited electrical trainer, through the *Service Manager* as specified above in this clause.

8.6.3. Bonders shall be required to be trained for Electrical Permanent Way Competency and be trained to do WHAM bonding and bonding according to electrical specifications, instructions, and drawings manual CEE 0059.84 and CEE0060.84, where applicable.

8.6.4. Follow up training of bonders shall be responsibility of the *Contractor*

8.7. Electrical Awareness, Educational and Competency Training

8.7.1. The electrical awareness training shall be arranged for before any work commences.

8.7.2. To mitigate the risk of workers encountering live OHTE, all crew who must work on the train in proximity of OHTE shall be trained and qualified.

8.7.3. The electrical educational and competency training may be arranged for at either a depot's lecture room (*Transnet Rail Infrastructure Manager* (*TRIM*) property), or at a venue of the *Contractor*s choice (*Contractor*'s cost).

8.7.4. The Accredited Electrical trainer will be provided by *the Employer* at *Contractors* cost, an arrangement for the training session required, is done beforehand and will fit in with the trainers training program for the year.

8.8. The following training shall be arranged for the following *Contractor's* staff:

Type of Training	**Staff required to undergo training**	**Estimated duration of training**	**Location of training**	**Trainer to conduct training at start of contract**	**Alternative trainer to conduct training at contract start**	**Future Refreshment training**
Induction	All contract staff including new entrants. Start of work at any new depot	+/- 2 hours	Depot where work starts	*Employer's Service Manager* or Track inspector	New recruits: *Contractor*s accredited representative	*Contractor*s accredited representative.
Electrical awareness	All contract staff including new entrants	+/- 2 hours	Depot where work starts	*Employer's* Depot's electrical officer or accredited trainer	New recruits: *Contractor*s accredited representative	*Contractor*s accredited representative.
PWC (Electrical)	*Service Manager*s, Operators, fitters, Technicians & Workers supporting fitters, working in risky OHTE areas.	2 days	Depot where work starts	*Employer's*, Esselen Park or Depot accredited trainer, or *Employer's* hired accredited trainer: By appointment at depot*	Replacement/ new staff: *Contractor*s accredited representative	*Contractor*s accredited representative.
Competency (Electrical)	*Service Manager*s (Follow up training in PWC)	1 day	Depot where work starts	*Employer's* accredited trainer, or *Employer's* hired accredited trainer: By appointment at depot*	Replacement/ new staff: *Contractor*s accredited representative	*Contractor*s accredited representative.
Flagmen Training	Flagmen and standby flagmen	5 days		*Employer's* accredited trainer, or *Employer's* hired accredited trainer: By appointment at depot	Replacement/ new staff: *Contractor*s accredited representative	*Contractor*s accredited representative.
Bonder Training	Bonder	5 days		*Employer's* accredited trainer, or *Employer's* hired accredited trainer: by appointment at depot*	Replacement/ new staff: *Contractor*s accredited representative	*Contractor*s accredited representative.

8.9. The crew time, transport and accommodation cost related to the above training will be for the *Contractor's* account. The crew members proposed to for this training shall as minimum requirement be literate in terms of reading, writing, and speaking of Basic English.

Contractor Health and Safety Specification Guidelines

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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.

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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

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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).

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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.

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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

In the context of this guideline, 'Regulation(s)' refers to the Construction Regulations, 2014 required by Section 43 of the Occupational Health and Safety Act 85 of 1993, published under Government Notice R 84 in Government Gazette 37305 of February 2014.

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.

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Risk Assessment
A process of evaluating the risk arising from a hazard, considering 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;

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- 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.

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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, 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 regarding 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

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- 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 way 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.

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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

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- 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 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 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 0f 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.

An 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 are the responsibility of each 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.

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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.

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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 regarding 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;

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- 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;

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- 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 monthly 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;

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- 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 always supervised 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;

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- 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.

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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 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;

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- 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 because 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 contactors and Contractors to ensure compliance with these Regulations.

Where a construction work permit is required as contemplated in CR 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.

Were notification of construction work is required as contemplated in CR regulation 4(1), the client may, 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;

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- 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 cognizance 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, to ensure compliance with the provisions of the Act-

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- 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 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 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

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- 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 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, enough 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:

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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 enough 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

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- 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 vary 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)
- EIR 9 Installation Electrician appointment

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.

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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;

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- 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;

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- 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

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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.

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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 structure's health and safety file.

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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

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- 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-
    - an emergency;
    - the malfunctioning of equipment; and
    - the discovery of a suspected defect in the equipment;
    - 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).

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Furthermore, employees must attend (where applicable) Area-Specific Training pertaining to the 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 always accompanied 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

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

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

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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 about 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 regarding 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:

conditions.

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.

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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).

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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.

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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. 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 could 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.

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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 always kept on site. The contents of the file will be audited by a Project SHE Advisor monthly.

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.

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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 like 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 like 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.

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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 PTOs 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;

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- Building fires on site, unless in a suitably constructed barbequing facility; and
- Pouring / pumping / flushing any substance (chemical / hydrocarbon / wastewater) 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.

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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.

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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 always carry a copy of his appointment with him. 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.

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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 always complied with.

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 daily 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.

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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 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.

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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.

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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 always worn by all persons whilst on the project site.
Speed limits and traffic rules must be reviewed regularly and must be rigorously enforced.
Local traffic rules must be always complied with.

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 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 seats (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;

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- 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 always maintained in a safe and roadworthy condition 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:

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- 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 always worn by all occupants of a light vehicle (i.e. the driver and all passengers).

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 always switched on when the vehicle is in operation.

All Contractors must have a system is 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;

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- 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 regarding the seating, operator controls and retrofitted devices.

Fleet and control consistency must be considered to minimise the possibility of operator error when changing machines.

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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, audited and 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 (except for 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 regarding signals and signalling to ensure effective communication. The training must be formal and recorded, and competency must be tested.

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- A flagman and the mobile equipment operator that he is directing must maintain eye contact. The flagman must never position health and safety where 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.

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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 contacting 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, health and safety (wheels), and assemblies.

All tyres and health 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 health 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.

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A storm water management plan must be in place for the site and 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 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 backfilled 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.

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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 always complied with.

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.)

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- 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 always be clearly visible (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;

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- 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 always complied with.

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 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.

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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, pipelines, 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 must 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 rainwater.
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 to protect employees from falling, rolling or slumping rock, soil, or materials.

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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.

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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 workday (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.

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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 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 always complied with.
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 cranes 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.

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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 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 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 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 were falling from height is identified as a hazard.

Each crane should be fitted with a stability monitoring device to prevent it from toppling over.

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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 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.

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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.

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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;

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- 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 always remain on the hoisting drum. 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;

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- When using tag lines to steady or guide a suspended load that is being moved using a mobile crane, personnel on foot must always remain in sight of and in communication with the crane operator, must never walk between the crane and the load, and must always remain clear of the load and the crane (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 health and safety 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) 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.

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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, out-riggers, 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).

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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

Quarter	Tag colour
January – march	Blue
April – June	Red
July – September	Green
October – December	Yellow

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

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- 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 always complied with.
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.

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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 can withstand 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 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 always used 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.

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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 always maintained.
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 (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.

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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 monthly 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 always be in place 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 if 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 can support 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. 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;

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- 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 (regarding 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 always keep his feet on the floor.
Every person in the "basket" must always be secured 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.

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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 always be used 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 always keep his feet on the floor.

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 always wear personal fall protection equipment (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 always be visible to the crane operator. A suitable means of communication must be in place to ensure that the suspended person(s) is able to communicate with the crane operator and personnel on the ground.

The crane operator must always remain at the controls 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.

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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 strictly always be complied with.
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.

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No items are permitted to lie loose in elevated positions (e.g. nuts and bolts must be securely stored) and good housekeeping standards must always be maintained.

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 always be plumb and level.
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 always use fall protection (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. A suitable lanyard length (not exceeding 2 metres) must be selected

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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 always be maintained.
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 near 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.

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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 always be engaged 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 always remain unobstructed. 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 trapdoor) 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 trapdoor) in each platform.
Vertical ladders must be braced at three metre intervals (as a minimum) to prevent undue movement.

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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) 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, always, 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.

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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 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 (more than 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.

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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 always be securely anchored.

All work must be carried out from properly constructed work platforms. Standing on railings or braces 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 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.

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The use of makeshift ladders is forbidden.
All ladders must be numbered, listed in a register, and inspected by a competent person monthly (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 style 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.

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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 near 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 try 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;

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- 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 refer 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 health and safety with all 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 because 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

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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 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 monthly. A General Work Authorisation is valid for one calendar month and authorises the contractor's planned work activities. 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.

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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 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.

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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.

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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.

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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 monthly. 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.

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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, except for 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, except for 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 always 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).

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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.
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) to clearly identify any overhead or underground power lines.

A system must be in place to mitigate the risks associated with working near 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 (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.

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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).
Except for 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).

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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).

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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 monthly. 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 16-2 Colour Coding System for Electrical Equipment

Month		Tag Colour	Month	Tag Colour
January		Red	July	Red
February		Blue	August	Blue
March		Orange	September	Orange
April		Green	October	Green
May		White	November	White
June		Yellow	December	Yellow

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.

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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 daily 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 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;

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- Provision of suitable mechanical ventilation and personal protective equipment e.g. lifejackets etc. and the use of respiratory protection such as compressed air breathing apparatus; and
- A ventilation rate suitable for general use must consider 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.

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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 about 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 always be positioned outside the confined space entry point 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.

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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 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.
- equipment.

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.

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When working inside metal vessels or under other conditions where parts of his body may encounter conducting surfaces, the welder must take precautions to insulate health and safety 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;

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- 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.

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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 encountering 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.

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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 always guarding.
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;

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- 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 were 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.

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16.24 Fuel Powered Tools and Equipment

Fuel powered tools must be shut down and allowed to cool before being refuelled, 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.

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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 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.

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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 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 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 in 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 that the person works with the vibrating equipment / tools (at least 40 minutes break after 20 minutes working with a machine that vibrates excessively).

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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 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 always be complied with.

As a minimum, the following PPE must be worn by all persons (always including visitors) 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);

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- 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 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 daily. 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.

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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 always be worn 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.

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Safety glasses must always be worn 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.

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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.

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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 always be worn whilst on a project site, with the exception of offices and office 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.

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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 (except for 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.

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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.

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).

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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;

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- 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 using long sleeve shirts, long trousers, health 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 are to be stored, the tank must be installed / the containers must be positioned within a bund (see Definitions);
- If the fuel / flammable liquid is 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;

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- 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;

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- All personnel that will be required to work with or may encounter 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 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 monthly (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 always kept unobstructed.
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.

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The contractor must ensure that his employees (and those of any appointed sub-contractors) 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 using 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.

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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 always be unobstructed), 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 always be unobstructed).
"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 health and safety with the waste management plan for the site including collection and disposal arrangements and must align his waste management activities accordingly.

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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 skis 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.

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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 always controlled. 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 wastewater (and the associated biological hazards). Wastewater may not accumulate or stand in pools at any location on the project site.
Change rooms must be provided and must be always kept clean and free from odours.

