

Transnet National Ports Authority

an Operating Division of **TRANSNET SOC LTD**

[Registration Number 1990/000900/30]

REQUEST FOR PROPOSAL (RFP)

**PROVISION OF DETAILED DESIGN FOR A PERIOD OF 9 MONTHS WITH AN OPTION
FOR PROVISION OF CONSTRUCTION SUPERVISION FOR THE REPLACEMENT OF
STURROCK DRYDOCK OUTER CAISSON FOR PORT OF CAPE TOWN FOR THE
PERIOD OF CONSTRUCTION.**

RFP NUMBER	: TNPA/2024/10/0002/81376/RFP
ISSUE DATE	: 22 AUGUST 2025
COMPULSORY TENDER CLARIFICATION	: 29 AUGUST 2025
CLOSING DATE	: 12 SEPTEMBER 2025
CLOSING TIME	: 16H00
TENDER VALIDITY PERIOD	: 12 WEEKS FROM CLOSING DATE

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Part T1: Tendering Procedures

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	PROVISION OF DETAILED DESIGN FOR A PERIOD OF 9 MONTHS WITH AN OPTION FOR PROVISION OF CONSTRUCTION SUPERVISION FOR THE REPLACEMENT OF STURROCK DRYDOCK OUTER CAISSON FOR PORT OF CAPE TOWN FOR THE PERIOD OF CONSTRUCTION.
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	A compulsory Tender Clarification Meeting will be conducted via Microsoft Teams: on the 29 August 2025, at 10:00am [10 O'clock] for a period of ± 2 (two) hours. Join the meeting now Meeting ID: 336 965 892 137 9 Passcode: j2iS9mp9 The Compulsory Tender Clarification Meeting will start punctually and information will not be repeated for the benefit of Tenderers joining late. Proof of Attendance for Compulsory Briefing Session Attendance at the compulsory briefing session is mandatory for all prospective tenderers. Proof of attendance will be established through an interactive poll conducted during the virtual briefing session via Microsoft Teams. • Tenderers must actively participate and respond during the poll. • Responses will be time-stamped and recorded to verify attendance. • Only tenderers who complete the poll satisfactorily will be considered as having attended the briefing. • The poll results will be retained by the Employer and can be requested for verification purposes.

	Failure to participate in the poll during the briefing session will be regarded as non-attendance and may result in disqualification from the tender process.
CLOSING DATE	16:00pm on 2025/09/12 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.



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- 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 T2.2-14], [**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



TRANSNET NATIONAL PORTS AUTHORITY

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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. Published in Board Notice 423 of 2019 in Government Gazette No 42622 of 8 August 2019.

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 <i>Employer</i> is Transnet SOC Ltd (Reg No. 1990/000900/30)
C.1.2	The tender documents issued by the <i>Employer</i> comprise: Part T: The Tender Part T1: Tendering procedures T1.1 Tender notice and invitation to tender How to Access Transnet e-Tenders guide 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 Pricing Schedule Part C3: Scope of work C3.1 Scope Part C4: Site information C4.1 Site Information Annexures
C.1.4	The Employer's agent is: Commodity Officer Name: Mcebo Mhlanga



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Address: HR/Procurement Building
34 South Arm Road
V&A Waterfront
8001

E – mail TNPATenderEnquiriesCPT@transnet.net

Tenderers are to note the following key activities regarding the scope of work for detailed design:

Part 1: The scope includes reviewing condition assessments and existing gate designs, conducting inspections and surveys, developing repair methods and concept requirements with the client, performing HAZOP studies, producing concept and detailed designs, and preparing all tender and construction documentation per ECSA Stage 3 and 4 requirements.

Part 2: The service provider will support the Employer in procuring a fabrication contractor, oversee construction and commissioning to ensure quality and safety, provide necessary resources for oversight, represent the Employer's interests, and take full responsibility for the detailed design, system integrity, and adherence to specifications.

C.2.1 Evaluation Criteria and Scoring Scale

Tests for Administrative and Substantive Responsiveness

1. Stage One Step 1: Test for Administrative and Substantive Responsiveness

The test for administrative responsiveness will include the following:

<i>Administrative and Substantive responsiveness check</i>
Whether the Bid has been lodged on time
Whether all Returnable Documents and/or schedules [where applicable] were completed and returned by the closing date and time
Verify the validity of all returnable documents
Verify if the Bid document has been duly signed by the authorised respondent
Verify the tendering option/s tendered for



- | |
|--|
| <ul style="list-style-type: none"> • Whether the Bid contains a responsive priced offer |
| <ul style="list-style-type: none"> • Whether the Bid materially complies with the scope of work given |

The test for administrative responsiveness [Step One] and the test for substantive responsiveness [Step Two] must be passed for a Respondent's Proposal to progress to Stage Two for further evaluation

2. Stage Two - Functionality: Threshold 60 Points

Only those tenderers who obtain the minimum qualifying score for functionality will be evaluated further in terms of price and the applicable preference point system. The minimum qualifying score for functionality is 60 points.

The evaluation criteria for measuring functionality and the points for each criterion and, if any, each sub-criterion is as stated below.

Only those tenderers who attain the minimum number of evaluation points for Functionality will be eligible for further evaluation, failure to meet the minimum threshold will result in the tender being disqualified and removed from any further consideration.