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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 mealtimes).

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).

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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;

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- 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.

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- 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 my 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.

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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 if the potential for harm exists.

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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 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

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- 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 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;

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- 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 can 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.

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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.

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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 meet. 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.

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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), ultraviolet (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;

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- 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

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- 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 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

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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 while 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.

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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 (about working at height) by the occupational medical practitioner.
Electricians must be tested for colour-blindness.

Regarding 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

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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 based on 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.

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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/ Vapor 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 characterized and described. Workplace exposure assessment must be repeated according to regulatory requirements or whenever there is a change in production, work organization, process or equipment which may impact thermal stress levels.

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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 acclimatization 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;

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• 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 analyzed 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;

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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;

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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.

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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, 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)

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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.

Considering 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

Item 1:	Wound cleaner/ antiseptic – 100ml;
Item 2:	Swabs for cleaning wounds;
Item 3:	Cotton wool for padding – 100g;
Item 4:	Sterile gauze – minimum quantity 10;
Item 5:	1 x Pair of forceps – for splinters;
Item 6:	1 x Pair of scissors – minimum size 100mm
Item 7:	1 x Set of safety pins;
Item 8:	4 x Triangular bandages;
Item 9:	4 x Roller bandages – 75mm x 5m;
Item 10:	4 x Roller bandages – 100mm x 5m;
Item 11:	1 x Roll of elastic adhesive – 25mm x 3m;
Item 12:	1 x Non-allergenic adhesive strip – 25mm x 3m;
Item 13:	1 x Packet of adhesive dressing strips – minimum quantity 10 assorted sizes;
Item 14:	4 x First aid dressings – 75mm x 100mm;
Item 15:	4 x First aid dressings – 150mm x 200mm;
Item 16:	2 x Straight splints;
Item 17:	2 x Pairs large and 2 x pairs medium disposable latex gloves;
Item 18:	2 x CPR mouth pieces or similar devices.

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.

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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.

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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).

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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.

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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 workday 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.

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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.

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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 regarding 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 regarding 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.

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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 monthly 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 monthly.

The contractor must carry out internal health and safety inspections as follows:

- General site health and safety inspections daily; 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.

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TRANSNET SPECIFICATION

E7/1 - SPECIFICATION FOR GENERAL WORK AND WORKS ON, OVER, UNDER OR ADJACENT TO RAILWAY LINES AND NEAR HIGH VOLTAGE EQUIPMENT

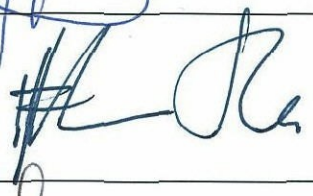
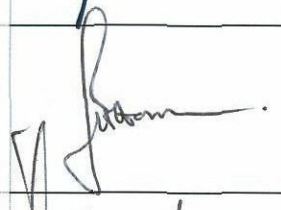
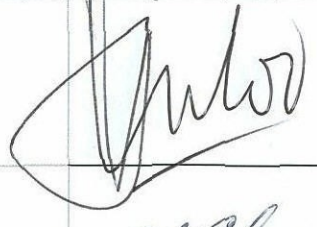
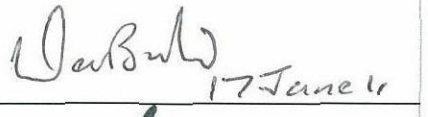
(This specification shall be used in network operator contracts)

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SPECIFICATION FOR GENERAL WORK AND WORKS ON, OVER, UNDER OR ADJACENT TO RAILWAY LINES AND NEAR HIGH VOLTAGE EQUIPMENT

Author:	Project Manager Capital Program (Electrical)	G. Maposa	
Approved:	Senior Engineer Infra Engineering (Train Authorisation Systems)	J. van den Berg	
"	Principal Engineer Infra Engineering (Track)	M. Marutla	
"	Principal Engineer Infra Engineering (Structures)	J. Homan	
"	Principal Engineer Infra Engineering (Electrical)	J. Vosloo	
"	Principal Engineer Technology Management (Electrical)	W. Coetzee	
"	Chief Engineer Transport Telecoms	D. Botha	
Authorised:	Chief Engineer Infrastructure Engineering	J. van Aardt	

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TRANSNET SPECIFICATION

E7/1 - SPECIFICATION FOR GENERAL WORK AND WORKS ON, OVER, UNDER OR ADJACENT TO RAILWAY LINES AND NEAR HIGH VOLTAGE EQUIPMENT

(This specification shall be used in network operator contracts)

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1.0 SCOPE

1.1 This specification covers the network operator's requirements for general work and works on, over, under or adjacent to railway lines and near high voltage equipment.

2.0 DEFINITIONS

The following definitions shall apply:

"Authorised Person" - A person whether an employee of the network operator or not, who has been specially authorised to undertake specific duties in terms of Transnet' publication Electrical Safety Instructions, and who holds a certificate or letter of authority to that effect.

"Barrier" Any device designed to restrict access to "live" high-voltage electrical equipment.

"Bond" - A short conductor installed to provide electrical continuity.

"Contractor" - Any person or organisation appointed by the network operator to carry out work on its behalf.

"Contract Supervisor" - The person or juristic person appointed by the network operator from time to time as the Contract Supervisor, to administer the Contractor's performance and execution of the Works according to the powers and rights held by and obligations placed upon the Contract Supervisor in terms of the Contract.

"Dead" - Isolated and earthed.

"Electrical Officer (Contracts)" - The person appointed in writing by the Project Manager in terms of this specification as the person who shall be consulted by the Contractor in all electrical matters to ensure that adequate safety precautions are taken by the Contractor.

"Executive Officer" - The person appointed by the network operator from time to time as the Executive Officer to act according to the rights and powers held by and obligations placed upon him in terms of the Contract.

"High-Voltage" - A voltage normally exceeding 1000 volts.

"Live" - A conductor is said to be "live" when it is at a potential different from that of the earth or any other conductor of the system of which it forms a part.

"Near" - To be in such a position that a person's body or the tools he is using or any equipment he is handling may come within 3 metres of "live" exposed high-voltage electrical equipment.

"Occupation" - An authorisation granted by the network operator for work to be carried out under specified conditions on, over, under or adjacent to railway lines.

"Occupation Between Trains" - An occupation during an interval between successive trains.

"Optical Fibre Cable" - Buried or suspended composite cable containing optical fibres used in:

- telecommunication networks for transmission of digital information and
- safety sensitive train operations systems.

"Project Manager" – As defined in the special conditions of the contract. The person or juristic person appointed by the network operator from time to time as the Project Manager, to administer the Contract according to the powers and rights held by and obligations placed upon him in terms of the Contract.

"Responsible Representative" - The responsible person in charge, appointed by a contractor, who has undergone specific training (and holds a certificate) to supervise (general or direct) staff under his control who perform general work or to work on, over, under or adjacent to railway lines and in the vicinity of high-voltage electrical equipment.

"Total Occupation" - An occupation for a period when trains are not to traverse the section of line covered by the occupation.

"Work on" - Work undertaken on or so close to the equipment that the specified working clearances to the "live" equipment cannot be maintained.

"Work Permit" - A combined written application and authority to proceed with work on or near dead electrical equipment.

"Works" – The contractual intent for the work to be done as defined in the contract at a defined work site.

PART A - GENERAL SPECIFICATION

3.0 AUTHORITY OF OFFICERS OF TRANSNET

3.1 The Contractor shall co-operate with the officers of the network operator and shall comply with all instructions issued and restrictions imposed with respect to the Works which bear on the existence and operation of the network operator's railway lines and high-voltage equipment.

3.2 Without limiting the generality of the provisions of clause 3.1, any duly authorised representative of the network operator, having identified himself, may stop the work if, in his opinion, the safe passage of trains or the safety of the network operator's assets or any person is affected. **CONSIDERATIONS OF SAFETY SHALL TAKE PRECEDENCE OVER ALL OTHER CONSIDERATIONS**.

4.0 CONTRACTOR'S REPRESENTATIVES AND STAFF

4.1 The Contractor shall nominate Responsible Representatives of whom at least one shall be available at any hour for call-out in cases of emergency. The Contractor shall provide the Contract Supervisor with the names, addresses and telephone numbers of the representatives.

4.2 The Contractor guarantees that he has satisfied himself that the Responsible Representative is fully conversant with this specification and that he shall comply with all his obligations in respect thereof.

4.3 The Contractor shall ensure that all contractor staff receives relevant awareness, educational and competence training regarding safety as prescribed.

5.0 OCCUPATIONS AND WORK PERMITS

5.1 Work to be done during total occupation or during an occupation between trains or under a work permit shall be done in a manner decided by the Contract Supervisor and at times to suit the network operator requirements.

5.2 The Contractor shall organise the Works in a manner which will minimise the number and duration of occupations and work permits required.

5.3 The network operator will not be liable for any financial or other loss suffered by the Contractor arising from his failure to complete any work scheduled during the period of an occupation or work permit.

5.4 The Contractor shall submit to the Contract Supervisor, in writing, requests for occupations or work permits together with details of the work to be undertaken, at least 21 days before they are required. The network operator does not undertake to grant an occupation or work permit for any particular date, time or duration.

5.5 The network operator reserves the right to cancel any occupation or work permit at any time before or during the period of occupation or work permit. If, due to cancellation or change in date or time, the Contractor is not permitted to start work under conditions of total occupation or work permit at the time arranged, all costs caused by the cancellation shall be born by the Contractor except as provided for in clauses 5.6 to 5.8.

5.6 When the Contractor is notified less than 2 hours before the scheduled starting time that the occupation or work permit is cancelled, he may claim reimbursement of his direct financial losses caused by the loss of working time up to the time his labour and plant are employed on other work, but not exceeding the period of the cancelled occupation or work permit.

5.7 When the Contractor is notified less than 2 hours before the scheduled starting time, or during an occupation or work permit, that the duration of the occupation or work permit is reduced, he may claim reimbursement of his direct financial losses caused by the loss of working time due to the reduced duration of the occupation or work permit.

5.8 Reimbursement of the Contractor for any loss of working time in terms of clause 5.6 and 5.7, shall be subject to his claims being submitted within 14 days of the event with full details of labour and plant involved, and provided that the Contract Supervisor certifies that no other work on which the labour and plant could be employed was immediately available.

5.9 Before starting any work for which an occupation has been arranged, the Contractor shall obtain from the Contract Supervisor written confirmation of the date, time and duration of the occupation.

5.10 Before starting any work for which a work permit has been arranged, the Responsible Representative shall read and sign portion C of the Work Permit, signifying that he is aware of the work boundaries within which work may be undertaken. After the work for which the permit was granted has been completed, or when the

work permit is due to be terminated, or if the permit is cancelled after the start, the same person who signed portion C shall sign portion D of the Work Permit, thereby acknowledging that he is aware that the electrical equipment is to be made “live”. The Contractor shall advise all his workmen accordingly.

6.0 SPEED RESTRICTIONS AND PROTECTION

6.1 When speed restrictions are imposed by the network operator because of the Contractor's activities, the Contractor shall organise and carry out his work so as to permit the removal of the restrictions as soon as possible.

6.2 When the Contract Supervisor considers protection to be necessary the Contractor shall, unless otherwise agreed, provide all protection including flagmen, other personnel and all equipment for the protection of the network operator's and the Contractor's personnel and assets, the public and including trains.

6.2.1 The network operator will provide training free of charge of the Contractor's flagmen and other personnel performing protection duties. The Contractor shall consult with the Contract Supervisor, whenever he considers that protection will be necessary, taking into account the minimum permissible clearances set out in the Manual for Track Maintenance (Document no. BBB0481):

- Drawing no. BE-97 Sheet 1: Horizontal Clearances: 1065mm gauge (Annexure 1 sheet 1)
- Drawing no. BE-97 Sheet 2: Vertical Clearances: 1065mm gauge (Annexure 1 sheet 2)
- Drawing no. BE-97 Sheet 3: Clearances: Platform (Annexure 1 sheet 3)
- Drawing no. BE-97 Sheet 5: Clearances: 610mm Gauge (Annexure 1 sheet 5)

6.3 The Contractor shall appoint a Responsible Representative to receive and transmit any instruction which may be given by the network operator personnel providing protection.

7.0 ROADS AND ROADS ON THE NETWORK OPERATOR’S PROPERTY

7.1 The Contractor shall take every reasonable precaution to prevent damage to any roads or bridges used to obtain access to the site, and shall select routes, use vehicles, and restrict loads so that any extraordinary traffic as may arise from the moving of plant or material to or from the site shall be limited as far as is reasonably possible.

7.2 The Contractor shall not occupy or interfere in any way with the free use of any public or private road, right-of-way, path or street unless the Contract Supervisor has obtained the approval of the road authority concerned.

8.0 CLEARANCES

8.1 No temporary works shall encroach on the appropriate minimum clearances set out in the Manual for Track Maintenance (Document no. BBB0481):

- Drawing no. BE-97 Sheet 1: Horizontal Clearances: 1065mm gauge (Annexure 1 sheet 1)
- Drawing no. BE-97 Sheet 2: Vertical Clearances: 1065mm gauge (Annexure 1 sheet 2)
- Drawing no. BE-97 Sheet 3: Clearances: Platform (Annexure 1 sheet 3)
- Drawing no. BE-97 Sheet 5: Clearances: 610mm Gauge (Annexure 1 sheet 5)

9.0 STACKING OF MATERIAL

9.1 The Contractor shall not stack any material closer than 3m from the centre line of any railway line without prior approval of the Contract Supervisor.

10.0 EXCAVATION, SHORING, DEWATERING AND DRAINAGE

10.1 Unless otherwise approved by the Contract Supervisor any excavation adjacent to a railway line shall not encroach on the hatched area shown in Figure 1.

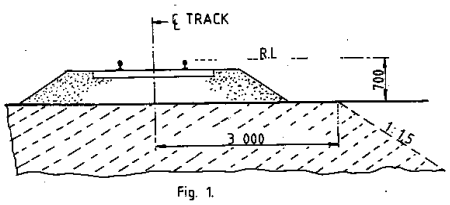


Fig. 1.

10.2 The Contractor shall provide, at his own cost any shoring, dewatering or drainage of any excavation unless otherwise stipulated elsewhere in the Contract.

10.3 Where required by the Contract Supervisor, drawings of shoring for any excavation under or adjacent to a railway line shall be submitted and permission to proceed, obtained before the excavation is commenced.

10.4 The Contractor shall prevent ingress of water to the excavation but where water does enter, he shall dispose of it as directed by the Contract Supervisor.

10.5 The Contractor shall not block, obstruct or damage any existing drains either above or below ground level unless he has made adequate prior arrangements to deal with drainage.

11.0 FALSEWORK FOR STRUCTURES

11.1 Drawings of falsework for the construction of any structure over, under or adjacent to any railway line shall be submitted to the Contract Supervisor and his permission to proceed obtained before the falsework is erected. Each drawing shall be given a title and a distinguishing number and shall be signed by a registered professional engineer certifying that he has checked the design of the falsework and that the drawings are correct and in accordance with the design.

11.2 After the falsework has been erected and before any load is applied, the Contractor shall submit to the Contract Supervisor a certificate signed by a registered professional engineer certifying that he has checked the falsework and that it has been erected in accordance with the drawings. Titles and numbers of the drawings shall be stated in the certificate. Notwithstanding permission given by the Contract Supervisor to proceed, the Contractor shall be entirely responsible for the safety and adequacy of the falsework.

12.0 PILING

12.1 The Contract Supervisor will specify the conditions under which piles may be installed on the network operator’s property.

13.0 UNDERGROUND SERVICES

13.1 No pegs or stakes shall be driven or any excavation made before the Contractor has established that there are no underground services which may be damaged thereby.

13.2 Any damage shall be reported immediately to the Contract Supervisor, or to the official in charge at the nearest station, or to the traffic controller in the case of centralised traffic control.

14.0 BLASTING AND USE OF EXPLOSIVES

14.1 When blasting within 500m of a railway line, the Contractor shall observe the requirements stipulated in this specification.

14.2 No blasting shall be carried out except with the prior written permission of the Contract Supervisor and under such conditions as he may impose.

14.3 On electrified lines the Contractor shall also obtain the permission of the Electrical Officer (Contracts) before blasting, and shall give at least 21 days notice of his intention to blast. No blasting shall be done in the vicinity of electrified lines unless a member of the network operator's electrical personnel is present.

14.4 The Contractor shall arrange for the supply, transport storage and use of explosives.

14.5 The Contractor shall have labour, tools and plant, to the satisfaction of the Contract Supervisor, available on the site to clear immediately any stones or debris deposited on the track or formation by blasting, and to repair any damage to the track or formation immediately after blasting. Repairs to the track shall be carried out only under the supervision of a duly authorised representative of the network operator.

14.6 The Contractor shall notify the Contract Supervisor of his intention to blast at least 21 days before the commencement of any blasting operations.

14.7 Before any blasting is undertaken, the Contractor and the Contract Supervisor shall jointly examine and measure up any buildings, houses or structures in the vicinity of the proposed blasting to establish the extent of any existing cracking or damage to such structures, etc. The Contractor, shall, subject to the provisions stipulated in the Contract Insurance Policy, make good any deterioration of such buildings, houses, or structures, which, in the opinion of the Contract Supervisor, was directly caused by the blasting.

14.8 After completion of the blasting the Contractor shall obtain a written clearance from each landowner in

the vicinity of the blasting operations to the effect that all claims for compensation in respect of damage caused by the blasting operations to their respective properties, have been settled.

14.9 The Contractor shall provide proof that he has complied with the provisions of clauses 10.17.1 to 10.17.4 of the Explosives Regulations (Act 26 of 1956 as amended).

14.10 Blasting within 500m of a railway line will only be permitted during intervals between trains. A person appointed by the Contract Supervisor, assisted by flagmen with the necessary protective equipment, will be in communication with the controlling railway station.

Only this person will be authorised to give the Contractor permission to blast, and the Contractor shall obey his instructions implicitly regarding the time during which blasting may take place.

14.11 The flagmen described in clause14.10, where provided by the network operator, are for the protection of trains and the network operator's property only, and their presence does not relieve the Contractor in any manner of his responsibilities in terms of Explosives Act or Regulations, or any obligation in terms of this Contract.

14.12 The person described in clause 14.10 will record in a book provided and retained by the network operator, the dates and times:-

(i) when each request is made by him to the controlling station for permission to blast;

(ii) when blasting may take place;

(iii) when blasting actually takes place; and

(iv) when he advises the controlling station that the line is safe for the passage of trains.

14.13 Before each blast the Contractor shall record in the same book, the details of the blast to be carried out. The person appointed by the Contract Supervisor and the person who will do the blasting shall both sign the book whenever an entry described in clause 14.12 is made.

15.0 RAIL TROLLEYS

15.1 The use of rail trolleys or trestle trolleys on a railway line for working on high voltage equipment will be permitted only if approved by the Contract Supervisor and under the conditions stipulated by him.

15.2 All costs in connection with trolley working and any train protection services requested by the Contractor shall, be borne by the Contractor, unless otherwise agreed.

16.0 SIGNAL TRACK CIRCUITS

16.1 Where signal track circuits are installed, the Contractor shall ensure that no material capable of conducting an electrical current makes contact between rails of railway line/lines.

16.2 No signal connections on track-circuited tracks shall be severed without the Contract Supervisor's knowledge and consent.

17.0 PENALTY FOR DELAYS TO TRAINS

17.1 If any trains are delayed by the Contractor and the Contract Supervisor is satisfied that the delay was avoidable, a penalty will be imposed on the Contractor as stipulated in the contract, for the period and number of trains delayed.

18.0 SURVEY BEACONS AND PEGS

18.1 The Contractor shall not on any account move or damage any beacon, bench mark, reference mark, signal or trigonometrical station in the execution of the Works without the written approval of the Contract Supervisor.

Should the Contractor be responsible for any such occurrence, he shall report the circumstances to the Contract Supervisor who will arrange with the Director-General of Surveys for replacement of the beacon or mark at the cost of the Contractor.

18.2 The Contractor shall not move or damage any cadastral or mining beacon without the written approval of the Contract Supervisor and before it has been referenced by a registered land surveyor. Any old boundary beacon, which becomes an internal beacon on creation of new boundaries, shall not be moved without the written approval of the Contract Supervisor.

Should the Contractor move or damage any cadastral or mining beacon without authority, he shall be responsible for having it replaced, at his cost, by a land surveyor.

18.3 The Contractor shall preserve all pegs and bench marks. Such survey points shall not be removed without the written approval of the Contract Supervisor. Should any peg or benchmark be removed without authority, the Contract Supervisor will arrange for its replacement and the cost will be recovered from the Contractor. No claim will be considered for delay in replacing any such peg or bench mark. Each peg replaced shall be checked by the Contractor.

18.4 Where a new boundary has been established, beacons on the fence line shall not be disturbed, and fence posts or anchors may not be placed or excavations made within 0,6 m of any beacon without the prior written approval of the Contract Supervisor.

19.0 TEMPORARY LEVEL CROSSINGS

19.1 The Contract Supervisor may, on request of the Contractor, and if necessary for the purpose of execution of the Works, permit the construction of a temporary level crossing over a railway a line at a position approved by the Contract Supervisor and at the Contractor's cost. The period for which the temporary level crossing is permitted will be at the discretion of the Contract Supervisor.

19.2 The Contractor will provide protection and supervise the construction of the road over the track(s) and within the railway servitude at the level crossing, as well as the erection of all road signs and height gauges. All cost to be borne by the applicant.

The Contractor shall exercise extreme caution in carrying out this work, especially in respect of damage to tracks, services, overhead power and communications routes and prevent contact with “live” overhead electrical equipment.

Unless otherwise agreed, the Contractor will provide the service deviations or alterations to the network operator’s track-, structure-, drainage-, electrical-, telecommunications- and train authorisation systems to accommodate the level crossing.