2.1. T2.2-01 Organogram with key personnel experience, qualifications and registrations

2.2. T2.2-02 Company Previous Experience

2.3. T2.2-03 Quality Management

2.4. T2.2-04 Project Programme

2.5. T2.2-05 Health and Safety

Each evaluation criteria will be assessed in terms of scores of 0, 20, 40, 60, 80 or 100. The scores of each of the evaluators will be averaged, weighted, and then totalled to obtain the final score for functionality, unless scored collectively. (See CIDB Inform Practice Note #9).



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Note: Any tender not complying with the above-mentioned requirements, will be regarded as non-responsive and will therefore not be considered for further evaluation.

Functionality Criteria

The functionality criteria and maximum score in respect of each of the criteria are as follows:



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Functionality criteria	Sub-criteria	Sub-criteria points	Maximum number of points
T2.2-01 Organogram with key personnel experience, qualifications and registrations	Organogram	2	30
	Key Personnel Experience	8	
	Key Personnel Qualifications	10	
	Key Personnel Registration/s	10	
T2.2-02 Company Previous Experience	Company Experience in Naval Architecture Structure Design Projects	15	40
	Company Experience in Mechanical Engineering Design Projects	10	
	Company Experience in Electrical Engineering Design related to electrical substation and reticulation network and Electronic (EC&I) Engineering Projects	10	
	Company Experience Civil Engineering Projects	5	
T2.2-03 Quality Management	Quality Policy that is aligned to ISO 9001:2015 requirements	1	10
	Design and Development Procedure that is aligned to ISO 9001:2015	3	
	Quality Management Plan that is aligned to the Scope of Works	3	
	Procedure for Documented Information that is aligned to the ISO 9001:2015	3	
T2.2-04 Project Programme	Starting date and completion date are stated, and the programme does not exceed 8 months.	1	10
	Activities to be logically tied link using critical path method (CPM). (Show the	2	



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	Critical path, Predecessors and Successors Column		
	All activities as per level 4	2	
	The TNPA activities calendar on the schedule should represent the actual work week/month used. E.g., weekends, public holidays are marked as non-working days from start to finish date	1	
	All activity durations to be realistic and activities that can be measured in days, Weeks, and Months. (Show the duration Column)	2	
	The Bidder is required to produce at minimum a program that is compatible with MS Project or Primavera (Software) in PDF.	2	
T2.2-05 Health and Safety	Signed Health and Safety Plan as per scope of work in line with TNPA H&S specification	3	10
	Signed and date Health and Safety Policy:	2	
	Complete and return with tender documentation the Contractor Health & Safety Questionnaire included as a returnable, attach all required supporting documents.	5	
Maximum possible score for Functionality			100



3. Stage Three – Preference Point System

Only tenders that achieve the minimum qualifying score for functionality will be evaluated further in accordance with the 80/20 or 90/10 preference points systems as described in Preferential Procurement Regulations.

80 price tender evaluation points will be allocated where the financial value of one or more responsive tenders received have a value up to and equal to R50 million, inclusive of all applicable taxes, or

90 price tender evaluation points will be allocated where the financial value of one or more responsive tenders received have a value greater than R50 million, inclusive of all applicable taxes.

Thresholds	Minimum Threshold
Technical / functionality	60

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

Up to 20 or 10 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 Specific Goal	Number of points allocated (80/20)	Number of points allocated (90/10)
B-BBEE Level of contributor (1 or 2)	20	10



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Non-Compliant and/or B-BBEE Level 3-8 contributors	00	00

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 Certificate (in case of JV, a consolidate scorecard will be accept) as per DTIC guidelines

The maximum points for this bid are allocated as follows:

DISCRIPTION	POINTS	POINTS
PRICE	80	90
B-BBEE STATUS LEVEL OF CONTRIBUTION		
B-BBEE Level of contributor (1 or 2)	20	10
Non-Compliant and/or B-BBEE Level 3-8 Contributors (0)		
Total points for Price and Specific Goals must not exceed	100	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.

4. Stage Four – Commercial Evaluation

This evaluation will be conducted on Tenderers that have qualified on all stages of evaluations.

5. Stage Five - Financial Risk Analysis Evaluation

This evaluation will be conducted on Tenderers that have qualified on all stages of evaluations.

6. Stage Six– Post Tender Negotiations (PTN)



- 6.1 Respondents are to note that Transnet may not award a contract if the price offered is not market related. In this regard, Transnet reserves the right to engage in PTN with the view to achieving a market-related price.
- 6.2 Negotiations will be done in a sequential manner i.e.:
 - first negotiate with the highest ranked tenderer per Section of the scope of work, should such negotiations fail,
 - negotiate with the 2nd to the last ranked tenderer per Section of the scope of work (if required) in a sequential manner.
- 6.3 In the event of any Respondent being notified of such short-listed/preferred tenderer status, his/her bid, as well as any subsequent negotiated best and final offer/s (BAFO), will automatically be deemed to remain valid during the negotiation period and until the ultimate award of business.
- 6.4 Should Transnet conduct post tender negotiations, Respondents will be requested to provide their best and final offers to Transnet based on such negotiations. Where a market related price has been achieved through negotiation, the contract will be awarded to the successful Respondent(s).

7. Stage Seven – Objective Criteria

Transnet reserves the right to award the business to the highest scoring tenderer unless objective criteria justify the award to another tenderer as stated on C.3.13 below.

8. Stage Eight - Award of business and conclusion of contract/s

- 8.1 Immediately after approval to award the contract/s has been received, the successful tenderer(s) will be informed of the acceptance of his/their Bid by way of a Letter of Award. Thereafter the final contract/s will be concluded with the successful Respondent(s).
- 8.2 A final contract will be concluded and entered into with the successful tenderer/s at the acceptance of a letter of award by the Respondent/s

C.2.12 No alternative tender offers will be considered.

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



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

Identification details:	The tender documents must be uploaded with: ▪ Name of Tenderer: ▪ Contact person and details: ▪ The Tender Number: ▪ The Tender Description

Documents must be marked for the attention of:
Employer's Agent:

- 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: **16:00pm** on the **12 September 2025**

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, more together with the tender;
3. Proof of registration on the Central Supplier Database;

- 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 bidder:

- a) is not in good standing with Transnet National Ports Authority due to a poor track record of past performance with Transnet SOC Ltd and or Transnet National Ports Authority,
- b) there is clear, uncontrived and/or overwhelming evidence and/or facts that the bidder has or continues to be in breach of any of the provisions contained in the Integrity Pact,
- c) the Probity check undertaken by Transnet National Ports Authority establishes the existence of any unmitigated risks which would have a negative impact on the project,
- d) unless the appointment of the bidder would result in a negative impact on Transnet's Return on Investment,
- e) It is necessary to rotate Suppliers to promote opportunities for other suppliers, in circumstances where the bidder has been awarded business previously and the award of the tender will result in inequitable allocation of business,
- f) The tenderer or its members, directors, partners:
 - Is under restrictions as contemplated in the Integrity Pact,
 - Is a subject of a process of restriction by Transnet or other state institution that Transnet may be aware of and there is a clear, uncontrived and/or overwhelming evidence and/or facts in relation to the alleged wrongdoing on the basis of which the restriction process has been initiated; is able, in the option of the employer to perform the contract free of conflicts of interest.
- g) cannot, as necessary and in relation to the proposed contract, demonstrate that it possesses the professional and technical qualifications, professional and technical competence, financial resources, equipment and other



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physical facilities, managerial capability, reliability, experience and reputation, expertise and the personnel, to perform the contract,

h) has no legal capacity to enter into the contract,

i) is insolvent, in receivership, under Business Rescue as provided for in chapter 6 of the Companies Act, 2008, being wound up, has its affairs administered pursuant to a court order, has ceased or suspended their business activities, or is subject to legal proceedings in respect of any of the foregoing,

j) does not comply with the legal requirements, if any, stated in the tender data; and

k) is not able to perform the contract free of conflicts of interest.

l) is able, in the option 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).

Signed

Date

Name

Position

Tenderer



Part T2: Returnable Documents

T2.1 List of Returnable Documents

2.1.1 Stage One as per CIDB: these schedules will be utilised for evaluation purposes:

- T2.2-01 **Evaluation Schedule:** Organogram with key personnel experience, qualifications and registrations
- T2.2-02 **Evaluation Schedule:** Company Previous Experience
- T2.2-03 **Evaluation Schedule:** Quality Management
- T2.2-04 **Evaluation Schedule:** Programme
- T2.2-05 **Evaluation Schedule:** Health and Safety
- T2.2-05A **Evaluation Schedule:** Health and Safety Questionnaire

2.1.2 Returnable Schedules:

General:

- T2.2-06 Authority to submit tender
- T2.2-07 Record of addenda to tender documents
- T2.2-08 Letter of Good Standing
- T2.2-09 Risk Elements

Valid proof of Respondent's compliance to Specific Goals evidence (Preference Claim Form) requirements stipulated in SBD6.1.

Agreement and Commitment by Tenderer:

- T2.2-10 CIDB SFU ANNEX G Compulsory Enterprise Questionnaire
- T2.2-11 Non-Disclosure Agreement
- T2.2-12 Three (3) Years of financial statements
- T2.2-13 RFP Declaration Form
- T2.2-14 RFP – Breach of Law
- T2.2-15 Certificate of Acquaintance with Tender Document
- T2.2-16 Service Provider Integrity Pact
- T2.2-17 Supplier Code of Conduct
- T2.2-18 Supplier Declaration Form
- T2.2-19 Agreement in terms of Protection of Personal Information Act (POPIA)
- T2.2-20 Domestic Prominent Influential Persons (DPIP) Or Foreign Prominent Public Officials (FPPO)



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2.1.3 Bonds/Guarantees/Financial/Insurance:

- T2.2-21 Insurance provided by the Contractor
- T2.2-22 Form of Intent to provide a Performance Guarantee
- T2.2-23 Forecast Rate of Invoicing

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

2.3 C1.2 Contract Data

2.4 C2.1 Pricing Instructions (Option G)

2.5 C2.2 Pricing Schedule

T2.2-01: Evaluation Schedule – Organogram with key personnel experience, qualifications and registrations (30points)

The Tenderer must be able to demonstrate that the project personnel have sufficient knowledge, experience and qualifications to provide the required service. A project specific organogram is required to be submitted as part of this returnable schedule, clearly showing the resources that will be provided by the contractor to execute the works. The organogram is to include the names of the personnel, and the attached CV's will be used in evaluation.