19.3 The Contractor shall take all necessary steps including the provision of gates, locks and, where necessary, watchmen to restrict the use of the temporary level crossing to himself and his employees, his subcontractors and their employees, the staff of the network operator and to such other persons as the Contract Supervisor may permit and of whose identity the Contractor will be advised. If so ordered by the Contract Supervisor, the Contractor shall provide persons to control road traffic using the temporary level crossing. Such persons shall stop all road traffic when any approaching train is within seven hundred and fifty (750) metres of the temporary level crossing, and shall not allow road traffic to proceed over it until the lines are clear.

19.4 The Contractor shall maintain the temporary level crossing within the railway servitude in good condition for the period it is in use. A temporary agreement with the road authority to be concluded for the maintenance of the level crossing outside the railway servitude.

19.5 When the temporary level crossing is no longer required by the Contractor, or permitted by the network operator, the Contractor shall at his own cost remove it and restore the site and the network operator’s track-, structure-, drainage-, electrical-, telecommunications- and train authorisation systems to its original condition. Work over the tracks and within the railway servitude will be supervised by the network operator.

20.0 COMPLETION OF THE WORKS

20.1 On completion of the works, the Contractor shall remove all the remaining construction plant and material from the site, other than material which is the property of the network operator, and leave the site in a clean, neat and tidy condition. If material and plant is required for the liability and maintenance period the Contract supervisor must authorise it’s retention on site.

21.0 PROTECTION OF PERSONS AND PROPERTY

21.1 The Contractor shall provide and maintain all lights, guards, barriers, fencing and watchmen when and where necessary or as required by the Contract Supervisor or by any statutory authority, for the protection of the Works and for the safety and convenience of the public.

Red, yellow, green or blue lights may not be used by the Contractor as they can be mistaken for signals. Red, yellow, green or white flags shall only be used for protection by the Contractor. Within the precincts of a port the Contractor shall obtain the permission of the Port Captain before installing any light.

21.2 The Contractor shall take all the requisite measures and precautions during the course of the Works to:

(i) protect the public and property of the public,

(ii) protect the property and workmen of both the network operator and the Contractor,

(iii) avoid damage to and prevent trespass on adjoining properties, and

(iv) ensure compliance with any instruction issued by the Contract Supervisor or other authorised person, and with any stipulation embodied in the contract documents which affects the safety of any person or thing.

21.3 The network operator will provide, at its own cost, protection for the safe working of trains during such operations as the Contract Supervisor may consider necessary. Protection by the network operator for any purpose whatsoever, does not absolve the Contractor of his responsibilities in terms of the Contract.

21.4 The Contractor shall take all precautions and appoint guards, watchmen and compound managers for prevention of disorder among and misconduct by the persons employed on the Works and by any other persons, whether employees or not, on the work site and for the preservation of the peace and protection of persons and property in the direct neighbourhood. Any relocation of camps because of disorder shall be at the Contractor's expense.

21.5 All operations necessary for the execution of the Works, including the provision of any temporary work and camping sites, shall be carried out so as not to cause veldt fires, ground and environmental pollution, soil erosion or restriction of or interference with streams, furrows, drains and water supplies.

If the original surface of the ground is disturbed in connection with the Works, it shall be made good by the Contractor to the satisfaction of the land owner, occupier or responsible authority.

21.6 The Contractor shall take all reasonable steps to minimise noise and disturbance when carrying out the Works, including work permitted outside normal working hours.

21.7 Dumping of waste or excess materials by the Contractor shall, in urban areas, be done under the direction and control of, and at sites made available by the local authority. Dumping outside local authority boundaries shall be done only with the express permission and under the direction and control of the Contract Supervisor.

21.8 The Contractor shall comply with environmental protection measures and specifications stipulated by the Contract Supervisor and/or local and environmental authorities.

22.0 INTERFERENCE WITH THE NETWORK OPERATOR'S ASSETS AND WORK ON OPEN LINES

22.1 The Contractor shall not interfere in any manner whatsoever with an open line, nor shall he carry out any work or perform any act which affects the security, use or safety of an open line except with the authority of the Contract Supervisor and in the presence of a duly authorised representative of the network operator.

22.2 The Contractor shall not carry out any work or operate any plant, or place any material whatsoever nearer than three metres from the centre line of any open line except with the written permission of the Contract Supervisor and subject to such conditions as he may impose.

22.3 Care must be taken not to interfere with or damage any services such as overhead wire routes, cables or pipes and optical fibre cable, except as provided for the work specified. The Contractor will be held responsible for any damage to or interruption of such services arising from any act or omission on his part or of any of his employees, or persons engaged by him on the Works. The cost of repairing, replacing or restoring the services, as well as all other costs arising from any damage to services, shall be borne by, and will be recovered from the Contractor.

22.4 Authority granted by the Contract Supervisor and the presence of an authorised representative of the network operator in terms hereof, shall not relieve the Contractor of his duty to comply with this specification.

23.0 ACCESS, RIGHTS-OF-WAY AND CAMPSITES

23.1 Where entry onto the network operator's property is restricted, permission to enter will be given only for the purpose of carrying out the Works and will be subject to the terms and conditions laid down by the network operator.

23.2 The Contractor shall arrange for campsites, workplaces and access thereto as well as for any right-of-

way over private property to the site of the Works, and for access within the boundaries of the network operator's property. The owners of private property to be traversed shall be approached and treated with tact and courtesy by the Contractor, who shall, if necessary, obtain a letter of introduction to such property owners from the Contract Supervisor.

The Contractor shall be responsible for the closing of all gates on roads and tracks used by him or his employees. Except with the prior approval of the Contract Supervisor and the owner or occupier of any private land to be traversed, the Contractor shall not cut, lower, damage, remove or otherwise interfere with any fence or gate which is either on the network operator's property or on private property and which restricts access to the Works. Where such approval has been given, the Contractor shall prevent entry of animals or unauthorised persons onto the network operator's or private property, and shall make the fences safe against trespass at the close of each day's work.

23.3 The Contractor shall take all reasonable steps to confine the movement of vehicles and plant to the approved right-of-way to minimise damage to property, crops and natural vegetation.

23.4 When access is no longer required, and before completion of the Works, the Contractor shall repair, restore or replace any fence or gate damaged during execution of the Works to the satisfaction of the Contract Supervisor and shall furnish the Contract Supervisor with a certificate signed by the owner and occupier of land over which he has gained access to a campsite, workplace and the Works, certifying that the owner and occupier have no claim against the Contractor or the network operator arising from the Contractor's use of the land. Should the Contractor be unable to obtain the required certificate, he shall report the circumstances to the Contract Supervisor.

24.0 SUPERVISION

24.1 The Contract Supervisor will provide overall technical superintendence of the Works, and may direct the Contractor in terms of the provisions of the Contract or in respect of any measures which the Contract Supervisor may require for the operations of the network operator, the safety of trains, property and workmen of the network operator, and for the safety of other property and persons. The Contractor shall carry out the directions of the Contract Supervisor. The superintendence exercised by the Contract Supervisor, including any agreement, approval, refusal or withdrawal of any approval given, shall not relieve the Contractor of any of his duties and liabilities under the Contract, and shall not imply any assumption by the network operator or by the Contract Supervisor of the legal and other responsibilities of the Contractor in carrying out the Works.

24.2 The Contract Supervisor may delegate to any deputy or other person, any of his duties or functions under the Contract. On receiving notice in writing of such delegation, the Contractor shall recognise and obey the deputy or person to whom any such duties or functions have been delegated as if he were the Contract Supervisor.

24.3 The Contractor shall exercise supervision over the Works at all times when work is performed or shall be represented by an agent having full power and authority to act on behalf of the Contractor. Such agent shall be competent and responsible, and have adequate experience in carrying out work of a similar nature to the Works, and shall exercise personal supervision on behalf of the Contractor. The Contract Supervisor shall be notified in writing of such appointment which will be subject to his approval.

24.4 The Contractor or his duly authorised agent shall be available on the site at all times while the Works are in progress to receive the orders and directions of the Contract Supervisor.

25.0 HOUSING OF EMPLOYEES

25.1 The Contractor shall, where necessary, make his own arrangements for suitable housing of his employees. Where temporary housing is permitted by the Contract Supervisor on any part of the site, the Contractor shall provide suitable sanitation, lighting and potable water supplies in terms of the requirements of the local authority or the current network operator’s specification; Minimum Communal Health Requirements in Areas outside the Jurisdiction of a Local Authority - E.4B, as applicable.

25.2 Fouling the area inside or outside the network operator's boundaries shall be prevented. The Contractor will be called upon by the Contract Supervisor to dispose of any foul or waste matter generated by the Contractor.

26.0 OPTICAL FIBRE CABLE ROUTES

26.1 The Contractor shall not handle, impact, move or deviate any optical fibre cable without prior approval.

26.2 Works that in any way affect the optical fibre cable requires prior approval from the Contract Supervisor

who will determine the work method and procedures to be followed.

PART B - SPECIFICATION FOR WORK NEAR HIGH-VOLTAGE ELECTRICAL EQUIPMENT

27.0 GENERAL

27.1 This specification is based on the contents of Transnet's publication ELECTRICAL SAFETY INSTRUCTIONS, as amended, a copy of which will be made available on loan to the Contractor for the duration of the contract.

These instructions apply to all work near "live" high-voltage equipment maintained and/or operated by the network operator, and the onus rests on the Contractor to ensure that he obtains a copy.

27.2 This specification must be read in conjunction with and not in lieu of the Electrical Safety Instructions.

27.3 The Contractor's attention is drawn in particular to the contents of Part I, Sections 1 and 2 of the Electrical Safety Instructions.

27.4 The Electrical Safety Instructions cover the minimum safety precautions which must be taken to ensure safe working on or near high-voltage electrical equipment, and must be observed at all times. Should additional safety measures be considered necessary because of peculiar local conditions, these may be ordered by and at the discretion of the Electrical Officer (Contracts).

27.5 The Contractor shall obtain the approval of the Electrical Officer (Contracts) before any work is done which causes or could cause any portion of a person's body or the tools he is using or any equipment he is handling, to come within 3 metres of any "live" high-voltage equipment.

27.6 The Contractor shall regard all high-voltage equipment as "live" unless a work permit is in force.

27.7 Safety precautions taken or barriers erected shall comply with the requirements of the Electrical Officer (Contracts), and shall be approved by him before the work to be protected is undertaken by the Contractor. The Contractor shall unless otherwise agreed, bear the cost of the provision of the barriers and other safety precautions required, including the attendance of the network operator's staff where this is necessary.

27.8 No barrier shall be removed unless authorised by the Electrical Officer (Contracts).

28.0 WORK ON BUILDINGS OR FIXED STRUCTURES

28.1 Before any work is carried out or measurements are taken on any part of a building, fixed structure or earthworks of any kind above ground level situated within 3 metres of "live" high-voltage equipment, the Electrical Officer (Contracts) shall be consulted to ascertain the conditions under which the work may be carried out.

28.2 No barrier erected to comply with the requirements of the Electrical Officer (Contracts) shall be used as temporary staging or shuttering for any part of the Works.

28.3 The shuttering for bridge piers, abutments, retaining walls or parapets adjacent to or over any track may be permitted to serve as a barrier, provided that it extends at least 2,5 metres above any working level in the case of piers, abutments and retaining walls and 1,5 metres above any working level in the case of parapets.