Submit the following documents as a minimum with your tender documentation;

1. A detailed organisational organogram showing on-site and offsite personnel with:
 - 1.1. A clear and precise indication of at least seven (7) of the key personnel's functions on the organogram
 - 1.2. Detailed and well-structured descriptions of roles and responsibilities of at least seven (7) of the key personnel's functions.
2. Comprehensive CVs must be attached to this schedule. At a minimum, each CV should include the following information:
 - i. Personal Details
 - a. Full name
 - b. Tertiary education institutions attended, including dates
 - c. Professional registrations and/or Department of Labour certification
 - ii. Qualifications
 - iii. Current Employment
 - Name of current employer
 - Position held
 - iv. Post-Graduate Experience
 - Summary of experience, including year, organization, and position
 - v. Relevant Experience
 - Description of recent assignments or experience related to the Scope of Works
3. Details of the experience of the staff who will be working on the works with respect to:

Working with NEC 3 Engineering and construction 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, copies of relevant training/qualifications to be provided.
4. Attach qualifications and professional registration copies, TNPA will verify registration



5. Key personnel for the Execution of the project shall include at least, amongst others:
- a. Project Manager**
Project Manager Pr.CPM/PMP registered with SACPCMP or Project Management Institute with related diploma/degree in engineering/ construction management/project management with at least 5 years of experience in managing multidisciplinary design teams and contractors during construction.
 - b. Naval Architect**
Naval Architect Engineer/Technologist should have a minimum Pr.Eng/Pr.Tech (ECSA) and at least 5 years' experience in design of marine structures.
 - c. Mechanical Engineer**
Mechanical Engineer/Technologist/ should have a minimum Pr.Eng/Pr.Tech (ECSA) in Mechanical Engineering and at least 5 years' experience in design of mechanical drives systems, ventilation and fire protection.
 - d. Electrical Engineer**
Electrical Engineer/Technologist/ should have a minimum Pr.Eng/Pr.Tech (ECSA) in Electrical Engineering and at least 5 years' experience in design of substations and electrical reticulation.
 - e. Electronic Engineer**
Electronic Engineer/Technologist should have a minimum Pr.Eng/Pr.Tech (ECSA) in Light Current Electrical/Electronic Engineering and at least 5 years' experience in design of control and instrumentation, communication systems inclusive of PLC and SCADA systems.
 - f. Structural/Civil Engineer**
Civil/Structural Engineer/Technologist should have a minimum Pr.Eng/Pr.Tech (ECSA) in Civil Engineering and at least 5 years' experience in design of support structures, foundations and existing structures repair methodologies.
 - g. Quantity Surveyor**
Quantity Surveyor should have a minimum Pr.QS (SACQSP) in Quantity Surveying at least 5 years' in multidisciplinary engineering (marine/structural/mechanical/electrical/electronic) projects costing and cost management.

Notes:

- Where the bidders submit one resource for electrical and electronic engineering disciplines, it should be clearly stated.
- Personnel registered as under the candidate category will not be considered for evaluation.
- Pr. Tech (ECSA) refers to a Professional Engineering Technologist as defined by the ECSA registration categories. Professional Engineering Technicians (Pr. Techni) or Certified Engineers (Pr. Certificated) will not be considered for evaluation. Furthermore, engineers registered in the "Candidate" category will also not be considered.

The table below will be used as guidelines for scoring / evaluating the Management & CVs of Key persons submitted by the Tenderer:

List of Key Persons assigned to the above disciplines

No.	Key Persons	Name and Surname	CV attached (Yes/No)
1	Project Manager		
2	Naval Architect		
3	Mechanical Engineer		
4	Electrical Engineer		
5	Electronics Engineer		
6	Civil/Structural Engineer		
7	Quantity Surveyor		
8			

	No response	Poor	Less Than Acceptable	Acceptable response to the particular aspect	Above acceptable real understanding	Excellent Response
Score	(0)	(20)	(40)	(60)	(80)	(100)
Organogram (2 Point)	No response or less than (2) two key personnel shown in the organogram	The Organogram is clear and precise indication of two (2) to (3) key personnel's functions with well-structured descriptions of roles and responsibilities of two (2) to (3) key personnel	The Organogram is clear and precise indication of four (4) to five (5) key personnel's functions with well-structured descriptions of roles and responsibilities of four (4) to five (5) key personnel's	The Organogram is clear and precise indication of six (6) to seven (7) key personnel's functions with well-structured descriptions of roles and responsibilities of six (6) to seven (7) key personnel	The Organogram is clear and precise indication of eight (8) to nine (9) key personnel's functions with well-structured descriptions of roles and responsibilities of eight (8) to nine (9) key personnel	The Organogram is clear and precise indication of ten (10) or more key personnel's functions with well-structured descriptions of roles and responsibilities
Project Manager (5 Points)	No response. Failed to provide qualification and professional registration information.	Key staff has minimal experience of issues pertinent to this project. •Project Manager: <3 years' relevant experience and professional registered (Pr.CPM/PMP)	Key staff has limited experience of issues pertinent to this project. • Project Manager: >=3 but < 5 years' experience and professional registered (Pr.CPM/PMP)	Key staff has reasonable knowledge of issues pertinent to this project. • Project Manager: >=5 but < 7 experience and professional registered (Pr.CPM/PMP)	Key staff has broad knowledge of issues pertinent to this project. • Project Manager: >=7 but < =9 experience and professional registered (Pr.CPM/PMP)	Key staff has exceptional knowledge of issues pertinent to this project. • Project Manager: >10 years' experience and professional registered (Pr.CPM/PMP)
Naval Architect /Technologist (5 Points)		Key staff has minimal experience of issues pertinent to this project. •Naval Architect: <3 years' relevant experience and professional registered (Pr.Eng / Pr.Tech)	Key staff has limited experience of issues pertinent to this project. • Naval Architect: >=3 but < 5 years' experience and professional registered (Pr.Eng / Pr.Tech)	Key staff has reasonable knowledge of issues pertinent to this project. • Naval Architect: >=5 but < 7 experience and professional registered (Pr.Eng / Pr.Tech)	Key staff has broad knowledge of issues pertinent to this project. • Naval Architect: >=7 but < =9 experience and professional registered (Pr.Eng / Pr.Tech)	Key staff has exceptional knowledge of issues pertinent to this project. • Naval Architect: >10 years' experience and professional registered (Pr.Eng / Pr.Tech)
Mechanical Engineer /Technologist (5 Points)		Key staff has minimal experience of issues pertinent to this project.	Key staff has limited experience of issues pertinent to this project.	Key staff has reasonable knowledge of issues pertinent to this project.	Key staff has broad knowledge of issues pertinent to this project.	Key staff has exceptional knowledge of issues pertinent to this project.

		•Mechanical Engineer/Technologist: <3 years' relevant experience and professional registered (Pr.Eng / Pr.Tech)	• Mechanical Engineer/Technologist: >=3 but < 5 years' experience and professional registered (Pr.Eng / Pr.Tech)	• Mechanical Engineer/Technologist: >=5 but < 7 experience and professional registered (Pr.Eng / Pr.Tech)	• Mechanical Engineer/Technologist: >=7 but < =9 experience and professional registered (Pr.Eng / Pr.Tech)	• Mechanical Engineer/Technologist: >10 years' experience and professional registered (Pr.Eng / Pr.Tech)
Electrical Engineer /Technologist (3 Points)		Key staff has minimal experience of issues pertinent to this project. •Electrical Engineer/Technologist: <3 years' relevant experience and professional registered (Pr.Eng / Pr.Tech)	Key staff has limited experience of issues pertinent to this project. •Electrical >=3 but < 5 years' experience and professional registered (Pr.Eng / Pr.Tech)	Key staff has reasonable knowledge of issues pertinent to this project. •Electrical Engineer/Technologist: >=5 but < 7 experience and professional registered (Pr.Eng / Pr.Tech)	Key staff has broad knowledge of issues pertinent to this project. •Electrical Engineer/Technologist: >=7 but < =9 experience and professional registered (Pr.Eng / Pr.Tech)	Key staff has exceptional knowledge of issues pertinent to this project. •Electrical Engineer/Technologist: >10 years' experience and professional registered (Pr.Eng / Pr.Tech)
Electronics Engineer /Technologist (2 Points)		Key staff has minimal experience of issues pertinent to this project. •Electronics Engineer/Technologist: <3 years' relevant experience and professional registered (Pr.Eng / Pr.Tech)	Key staff has limited experience of issues pertinent to this project. • Electronics Engineer/Technologist: >=3 but < 5 years' experience and professional registered (Pr.Eng / Pr.Tech)	Key staff has reasonable knowledge of issues pertinent to this project. • Electronics Engineer/Technologist: >=5 but < 7 experience and professional registered (Pr.Eng / Pr.Tech)	Key staff has broad knowledge of issues pertinent to this project. • Electronics Engineer/Technologist: >=7 but < =9 experience and professional registered (Pr.Eng / Pr.Tech)	Key staff has exceptional knowledge of issues pertinent to this project. • Electronics Engineer/Technologist: >10 years' experience and professional registered (Pr.Eng / Pr.Tech)
Civil/Structural Engineer /Technologist (5 Points)		Key staff has minimal experience of issues pertinent to this project. •Civil Engineer/Technologist : <3 years' relevant experience and professional registered (Pr.Eng / Pr.Tech)	Key staff has limited experience of issues pertinent to this project. •Civil Engineer/Technologist: >=3 but < 5 years' experience and professional registered (Pr.Eng / Pr.Tech)	Key staff has reasonable knowledge of issues pertinent to this project. •Civil Engineer/Technologist: >=5 but < 7 experience and professional registered (Pr.Eng / Pr.Tech)	Key staff has broad knowledge of issues pertinent to this project. •Civil Engineer/Technologist: >=7 but < =9 experience and professional registered (Pr.Eng / Pr.Tech)	Key staff has exceptional knowledge of issues pertinent to this project. •Civil Engineer/Technologist: >10 years' experience and professional registered (Pr.Eng / Pr.Tech)



TRANSNET NATIONAL PORTS AUTHORITY
TENDER NUMBER: TNPA/2024/10/0002/81376/RFP

DESCRIPTION OF THE WORKS: PROVISION OF DETAILED DESIGN FOR A PERIOD OF 9 MONTHS WITH AN
CONSTRUCTION SUPERVISION FOR THE REPLACEMENT OF STURROCK DRYDOCK OUTER CAISSON FOR
CONSTRUCTION.

OPTION FOR PROVISION OF
PORT OF CAPE TOWN FOR THE PERIOD OF

Quantity Surveyor (3 Points)		Key staff has minimal experience of issues pertinent to this project. • Quantity Surveyor: <3 years' relevant experience and professional registered (Pr.QS)	Key staff has limited experience of issues pertinent to this project. • Quantity Surveyor: >=3 but < 5 years' experience and professional registered (Pr.QS)	Key staff has reasonable knowledge of issues pertinent to this project. • Quantity Surveyor: >=5 but < 7 experience and professional registered (Pr.QS)	Key staff has broad knowledge of issues pertinent to this project. • Quantity Surveyor: >=7 but < =9 experience and professional registered (Pr.QS)	Key staff has exceptional knowledge of issues pertinent to this project. • Quantity Surveyor: >10 years' experience and professional registered (Pr.QS)

The scoring of the Organogram with key personnel experience, qualifications and registrations will be as above.