29.0 WORK DONE ON OR OUTSIDE OF ROLLING STOCK, INCLUDING LOADING OR UNLOADING

29.1 No person may stand, climb or work, whilst on any platform, surface or foothold:

29.1.1 higher than the normal unrestricted access way, namely -

29.1.1.1 external walkways on diesel, steam and electric locomotives, steam heat vans, etc. and

29.1.1.2 walkways between coaches and locomotives.

29.1.2 of restricted access ways in terms of the Electrical Safety Instructions namely -

29.1.2.1 the floor level of open wagons

29.1.2.2 external walkways or decks of road-rail vehicles, on-track maintenance machines and material trains.

29.1.3 Unauthorised staff working on these platforms must be directly supervised by duly authorised persons in terms of clause 607.1.3 of the Electrical Safety Instructions. These persons must attend the relevant electrical safety module training. A letter of training must then be issued by an accredited training authority. A Category C Certificate of Authority must be obtained from the

local depot examining officer.

29.2 When in the above positions no person may raise his hands or any equipment he is handling above his head.

29.3 In cases where the Contractor operates his own rail mounted equipment, he shall arrange for the walkways on this plant to be inspected by the Electrical Officer (Contracts) and approved, before commencement of work.

29.4 The handling of long lengths of material such as metal pipes, reinforcing bars, etc should be avoided, but if essential they shall be handled as nearly as possible in a horizontal position below head height.

29.5 The Responsible Representative shall warn all persons under his control of the danger of being near “live” high-voltage equipment, and shall ensure that the warning is fully understood.

29.6 Where the conditions in clauses 30.1 to 30.4 cannot be observed the Electrical Officer (Contracts), shall be notified. He will arrange for suitable Safety measures to be taken. The Electrical Officer (Contracts), may in his discretion and in appropriate circumstances, arrange for a suitable employee of the Contractor to be specially trained by the network operator and at the Contractor’s cost, as an Authorised Person to work closer than 3 metres from “live” overhead conductors and under such conditions as may be imposed by the senior responsible electrical engineer of the network operator.

30.0 USE OF EQUIPMENT

30.1 Measuring Tapes and Devices

30.1.1 Measuring tapes may be used near “live” high-voltage equipment provided that no part of any tape or a person's body comes within 3 metres of the “live” equipment.

30.1.2 In windy conditions the distance shall be increased to ensure that if the tape should fall it will not be blown nearer than 3 metres from the “live” high-voltage equipment.

30.1.3 Special measuring devices longer than 2 metres such as survey sticks and rods may be used if these are of non-conducting material and approved by the responsible Electrical Engineer of the network operator, but these devices must not be used within 3 metres of “live” high-voltage equipment in rainy or wet conditions.

30.1.4 The assistance of the Electrical Officer (Contracts) shall be requested when measurements within the limits defined in clauses 31.1.1 to 31.1.3 are required.

30.1.5 The restrictions described in 31.1.1 to 31.1.3 do not apply on a bridge deck between permanent parapets nor in other situations where a barrier effectively prevents contact with the “live” high-voltage equipment.

30.2 Portable Ladders

30.2.1 Any type of portable ladder longer then 2 metres may only be used near “live” high-voltage equipment under the direct supervision of the Responsible Representative. He shall ensure that the ladder is always used in such a manner that the distance from the base of the ladder to any “live” high-voltage equipment is greater than the fully extended length of the ladder plus 3 metres. Where these conditions cannot be observed, the Electrical Officer (Contracts) shall be advised, and he will arrange for suitable safety measures to be taken.

31.0 CARRYING AND HANDLING MATERIAL AND EQUIPMENT

31.1 Pipes, scaffolding, iron sheets, reinforcing bars and other material which exceeds 2 metres in length shall be carried completely below head height near “live” high-voltage equipment. For maximum safety such material should be carried by two or more persons so as to maintain it as nearly as possible in a horizontal position. The utmost care must be taken to ensure that no part of the material comes within 3 metres of any “live” high-voltage equipment.

31.2 Long lengths of wire or cable shall never be run out in conditions where a part of a wire or cable can come within 3 metres of any “live” high-voltage equipment unless the Electrical Officer (Contracts) has been advised and has approved appropriate safety precautions.

31.3 The presence of overhead power lines shall always be taken account of especially when communications lines or cables or aerial cables, stay wires, etc. are being erected above ground level.

32.0 PRECAUTIONS TO BE TAKEN WHEN ERECTING OR REMOVING POLES, ANTENNAE, TREES ETC.

32.1 A pole may be handled for the purpose of erection or removal near high-voltage equipment under the following conditions:

(i) If the distance between the point at which the pole is to be erected or removed and the nearest “live” high-voltage equipment is more than the length of the pole plus 3 metres, the work shall be supervised by the Responsible Representative.

(ii) If the distance described in (i) is less than the length of the pole plus 3 metres, the Electrical Officer (Contracts) shall be consulted to arrange for an Authorised Person to supervise the work and to ensure that the pole is earthed where possible. The pole shall be kept in contact with the point of erection, and adequate precautions shall be taken to prevent contact with “live” high-voltage equipment.

32.2 The cost of supervision by an Authorised Person and the provision of earthing shall, unless otherwise agreed, be borne by the Contractor.

32.3 The provisions of clauses 33.1 and 33.2 shall also apply to the erection or removal of columns, antennae, trees, posts, etc.

33.0 USE OF WATER

33.1 No water shall be used in the form of a jet if it can make contact with any “live” high-voltage equipment or with any person working on such equipment.

34.0 USE OF CONSTRUCTION PLANT

34.1 "Construction plant" entails all types of plant including cranes, piling frames, boring machines, excavators, draglines, dewatering equipment and road vehicles with or without lifting equipment.

34.2 When work is being undertaken in such a position that it is possible for construction plant or its load to come within 3 metres of “live” high-voltage equipment, the Electrical Officer (Contracts) shall be consulted. He will arrange for an Authorised Person to supervise the work and to ensure that the plant is adequately earthed. The Electrical Officer (Contracts) will decide whether further safety measures are necessary.

34.3 The cost of any supervision by an Authorised Person and the provision of earthing shall, unless otherwise agreed, be borne by the Contractor.

34.4 When loads are handled by cranes, non-metallic rope hand lines shall be used, affixed to such loads so as to prevent their swinging and coming within 3 metres of “live” high-voltage equipment.

34.5 Clauses 35.1 to 35.4 shall apply *mutatis mutandis* to the use of maintenance machines of any nature.

35.0 WORK PERFORMED UNDER DEAD CONDITIONS UNDER COVER OF A WORK PERMIT

35.1 If the Responsible Representative finds that the work cannot be done in safety with the high-voltage electrical equipment “live”, he shall consult the Electrical Officer (Contracts) who will decide on the action to be taken.

35.2 If a work permit is issued the Responsible Representative shall-

(i) before commencement of work ensure that the limits within which work may be carried out have been explained to him by the Authorised Person who issued the permit to him, and that he fully understands these limits.

(ii) sign portion C of the permit before commencement of work;

(iii) explain to all persons under his control the limits within which work may be carried out, and ensure that they fully understand these limits;

(iv) care for the safety of all persons under his control whilst work is in progress; and

(v) withdraw all personnel under his control from the equipment on completion of the work before he signs portion D of the work permit.

36.0 TRACTION RETURN CIRCUITS IN RAILS

36.1 DANGEROUS CONDITIONS CAN BE CREATED BY REMOVING OR SEVERING ANY BOND.

36.2 Broken rails with an air gap between the ends, and joints at which fishplates are removed under "broken bond" conditions, are potentially lethal. The rails on either side of an air gap between rail ends on electrified lines shall not be touched simultaneously until rendered safe by the network operator personnel.

36.3 The Contractor shall not break any permanent bonds between rails or between rails and any structure. He shall give the Contract Supervisor at least 7 days written notice when removal of such bonds is necessary.

36.4 No work on the track which involves interference with the traction return rail circuit either by cutting or removing the rails, or by removal of bonds shall be done unless the Electrical Officer (Contracts) is consulted. He will take such precautions as may be necessary to ensure continuity of the return circuit before permitting the work to be commenced.

37.0 HIGH-VOLTAGE ELECTRICAL EQUIPMENT NOT MAINTAINED AND/OR OPERATED BY THE NETWORK OPERATOR

Where the work is undertaken on or near high-voltage electrical equipment which is not maintained and/or operated by the network operator, the Occupational Health and Safety Act No. 85 of 1993, and Regulations and Instructions, or the Mines Health and Safety Act (Act 29 of 1996), shall apply.

Such equipment includes:-

(i) Eskom and municipal equipment;

(ii) The Contractor's own power supplies; and

(iii) Electrical equipment being installed but not yet taken over from the Contractor.

END

TRANSNET
freight rail

RISK MANAGEMENT: ENVIRONMENT AND SUSTAINABILITY

NAME OF DOCUMENT:

TFR STANDARD ENVIRONMENTAL SPECIFICATIONS (SES)

Document number	EMS - WI – JHB - 001
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SUMMARY REVISION CONTROL

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1. DEPARTMENT CODES

Description	Code
Corporate Safety Office	CSO
Environment and Sustainability	E&S
Enterprise Risk Management	ERM
Finance	FIN
Human Capital Management	HCM
Information and Communications Technology	ICTM
TFR Operations	OPS
School-of-Rail	SoR

2. MANAGEMENT SYSTEM CODES

Description	Code
Environmental Management System	EMS
Integrated Management System	IMS
Occupational Health and Safety Management System	OHSA
Quality Management System	QMS
Safety Management System	SMS

3. DOCUMENTATION TYPE CODES

Description	Code
Certificate	CR
Contract	CT
Form	FM
Guideline	GU
Learner Guide	LG
List	LI
Manual	ML
Memorandum	MM
Policy	P
Policy Manual	PM
Procedure	PR
Process	PS
Work Instruction	WI
Standard Operation Procedure	SOP

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4. PURPOSE

This standard describes the minimum environmental management standards to which TFR project managers, contractors and sub-contractors must conform to while undertaking construction work on construction site. It is a generic standard for use across all construction works within Transnet Freight Rail.

Construction works have the potential to adversely impact the environment. The purpose is to assess, rectify and manage the activities that have potential to cause environment degradation.

One of Transnet Freight Rail (hereinafter referred to as "TFR") environmental strategies is the establishment and maintenance of an Environmental Management System, aligned to the International Standard, ISO 14001. Linked to this is a commitment to the development and implementation of Environmental Management Plans (EMP) for TFR construction activities. The purpose therefore can be summarised as follows:

The main purpose of this standard is to foster environmental due diligence and sustainability into contractor's activities which can be achieved by:
Managing potential negative environmental impacts of activities,
Identifying management plans to mitigate these impacts,
Allocating responsibilities and resources to implement identified plans,
Monitoring the effectiveness of these measures.

5. SCOPE AND APPLICABILITY

This standard applies to all contractors that perform construction, maintenance and renovations works on Transnet Freight Rail (TFR) properties.