T2.2-02: Evaluation Schedule: Company Previous Experience

(40)

Note to tenderers:

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

1. A list of past / current comparable projects for mechanical, electrical & electronic, structural and civil design with at minimum the following information:
 - a. Project name
 - b. Project description & engineering disciplines covered in the works
 - c. Project value
 - d. Responsibility
 - e. Location of the works and status of the project.
 - f. Contact details of the client
2. Design of similar works as detailed in the Works Information with reference to:
 - a. Company Experience in Naval Architecture Structure Design Projects (15)
 - b. Company Experience in Mechanical Engineering Design Projects (10)
 - c. Company Experience in Electrical Engineering Design related to electrical substation and reticulation network and Electronic (EC&I) Engineering Projects (10)
 - d. Company Experience Civil Engineering Projects (5)
3. Sufficient references to substantiate experience indicated (Client name and contact details, project description, duration and contract value)

Index of documentation attached to this schedule

	DOCUMENT NAME
1	
2	
3	
4	



Company Previous Experience for each discipline:

Bidder must submit a list of projects and a reference for each project listed. References included reference letters / completion certificate from clients on client letterhead and must confirm the work performed with specific reference to the project, company involvement covering the design of mechanical and electrical systems executed in the past.

Score	Company Experience in Naval Architecture Structure Design Projects (15)	Company Experience in Mechanical Engineering Design Projects (10)	Company Experience in Electrical Engineering Design related to electrical substation and reticulation network and Electronic (EC&I) Engineering Projects (10)	Company Experience Civil Engineering Projects (5)
0	The tenderer has not submitted the required information/ Previous experience does not relate to the scope of works/ project indicated on the list without all the indicated requirement and/ with NO accompanied reference containing all the indicated requirements	The tenderer has not submitted the required information/ Previous experience does not relate to the scope of works/ project indicated on the list without all the indicated requirement and/ with NO accompanied reference containing all the indicated requirements	The tenderer has not submitted the required information/ Previous experience does not relate to the scope of works/ project indicated on the list without all the indicated requirement and/ with NO accompanied reference containing all the indicated requirements	The tenderer has not submitted the required information/ Previous experience does not relate to the scope of works/ project indicated on the list without all the indicated requirement and/ with NO accompanied reference containing all the indicated requirements
20	The tenderer has provided 1 project to demonstrate experience in Naval architecture structure design project relating to the scope of works on the list with all the indicated requirement for the list and each project is accompanied by a reference containing all the indicated requirements	The tenderer has provided 1 project to demonstrate experience in Mechanical Engineering Design Projects relating to the scope of works on the list with all the indicated requirement for the list and each project is accompanied by a reference containing all the indicated requirements	The tenderer has provided 1 project to demonstrate experience in Electrical Engineering Design Projects relating to the scope of works on the list with all the indicated requirement for the list and each project is accompanied by a reference containing all the indicated requirements	The tenderer has provided 1 project to demonstrate experience in Civil Engineering Projects relating to the scope of works on the list with all the indicated requirement for the list and each project is accompanied by a reference containing all the indicated requirements
40	The tenderer has provided 2 projects to demonstrate experience Naval architecture structure design project relating to the scope of works on the list with all the indicated	The tenderer has provided 2 projects to demonstrate experience Mechanical Engineering Design Projects relating to the scope of works on the list with all the indicated	The tenderer has provided 2 projects to demonstrate experience Electrical Engineering Design Projects relating to the scope of works on the list with all the indicated requirement for the list	The tenderer has provided 2 projects to demonstrate experience Civil Engineering Projects relating to the scope of works on the list with all the indicated requirement for the list

	requirement for the list and each project is accompanied by a reference containing all the indicated requirements	requirement for the list and each project is accompanied by a reference containing all the indicated requirements	and each project is accompanied by a reference containing all the indicated requirements	and each project is accompanied by a reference containing all the indicated requirements
60	The tenderer has provided 3 projects to demonstrate experience Naval architecture structure design project relating to the scope of works on the list with all the indicated requirement for the list and each project is accompanied by a reference containing all the indicated requirements	The tenderer has provided 3 projects to demonstrate experience Mechanical Engineering Design Projects relating to the scope of works on the list with all the indicated requirement for the list and each project is accompanied by a reference containing all the indicated requirements	The tenderer has provided 3 projects to demonstrate experience Electrical Engineering Design Projects relating to the scope of works on the list with all the indicated requirement for the list and each project is accompanied by a reference containing all the indicated requirements	The tenderer has provided 3 projects to demonstrate experience Civil Engineering Projects relating to the scope of works on the list with all the indicated requirement for the list and each project is accompanied by a reference containing all the indicated requirements
80	The tenderer has provided 4 or 5 projects to demonstrate experience Naval architecture structure design project relating to the scope of works on the list with all the indicated requirement for the list and each project is accompanied by a reference containing all the indicated requirements	The tenderer has provided 4 or 5 projects to demonstrate experience Mechanical Engineering Design Projects relating to the scope of works on the list with all the indicated requirement for the list and each project is accompanied by a reference containing all the indicated requirements	The tenderer has provided 4 or 5 projects to demonstrate experience Electrical Engineering Design Projects relating to the scope of works on the list with all the indicated requirement for the list and each project is accompanied by a reference containing all the indicated requirements	The tenderer has provided 4 or 5 projects to demonstrate experience Civil Engineering Projects relating to the scope of works on the list with all the indicated requirement for the list and each project is accompanied by a reference containing all the indicated requirements
100	The tenderer has provided more than 5 projects to demonstrate experience Naval architecture structure design project relating to the scope of works on the list with all the requirement for the list and each project is	The tenderer has provided more than 5 projects to demonstrate experience Mechanical Engineering Design Projects relating to the scope of works on the list with all the requirement for the list and each	The tenderer has provided more than 5 projects to demonstrate experience Electrical Engineering Design Projects relating to the scope of works on the list with all the requirement for the list and each project is	The tenderer has provided more than 5 projects to demonstrate experience Civil Engineering Projects relating to the scope of works on the list with all the requirement for the list and each project is accompanied by a

	accompanied by a reference containing all the indicated requirements	project is accompanied by a reference containing all the indicated requirements	accompanied by a reference containing all the indicated requirements	reference containing all the indicated requirements

T2.2-03: Evaluation Schedule - Quality Management Functionality Criteria (10 points)

Due consideration must be given to the deliverables required to execute and complete the contract as per the:

- TNPA-QUAL-REQ-14.1 _General Quality Requirements for Contractors and Suppliers (**Annexure to the Scope of Works**)
- ISO 9001:2015 Quality Management Systems (QMS) requirements and should include:
 1. **Quality Policy** that is aligned to ISO 9001:2015 requirements (1)
 2. **Design and Development Procedure** that is aligned to ISO 9001:2015 (3)
 3. **Quality Management Plan** that is aligned to the Scope of Works (3)
 4. **Procedure for Documented Information** that is aligned to the ISO 9001:2015 (3)

Counterparts

The scoring will be as follows:

	Quality Policy	Design and Development Procedure	Quality Management Plan	Procedure for Documented Information
	1. Is appropriate to the purpose and context of the organization 2. Provides framework for setting quality objectives, 3. Includes a commitment to satisfy applicable requirements, 4. Includes a commitment to continual improvement, 5. Is communicated and understood within the organization	1. Design and development planning 2. Design and development inputs 3. Design and development controls 4. Design and development outputs 5. Design and development change	1. Applicable Quality Standards 2. Quality Assurance (QA) 3. Quality Control (QC) 4. Verification and Validation of work 5. Quality Improvements	1. Creating and updating of Documented Information 2. Distribution of Documented Information 3. Review and approval of Documented Information 4. Control Documented Information 5. Retention and disposition of Documented Information
Points (10)	1	3	3	3
Score (0)	No Information Provided			
Score (20)	Quality Policy contains 1 of the 5 QP requirements.	Design and development procedure contains 1 of the 5 requirements.	Quality Management Plan contains 1 of the 5 QMP requirements.	Procedure for Documented Information contains 1 of the 5 requirements.
Score (40)	Quality Policy contains 2 of the 5 QP requirements.	Design and development procedure contains 2 of the 5 requirements.	Quality Management Plan contains 2 of the 5 QMP requirements.	Procedure for Documented Information contains 2 of the 5 requirements

Score (60)	Quality Policy contains 3 of the 5 QP requirements.	Design and development procedure contains 3 of the 5 requirements.	Quality Management Plan contains 3 of the 5 QMP requirements.	Procedure for Documented Information contains 3 of the 5 requirements
Score (80)	Quality Policy contains 4 of the 5 QP requirements.	Design and development procedure contains 4 of the 5 requirements.	Quality Management Plan contains 4 of the 5 QMP requirements.	Procedure for Documented Information contains 4 of the 5 requirements
Score (100)	Quality Policy contains all 5 of the QP requirements.	Design and development procedure contains all 5 of the requirements.	Quality Management Plan contains 5 all 5 of the QMP requirements.	Procedure for Documented Information contains 5 of the 5 requirements

Attached submissions to this schedule:

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The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Signed	Date
Name	Position
Tenderer	

T2.2-04: Evaluation Schedule: Programme

The Tenderer details the programme for evaluation and attaches it to this schedule. In addition, the Tenderer is to provide an electronic copy of the programme in Primavera or Microsoft Project. (NB: Transnet system only accept PDF documents, so document MUST all be in PDF)

The Tenderer's attention is drawn to core clause 31 of the NEC3 Engineering and Construction contract regarding the items to be shown on a programme.

The tenderer shall provide the proposed programme detailed to minimum of level 4 showing as a minimum the following: **Ability to provide the services:**

Ability to provide the services in terms of the *Employer's* requirements within the required timeframe indicating, in a logical sequence, the order and timing of the services that will take place in order to Provide the Works clearly indicating the capacity & capability to achieve the dates stated in the Contract Data.

Provision of Dates:

The *Contractor* clearly indicates in the schedule all key milestones, activities & information related to the following –

- Float,
- Time Risk Allowances,
- Health and safety requirements,
- Procedures set out in this contract,
- Work by the *Employer* and Others,
- Access to a part of the site if later than its *access date*,
- Acceptances,
- Plant & Materials and other things to be provided by the employer,
- Information by Others,
- *starting date*, *access dates*, Key Dates and Completion Date
- planned Completion for each Key Date for each option and the complete works

Resourcing & Equipment:

The *Tenderer indicates* for each operation, a statement of how the *Tenderer* plans to do the work identifying the principal Equipment and other resources which he plans to use.

The *Contractor's* programme shows the following levels:

- Level 1 Master Schedule – defines the major operations and interfaces between engineering design, procurement, fabrication and assembly of

Plant and Materials, transportation, construction, testing and pre-commissioning, commissioning and Completion.