6. LEGISLATIVE REQUIREMENTS

A numbers of environmental laws and regulations present TFR with an obligation to monitor, interpret and implement systems to comply with legal requirements.

The list of environmental legislation below was compiled to ensure that contractors working on TFR land properties are aware of legal responsibilities and liabilities. Complying with these laws and regulations will assist in minimising the risks, both legal and financial (claims).

Non-compliance to environmental law is a criminal offence and if prosecuted offenders will be liable for any environmental damage incurred. Moreover, TFR subscribes to polluter-pays and duty of care principles.

ASPECT	REFERENCE/LEGISLATION
Socio cultural issues & Environmental Management	• Constitution of the republic of South Africa 108 of 1996 • Occupational Health and Safety Act No. 85 of 1993
Environmental Authorizations – applicable to the project	National Environmental Management Act (Act 107 of 1998)
Dust Management	• National Environmental Management Act – Air

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	Quality (Act 39 of 2004) • Atmospheric Prevention Pollution Act No. 45 of 1965
Work close to protected areas	National Environmental Management Act – Protected Areas Act (Act 57 of 2003)
Work along coastline	National Environmental Management Act – Integrated coastal management Act (Act 24 of 2008)
Fire Hazards	National Veld and Forest Fires Act No. 101 of 1998
Applicable Minimum Standards	• Standard Acts No. 29 of 1993 • ISO 14001-2004 • ISO 9001 – 2008 • OHSAS 18001 – 2007 • SANS 10103:2004
Site establishment and Access	• Fencing Act No. 31 of 1963 ⇒ Prohibition of damage to a property owner's gate and fences ⇒ Climbing or crawling over or through fences without permission ⇒ Closing of gates. • Conservation of Agricultural Resources Act No. 43 of 1983 ⇒ Soil conservation • Atmospheric Pollution Prevention Act No. 45 of 1965 ⇒ Control all forms of air pollution – dust, vehicle fumes
Water Management	• National Water Act No. 36 of 1998 ⇒ All aspects relating to pollution of surface and ground water. • National Water Services Act No.108 of 1997 ⇒ Permits required for use of water and disposal of water effluent.
Flora & Fauna	• National Environmental Management Act – Biodiversity Act (Act 10 of 2004) • Sea Shore Act No. 21 of 1995 • National Forest Act No. 84 of 1998 ⇒ Control of veld, forest and mountain fires ⇒ The protection of biota and ecosystems ⇒ Protected trees ⇒ Fire control areas. • Conservation of Agricultural Resources Act No. 43 of 1983 ⇒ Control of alien invasive

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	• Environment Conservation Act No. 73 of 1989 ⇒ Protected natural environment. • National Environmental Management Act No. 107 of 1998 ⇒ Duty of care & remediation of environmental damage.
Waste Management	• National Environmental Management Act – Waste Act (Act 59 of 2008) • Dumping at Sea Control Act No. 73 of 1980 • Marine Living Resources Act 18 of 1998 • National Water Act No. 36 of 1998 ⇒ All aspects relating to pollution of surface and ground water. • Advertising on Roads and Ribbon Development Act No. 21 of 1940 ⇒ Prohibition of depositing or leaving of certain articles or material near certain roads. ⇒ Waste near roads. • Environmental Conservation Act No. 73 of 1989 ⇒ Controls for the effective protection and utilisation of the environment ⇒ Littering, waste disposal, noise and various other activities which may have a detrimental effect on the environment. • Occupational Health and Safety Act No. 85 of 1993 ⇒ Exposure of workers to waste products. ⇒ Transportation and disposal of hazardous chemical substances. • Health Act No. 63 of 1977 ⇒ Control of health aspects of waste disposal and water treatment.
Spillages of Hazardous Substances	• Hazardous Substances Act No. 15 of 1973
Protection of heritage resources	• National Heritage Resources Act 25 of 1999 • Environmental Conservation Act No. 73 of 1989
	• Transnet Freight Rail Safety, Health and Environmental Policy
	• Transnet Freight Rail Construction Environmental Management Plan (CEMP)

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7. STANDARDS FOR ENVIRONMENTAL MANAGEMENT

The contractor shall identify the potential environmental impacts that may occur as a result of their activities and accordingly prepare method statement describing how each of the impacts will be managed or prevented so that the standards set out in this document are achieved.

7.1 SITE ESTABLISHMENT AND ACCESS

7.1.1. Objective
To ensure that environmental issues are taken into account during the establishment of site offices and all other facilities on site.

7.1.2. Scope
This standard applies to all activities relating to the planning, site establishment, operation and closure of the site.

7.1.3. Site plan

The contractor shall establish his construction camps, offices, workshops, staff accommodation and any other facilities on site in a manner that does not adversely affect the environment. However, before construction can commence, the contractor shall submit to the Construction Manager for his approval; plans of the exact location extend and construction details of these facilities and the impact mitigation measures the contractor proposes to put in place to remedy any effects.

The plans shall detail the locality as well as the layout of all waste management facilities for litter, kitchen refuse, sewage and workshop-derived effluents. The site offices should not be sited in close proximity to steep areas. It is recommended that the offices, and in particular the ablution facilities, aggregate stockpiles, spoil areas and hazardous material stockpiles are located as far away as possible from any water course. Regardless of the chosen site, the contractor's intended mitigation measures shall be indicated in the plan. Such a site plan shall be submitted for Construction Manager's approval.

7.1.4. Provision of sanitary facilities
Particular reference in the site establishment plan shall be given to any need for handling of sewage to be generated at the site offices, staff accommodation and at all localities on the site, where there will be a concentration of labour. Sanitary arrangements should be to the satisfaction of the Environmental Manager.

Safe and effective sewage treatment will require one of the following sewage handling methods: Septic tanks and soak – away, dry-composting toilets such as "enviro loos", or the use of chemical toilets which are supplied and maintained by a subcontractor. The type of sewage facility will depend on the location of the site and the surrounding land uses, the duration of the contract and proximity (availability) of providers of chemical toilets. The location shall be decided with input from Environmental Manager. Should a soak-away system be used, it shall not be closer than 800 metres from any natural water course or water retention system. The waste material generated from these facilities shall be serviced on a regular basis.

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Toilet and latrines shall be easily accessible and shall be positioned within walking distance from wherever employees are employed on the works. Use of open areas (i.e. the veld) shall not, under any circumstances, be allowed.

Outside toilets shall be provided with locks and doors and shall be secured to prevent them from being blown. The toilets shall also be placed outside areas susceptible to flooding. The contractor shall arrange for regular emptying of toilets and shall be entirely responsible for enforcing their use and for maintaining such facilities in a clean, orderly and hygienic condition to the satisfaction of the construction manager.

7.1.5. Access

If private property has to be crossed in order to access the construction site, the landowner(s) should be approached to request access.

No fences or gates that provide access to the construction sites may be cut, lowered, removed or damaged in any way. Private gates should be left as they are found (open or closed). Any irregularities caused by the construction team concerning fences and gates (e.g. an open gate or lowered fence) should be investigated.

7.1.6 Water supply for human use

7.1.6.1. Objective
To ensure that there is adequate, safe water supply for all personnel on site.

7.1.6.2. Scope
Managing the water supply on site and controlling the abstraction of water from natural resources in the area.

7.1.6.3 Water Management
Oil, petrol, diesel, herbicides, cleaning solvents, etc. must not be allowed to contaminate any surface water, ground water and / or drainage systems. Storm water shall be managed to ensure that it does not become polluted. If the substation site is located close to a river, stream, dam, borehole, or the water table is high; contingency plans must be in place to minimise the impact of accidental oil or toxic spillages. All water contaminated by oil or toxic spills must be reported to the Department of Water Affairs and Forestry, via approved reporting procedures.

Storm water run-off must be efficiently managed and must not cause erosion or damage to surrounding property. Guidance on methods to improve drainage of the site erosion should be directed to TFR Infra for Civil Engineering inputs.

Drainage systems must be kept clean and clear of any debris at all times.

7.1.7 Collection of water from natural resources

No water for domestic use (drinking water, for bathing or washing) shall be abstracted from any water resource (stream, river, or dam) without the express permission of the TFR Project Manager. Such permission shall only be granted once it can be shown that the water is safe for use, that there is sufficient water in the resource to meet the demand, and once permission has obtained from the Department of Water Affairs in accordance with the requirements of the National Water Act (Act 36 of 1998).

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7.1.8 Provision of drinking water

Water for human consumption shall be available at the site offices and at other convenient locations on-site. The generally acceptable standard is that a supply of drinking water shall be available within 200m of any point on the construction site.

7.1.9 Provision of energy for camp site

7.1.9.1. Objective
To prevent illegal and unauthorized collection of firewood.

7.1.9.2. Scope
This is applicable to all activities that may require collection of firewood.

7.1.9.3. Collection of firewood
The contractor shall provide adequate facilities for all staff so that they are not encouraged to supplement their comforts on site by accessing what can be taken from the natural surroundings. The contractor shall ensure that energy sources are available at all times for construction heating and cooking purposes. No open fires shall be allowed.

7.2. WASTE MANAGEMENT.

7.2.1. Objective
To ensure that all waste generated during construction and commissioning of the facilities is properly disposed of.

7.2.2. Scope
This standard applies to all construction, commissioning and site activities that may lead to the generation of waste.

7.2.3. 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 means any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical characteristics, such as toxic, ignitable, corrosive, carcinogenic or other properties or toxicological characteristics of that waste, have a detrimental impact on health and the environment.

7.2.4. Waste Hierarchy
A hierarchical control approach to waste management is encouraged. Waste should preferably be managed in the following order:

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Prevent: 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.

7.2.5. Waste management

Littering is prohibited at all times. The contractor is responsible for the removal of all waste from site generated through the contractor's activities. The construction works site should have a proper waste collection facility and a disposal system in place. Waste should only be disposed of at a registered facility – this refers to municipal dumps. The latest list of waste sites in the region is available from the Department of Water Affairs, Department of Environmental Affairs and www.sawic.org.za.

The classification of waste determines handling methods and 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 determine it is general of 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 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 to TFR Environmental Management.

The contractor's Environmental Officer must work in conjunction with the contractor's Safety and Industrial Hygiene personnel to create a hazardous materials management program.

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This program will establish the necessary protocol for proper handling and removal of hazardous material on site.

Information on each hazardous substance must be available to all persons on site in the form of Material Safety Data Sheets (MSDS). Training and education about proper use of MSDS, handling, and disposal of the waste must be provided to all workers handling the waste. The contractor's environmental officer must be informed of all activities that involve the use of hazardous substances to facilitate prompt response in the event of a spill or release.

All hazardous waste must be suitably enclosed, labelled and stored. The storage area must be properly demarcated and cordoned-off as per legislation. General and hazardous waste must be stored in separate bins. Recycling and re-use is mandatory. Under no circumstances is waste, including cleared vegetation, is to be burnt at the construction work site.

The contractor is obliged to control waste generating activities of both Hazardous and 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 recycle general waste that is anticipated to be generated by its operations as follows:

- Obtain and label recycling containers for:
  - Office waste
  - Aluminium
  - Steel
  - Glass
  - Ferrous metals
  - Non Ferrous 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

7.2.6. Effluent management

All effluent water from the camp/office sites shall be disposed of in a properly designed and constructed system, situated so as not to adversely affect water courses (streams, rivers, pans dams etc.). Only domestic type waste water shall be allowed to enter the designated system. Any release of contaminated waste water shall be in accordance with applicable water release standards and permits.

7.3. VEHICLE & EQUIPMENT REFUELLING

7.3.1. Objective

To eliminate or control fuel and oil spillage at refuelling facilities

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7.3.2. Scope

This standard applies to all refuelling, lubrication and oil changing requirements on all vehicles and machinery.

7.3.3. Refuelling

The use of engine driven compressors, pumps, air conditioners and arc welders could generate leaks (usually oil) that can accumulate to become spills, which require clean-up. These leaks become more evident if the equipment remains in the same place for an extended period of time. Damaged fuel tanks, fuel hoses, and fuel pumps can be sources of significant fuel leaks. Hydraulic systems can blow gaskets or hoses resulting in large quantities of hydraulic fluid spilled to the ground.

7.3.3.1. Control

No vehicles or machines shall be serviced or refuelled on site except at designated servicing or refuelling locations. No oil or lubricant changes shall be made except at designate locations, unless in case of breakdown or emergency repair. As part of the method statement, the contractor shall submit to TFR, a standard operating procedure for fuelling.

The contractor shall store fuel and oil at a designated area, which shall be bunded to contain 110% of the total volume, the bund wall shall be designed or constructed with an impervious layer or liner or paved surface to prevent spillage from entering the ground.

As part of the method statement, the contractor shall provide details of its proposed fuel storage and fuelling facility to the TFR Environmental Officer for approval. The design shall comply with the regulations of the National Water Act No. 36 of 1998. The Hazardous Substances Act No. 15 of 1973, the Environmental Conservation Act No. 73 of 1989 and the Occupational Health and Safety Act No. 85 of 1993, with special reference to the requirements of the Hazardous Chemical Substances Regulations.

7.3.3.2. Spill Response

The contractor shall comply with the regulations of the National Water Act No. 36 of 1998, the Hazardous Substances Act No. 15 of 1973, the Environmental Conservation Act No. 73 of 1989 and the Occupational Health and safety Act No. 85 of 1993, when responding to spillage incidences.

The contractor shall provide details for approval by the TFR Environment, Fire and Hazmat Manager of its spill response plan prior to commencing work on site. The plan will show measures to be taken to remove contaminated soils from site and demonstrate complete removal of contamination in the event of spills.

The contractor shall instruct own personnel on the following spill prevention and containment responsibilities:

- Immediately repair all leaks of hydrocarbons or chemicals,
- Take all reasonable means to prevent spills or leaks,
- Do not allow sumps receiving oil or oily water to overflow,
- Prevent storm water runoff from contamination by leaking or spilled drums of oil or chemicals,
- Do not discharge oil or contaminants into storm water or sewer systems.

If the spill occurs on land, the contractor must:

- Immediately stop or reduce the spill,

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- Contain the spill,
- Recover the spilled product,
- Remediate the site,
- Implement actions necessary to prevent the spill from contaminating groundwater or off-site surface water,
- Dispose of contaminated material to a location designated thereto and submit disposal certificate to TFR Environment, Fire and Hazmat Manager.

Any spill to water has the potential to disperse quickly; therefore, the spill must be contained immediately using appropriate containment equipment.

If a spill to water occurs, the contractor must:

- Take immediate action to stop or reduce the spill and contain it,
- Complete section 30 Report and Notify the appropriate on-site authorities,
- Implement actions necessary to prevent the spread of the contamination by deploying booms and/or absorbent material,
- Recovery of the spilled product,
- Proper disposal of spilled material.

7.4. SPRAY PAINTING & SAND BLASTING

7.4.1. Objective
To ensure that all the spray painting and sand blasting on site is conducted 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 contained and disposed of.

7.4.2. Scope
Applicable to all spray painting and sandblasting on site.

7.4.3. Spray Painting and Sand Blasting
Spray painting and sand blasting 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. This should form part of the method statement to be submitted to the TFR Environmental Manager for approval.

The relevant contractor will inform his Environmental Officer of when and where the spray painting or sand blasting is to be carried out prior to commencement of work. The Environmental Officer 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 (elevated) areas, a protection plan must be issued for approval.

7.5. DUST MANAGEMENT

4.5.1. Objective
To prevent/control the generation of dust on the construction site and access roads.

4.5.2. Scope

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Contractors (associated with activities such as earthworks, geotechnical surveys, pilling storm water drainage, construction of roads and railways, foundations, brick building, operation workshops, fencing, erecting construction camps and batch plant activities, etc.) shall submit a dust control plan for approval by the TFR Environmental Manager.

7.5.3. Management of Dust

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 is to be controlled on unpaved access roads and site roads using sprayed water contractors are responsible for managing dust generated as a result of their activities. The contractor will be responsible for dust control of the entire construction area.

Some dust control measures which are normally applied during construction are presented in this section for inclusion by the contractor in his dust control method statement.

The dust mitigating procedures include the following:

- Limit vehicle speeds on unpaved roads to 20km/h
- Wash paved surfaces within the construction area twice a week
- Minimise haulage distances
- Apply water to gravel roads with a spraying truck when required
- Environmentally friendly soil stabilisers may be used as additional measures to control dust on gravel roads and construction areas
- Construction material being transported by trucks must be suitably moistened or covered to prevent dust generation.
- Strip and store topsoil in separate stockpiles with mounds not exceeding 2meters in height to, among other things, prevent wind-blown dust.
- Minimise disturbances of natural vegetation during right of way construction (e.g. erection of fences) to reduce potential erosion, runoff 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.

7.6. STORM WATER & DEWATERING MANAGEMENT

7.6.1. Objective

To ensure that storm water and dewatering drainage across the site occurs in a manner that will negate contamination by oils, fuels, litter and other waste to prevent erosion of the construction terrace.

7.6.2. Scope

All runoff and dewatering activities.

7.6.3. Storm Water and dewatering management

Water is a valuable resource. Both the quality and quantity of the water used by the contractor should be considered in making resource conservation plans.

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Construction activities that may potentially impact on surface water and groundwater are: runoff and percolation; dewatering activities; and miscellaneous liquid wastes associated with construction activities.

In general, construction activities may affect water quality and/or quantity of groundwater and/or surface water of the area.

The contractor shall be aware that, apart from runoff from overburden emplacements and stockpiles, storm water can also be contaminated from batch plants, workshops, vehicle wash-down pads, etc., and that contaminants during construction may include hydrocarbons from fuels and lubricants, sewerage from employee ablutions and excess fertilizer and rehabilitated areas, etc.

The contractor shall take note that discharges to controlled waters such as sea, rivers, and groundwater or to sewerage systems are controlled under South African water Legislation.

7.6.3.1 Surface runoff

Construction activities such as surface grading and excavation will disturb surface areas on site. This will increase the potential for soil erosion and subsequent sediment transport during periods of precipitation runoff or when excavation dewatering is required. Construction activities have a potential to change local surface drainage and sediment transport patterns, site floodplain delineation, and percolation rates into soil.

7.6.3.2 Dewatering

Dewatering during groundwork produces a surface water discharge that will require collection and sedimentation. Dewatering also has a potential to affect groundwater quality and quantity.

7.6.3.3 Management Requirements

Temporary drainage must be established on site during construction period until permanent drainage is in place. Contractors are responsible for maintaining the temporary drainage in their areas. Contractors must provide secondary drainage that prevents erosion.

Contractors must employ good housekeeping in their areas to prevent contamination of drainage water.

The contractor shall clear stagnant water.

Specific water management measures (surface and groundwater) for incorporation by Civil/Earthworks contractors into their EMP's include the following:

The Contractor shall ensure that no contaminated surface water shall flow off-site as a result of Contractor operations. Silt traps shall be constructed to ensure retention of slit on site and cut-off ditches shall be constructed to ensure runoff from the site except at point where silt traps are provided.

If applicable, the Contractor shall be responsible for collection, management and containment within the site boundaries of all the dewatering from all general site preparation activities. The dewatering water shall be contained within the site boundaries by subsequently pumping or routing water to and from sub-areas within the site as the

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construction activities precede. No discharge/dewatering to off-site land or surface water bodies will be allowed.

On-site drainage shall be accomplished through gravity flow. The surface drainage system shall consist of mild overland slopes, ditches and culverts. The graded areas adjacent to buildings shall be sloped away with a 5% slope. Other areas shall have a minimum slope of 0.2% or otherwise indicated.

Ditches shall be designed to carry a 25-year storm event with velocities in accordance to minimise erosion. Erosion protection shall consist of suitable stabilising surfaces in all ditches.

Culverts shall be designed to ensure passage of the 25-year storm peak runoff flow.

Both structural and non-structural (vegetation) erosion control measures will be designed, Implemented, and properly maintained in accordance with best management practices which will include the following:

Scheduling of activities to minimise the amount of disturbed areas at any one time.

Implementation of re-vegetation as early as feasible.

Limiting construction traffic and/or avoidance thereof on access roads and areas to be graded to the extend feasible at drainage ditches.

Compacting loose soil as soon as possible after excavation, grading and filling.

Using silt fences, geo-textiles, temporary rip-rap, soil stabilisation with gravel, diversionary beams and swales, small sedimentation basins, and gravelled roads to minimise transport of sediment.

Implementing the erosion and sedimentation control plan and ensuring that the construction personnel are familiar with and adhere to.

Managing runoff during construction

The contractor shall be responsible for checking and maintaining all erosion and sedimentation control.

7.7. NOISE MANAGEMENT

7.7.1. Objective
To maintain construction noise at the site within legal limits

7.7.2. Scope
Any noise generated at the construction site.

7.7.3. Noise Management
Keep all equipment in good working order.

Operate equipment within specifications and capacity and don't overload the machines.

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Apply regular maintenance, particularly with regards to lubrication

Operate equipment with appropriate noise abatement accessories, such as sound hoods and ear plugs.

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, *SANS 10103:2004,* so that it will not produce excessive and undesirable noise when released.

The entire Contractor's equipment shall be fitted with effective exhaust silencers and shall comply with the South African Bureau of Standards recommended code of practice, *SANS 10103:2004,* for construction plant noise generation.

All the Contractor's vehicles shall be fitted with effective exhaust silencers and shall comply with the 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)

7.8. PROTECTION OF HERITAGE RESOURCES

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

7.8.2. Scope
Archaeological, Historical Artefacts, or Heritage resources discovered on or near the site.

7.8.3. 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 a discovery. The South African Heritage Resources Agency (SAHRA) is to be contacted and will appoint an archaeological Consultant. Work may only resume once clearance given in writing by the Archaeologist.

7.8.4 Graves and Middens
If a grave or midden is uncovered on site, or discovered before commencement of work, all work in the immediate vicinity of the graves/middens shall be stopped and the engineer be informed of the discovery. The National Monuments council should be contacted and in the cases of graves, arrangements made for an undertaker to carry out an 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.

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7.9. PROTECTION OF LIVESTOCK & GAME

7.9.1. Objective
To prevent illegal activities potentially perpetrated by staff and to prevent the killing of any animals trapped in the construction works or discovered on the construction site or surroundings.

7.9.2. Scope
Managing the activities of site staff during work and after hours.

7.9.3. Poaching of Livestock or Game
On no account shall any hunting or fishing activity of any kind be allowed. This includes setting of traps, or the killing of any animal caught in the construction works.

7.9.4 Killing of animals
On no account shall any animal, reptile or bird of any sort be killed, this specifically includes snakes or other creatures considered potentially dangerous discovered on site. If such an animal is discovered on site an appropriately skilled person should be summoned to remove the creature from the site. Consideration should be given to selection and nomination of such person prior to site establishment. If no-one is available, training should be provided to at least two site staff members.

7.10. FIRE PREVENTION

7.10.1. Objective
To minimise the risk of uncontrolled fires.

7.10.2. Scope
All activities on or near the site that could initiate and uncontrolled fire.

7.10.3. 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 be implemented.

7.11. SPILLAGE OF HAZARDOUS SUBSTANCES

7.11.1. Hazardous Spillages Reporting & Records Keeping
In the event of a spillage, the incident will be reported (according to the TFR Occurrence Procedure: IMS PR 014). The investigation report should be copied to the Environmental Manager for record keeping.

Mobile oil clean-up kits must be available for accidental spills. The mobile kit should be available on any vehicle transporting oil containing materials.
In the event of an oil spill, the first priority is to contain the spill. The emergency programme for oil spills, as developed during the Method statement must then be followed. It is preferred that spillages and contaminated areas are treated on site. However, circumstances may necessitate the removal of contaminated soil for treatment – this area must be clearly demarcated and cordoned off.

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Bund walls should be secure from leaks and damage. Oil traps must be pumped out regularly and remain free of debris. Oil taps should be securely closed unless it is necessary for water to be drained from the bund area.

7.12. HANDLING & BATCHING OF CONCRETE AND CEMENT

7.12.1. Objective

To control cement and concrete batching activities so as to prevent the spillage of cement waste water and potential contamination of soil, groundwater and marine environment (where applicable). To avoid or substantially reduce dust emissions caused by cement and concrete activities on site ensure that no noise nuisance results from batching activities.

7.12.2. Scope

Cement and concrete batching activities commonly produce cement-laden (contaminated) runoff, mainly from washing of mixing equipment. The contaminated runoff is alkaline and contains high levels of chromium, which causes leachate that may ultimately contaminate groundwater. Cement contaminated water can also increase the pH level of marine waters and cause detrimental damage to aquatic life.

Fine dust particles containing cement and concrete are pollutants and can cause damage to neighbouring amenities when allowed to spread. Excessive noise during batching may cause stress to employees on site and other people within the construction vicinity.

This standard applies to all cement and concrete batching activities, delivery of ready mix concrete and small scale mechanical & hand mixing of concrete and cement, as well as the washing of equipment used in these activities on construction sites managed by TFR.

7.12.3. Handling and batching of concrete and cement

7.12.3.1. Siting

Concrete batching shall only be conducted in demarcated areas which have been approved by the TFR Project Manager. Such areas shall be fitted with a contaminated facility for the collection of cement laden water. This facility shall be bunded and have an impermeable surface protection so as to prevent soil and groundwater contamination.

Drainage of the collection facility will be separated from any infrastructure that contains clean surface runoff. The batching facility will not be placed in areas prone to floods or the generation of stagnant water. Access to the facility will be controlled so as to minimise potential environmental impacts.

7.12.3.2. Handling and Storage

Hand mixing of cement and concrete shall be done on a mortarboard and/or within the bunded area with impermeable surface or concrete slab.

Bulk and bagged cement & concrete additives will be stored in an appropriate facility at least 10meters away from any watercourses, gullies and drains.

Waste water collected in the containment facility shall be left to evaporate. The contractor shall monitor water levels to prevent overflows from the facility. Water can be pumped into sealed drums for temporary storage and must be disposed of as liquid hazardous waste.

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All concrete washing equipment, such as shovels, mixer drums, concrete chutes, etc. shall be done within the washout facility. Water used for washing shall be restricted as far as practically possible.

The contractor shall periodically clean-out hardened concrete from the wash-out facility or concrete mixer, which can either be reused or disposed of as per accepted waste management practices and procedures.

Empty cement and concrete bags, if temporarily stored on site, will be secured with adequate binding material.

Sand and aggregates containing cement will be kept damp to prevent the generation of dust.

7.12.3.3. Disposal
Concrete or Cement or any solid waste materials containing concrete and cement will be disposed of at a registered disposal facility. Where disposal facilities for general waste are utilised, written consent from the relevant municipality must be obtained.

7.13. EROSION PREVENTION

7.13.1. Objective
To prevent Soil Erosion

7.13.2. Scope
All bare soil ground areas susceptible to erosion including gravel roads.

7.13.3. Erosion Prevention
All vehicle movements must be along existing roads and tracks. Vehicles should be driven at moderate speeds and within legal limits. Special care should be taken (especially in wet weather) to avoid eroding tracks. A single access track / road is to be used and multiple tracks are to be avoided at all times. In urban areas, access roads should be treated, where necessary, to avoid dust pollution.

Erosion of the access road, which cannot be remedied by simple compaction methods, should be referred to the TFR Infra for further assessment and recommendations. Soil binding agents and gabions are frequent methods used to combat erosion.

7.14. REHABILITATION

7.14.1. Objective
To ensure that all areas affected by the project are appropriately rehabilitated and re-vegetated in a manner congruent with the surrounding biophysical environment. The prevention of spread of alien invasive species.

7.14.2. Scope
All areas affected by the project including lay down areas.

7.14.3. Rehabilitation
Contractors shall rehabilitate their lay-down area/s upon completion of work on site. A rehabilitation plan will be submitted to the Construction Manager for approval at least six weeks before completion. The following are critical issues to be included in the rehabilitation plan:

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Details of soil preparation procedures including proposed fertilizers or other chemicals being considered for use.

A list of plant species that will be used in the rehabilitation process. Note these should be indigenous species, and preferably species that are endemic to the area. The assistance of an appropriately qualified Botanist should be sought in developing the list.

Procedures for watering the planted areas (frequency of watering, methodology proposed etc.)

An indication of the monitoring procedures that will be put in place to ensure the successful establishment of the plants (duration and frequency of monitoring, proposed criteria for declaring rehabilitation as being successful)

Procedures for the prevention of establishment and spread of alien invasive species.

7.15. SOCIO CULTURAL ISSUES

In the event that private property is damaged, it must be reported immediately to TFR and the landowner(s). Damage must be repaired to the satisfaction of the landowner (written proof of satisfaction must be obtained). Records of any complaints should be kept.

Local communities must be treated with the utmost respect and courtesy at all times. Infringement of their rights is strictly forbidden.
Stock, crops or activities on the surrounding private property should not be interfered with or disturbed. Wandering around the properties is not permissible (remain within the permitted working areas).

A list of the property owner's names, addresses and telephone numbers must be established and kept updated. A plan of action should be drawn up with the property owners. In case of an emergency (veld fire, vegetation problems etc.) The Contractor's contact names and telephone numbers must be given to these landowners.

The culture and lifestyles of the communities living in close proximity to the work sites must be respected.

Removal (pilfering) of agricultural products (sugar cane, fruit, vegetables, stock, firewood, poaching etc.) is prohibited. Receipts must be obtained for any merchandise purchased or received from land- owners (i.e. for meat, vegetables, wood).

Vehicles must be driven carefully in hazardous road conditions (sharp bends, narrow roads, bad weather, children playing on or near the road, domestic animals on or near the road etc.). Vehicle movement should be kept to a minimum during rain to avoid damage to access and farm roads.

Tribal graves, archaeological sites and sites of historical interest in close proximity to work sites are to be treated with respect and protected.

No firewood is to be collected except with the written consent of the landowner.

A register must be maintained of all complaints or queries received as well as action taken.

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Insure that affected property owners are informed of planned TFR activities on their land.

No off-road travelling is permitted in environmentally sensitive areas (Karoo, fynbos, coastal dunes, vleis and wetlands etc.).

7.16. ENVIRONMENTAL AWARENESS TRAINING

7.16.1. Objective
Environmental Management – Protecting the environment from the effects of construction by making personnel aware of sensitive environmental resources.

Regulatory Compliance – complying with requirements contained in project – specific permit conditions, also complying with requirements in the regional and local regulations.

Problem recognition and communication – training personnel to recognise potential environmental, i.e. spills, and communicate the problem to the proper person for solution.

Liability control – non-compliance with regulatory requirements can lead to personal and corporate liability.

7.16.2. Scope
All Personnel on the construction site.

7.16.3. Environmental Awareness training
An Environmental Awareness Program is considered a necessary part of Construction Environmental Management Plan for the project. Training of the appropriate construction personnel will help ensure that all environmental regulations and requirements are followed to be defined in the relevant Method Statement to be prepared by the Contractor.

All individuals on the Project Construction site will need to have a minimum awareness of environmental requirements and responsibilities. However, not all need to have a degree of awareness. The required degree of knowledge is greatest for personnel in the Safety, Health, and Environmental sections and the least for the manual personnel.

The Contractor shall keep a record of all the environmental related training of the personnel.

8. DOCUMENTATION
The Contractor must produce a method statement.

9. RECORDS
All documents generated in terms of this standard will be classes as records and retained for the life of the project.

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PART 4: AFFECTED PROPERTY

Core clause 11.2(2) states

"Affected Property is property which

- Is affected by the work of the *Contractor* or used by the *Contractor* in Providing the Service
- is in the documents which the Contract Data states it is in."

In Contract Data, reference has been made to this Part 4 of the contract for the location of the Affected Property.

1. Description of the Site and its surroundings

1.1. General description

The contract area will be on the Transnet Rail Infrastructure Manager's ore line network. The Contractor may be required to work in areas where varying degrees and types of security situations are prevailing such as may occur in remote rural areas through to densely populated metropolitan areas. The railway tracks are located in areas of varying horizontal and vertical dimensions of the land surface. In some areas, tracks fall in deep cuttings as well as in high embankments

1.2. Existing buildings, structures, and plant & machinery on the Site

There are fixed assets that are situated are alongside the linear state of the railway infrastructure. These structures are but not limited to; bridges, platforms, culverts and track side components. The Contractor shall ensure that all the works being carried out does not deform the existing structures.

1.3. Subsoil information

The project at hand does not interfere with the formation or earthworks. Should there be a need to work on the formation; the employer shall supply the contractor will relevant information.

1.4. Hidden services

There are underground services that were previously erected and the as-built data to locate such services will be utilised. There are situations where the as-built data cannot be traced and, in such situations, activities must be carried out with caution. During the execution phases of the project, there is a possibility of disruption of such hidden services. These services include conduits (oil, water and sewage), electrical cables and any other structure that may be present. The employer shall inform the contractor through a baseline risk assessment of any possibilities in anticipation.

1.5. Other reports and publicly available information

The Employer will also provide maps and locations as and when required