- Level 2 Project Schedule – summary schedules 'rolled up' from Level 3 Project Schedule described below
- Level 3 Project Schedule – detailed schedules generated to demonstrate all operations identified on the programme from the starting date to Completion.
- Level 4 Project Schedule – detailed discipline speciality level developed and maintained by the Contractor relating to all operations identified on the programme representing the daily activities by each discipline.

The table below provides the allocation of points:

	Evaluation Criteria	Weighting
1	Starting date and completion date are stated, and the programme does not exceed 8 months.	1
2	Activities to be logically tied link using critical path method (CPM). (Show the Critical path, Predecessors and Successors Column)	2
3	All activities as per level 4	2
4	The TNPA activities calendar on the schedule should represent the actual work week/month used. E.g., weekends, public holidays are marked as non-working days from start to finish date	1
5	All activity durations to be realistic and activities that can be measured in days, Weeks, and Months. (Show the duration Column)	2
6	The Bidder is required to produce at minimum a program that is compatible with MS Project or Primavera (Software) in PDF.	2
	TOTAL	10

The scoring of the Programme will be as follows:

No.	No response (0)	Very Poor (20)	Poor (40)	Acceptable Response (60)	Good Response (80)	Excellent Response (100)
1	No Response or Starting date and completion date not shown =0	Starting date and completion date is more than 9 months = 20	Starting date and completion date is More than 8 months; but less than and/or equal to 9 months =40	From the Starting date and to the completion date (8 months = 60)	Starting date and completion date is less than 8 months; but greater and/or equal to 7 months = 80	Starting date and completion date is less than 7 months = 100
2	No response or programme does not link activities using CPM = 0	All Activities on Critical Path not linked using CPM and open ends in Predecessors and Successors The Critical path, Predecessors and Successors Column or Gantt Chart not shown) = 20	All Activities on Critical Path partially linked using CPM and open ends in Predecessors or Successors (Show the Critical path, Predecessors and Successors Column or Gantt Chart) = 40	All Activities on Critical Path properly linked using CPM and no open ends in between Predecessors and Successors (Show the Critical path, Predecessors and Successors Column or Gantt Chart) = 60	All Activities on Critical Path properly linked using CPM and no open ends in between Predecessors and Successors (Show the Critical path, Predecessors and Successors Column or Gantt Chart) No open ends in between Predecessors and Successors on Sub critical and all activities linked = 80	All Activities on Critical Path properly linked using CPM and no open ends in between Predecessors and Successors (Show the Critical path, Predecessors and Successors Column) No open ends in between Predecessors and Successors on Sub critical and all activities linked and No linking on WBS = 100
3	No response or partially complete or schedule	The schedule is partially complete and detailed (level 2) = 20	The schedule is detailed (level 3) = 40	The schedule is complete and detailed (level 4) = 60	The schedule is complete and detailed Level 4 and Key	The schedule is complete and detailed Level 4, Key Milestones and

	submission is not level 4 or 3 or 2 (i.e., Level 1) = 0				Milestones submitted= 80	Basis of schedule submitted Milestones= 100
4	No response = 0	The TNPA activities calendar on the schedule should represent the actual Weekends or Public holidays are marked as working days from start to finish date= 20	The TNPA activities calendar on the schedule should represent the actual Weekends are marked as working days from start to finish date= 40	The TNPA activities calendar on the schedule should represent the actual Weekends, public holidays are marked as non-working days from start to finish date= 60	The TNPA activities calendar on the schedule should represent the actual Weekends, public holidays, and builders break are marked as non-working days from start to finish date= 80	The TNPA activities calendar on the schedule should represent the actual Weekends, public holidays, and builders' breaks are marked as non-working days and float from start to finish date= 100
5	No response = 0%	All Activities durations to be realistic are broken down into Months (Show the duration Column) = 20%	All Activities durations to be realistic are broken down into Months and Weeks (Show the duration Column= 40%	All activities durations to be realistic are broken down into Months, Weeks, and days (Show the duration Column) = 60%	All activities durations to be realistic are broken down into Weeks and days (Show the duration Column) = 80%	All activities durations to be realistic are broken down into days (Show the duration Column) = 100
6	No response = 0%	Submitted not minimum program that is compatible with Microsoft Project nor Primavera P6 nor Excel = 20	Programme submitted in Excel = 40	Submitted minimum a program that is compatible with Microsoft project or Primavera P6 = 60	Submitted minimum a program that is compatible with Microsoft project or Primavera P6 including resource loading (Show the resource Column or Gantt Chart) = 80	Submitted minimum a program that is compatible with Microsoft project or Primavera P6 including resource loading and cashflow forecast (Show the resource and cost Column or Gantt Chart) = 100

DESCRIPTION OF THE WORKS: PROVISION OF DETAILED DESIGN FOR A PERIOD OF 9 MONTHS WITH AN OPTION FOR PROVISION OF CONSTRUCTION SUPERVISION FOR THE REPLACEMENT OF STURROCK DRYDOCK OUTER CAISSON FOR PORT OF CAPE TOWN FOR THE PERIOD OF CONSTRUCTION.

[illegible]

T2.2-04: Evaluation Schedule: Programme

T2.2-05: Evaluation Schedule: Health and Safety Requirements

Submit the following documents as a minimum with your tender:

1. Signed Health and Safety Plan as per scope of work in line with TNPA Health & Safety Specification and the tenderer must include these minimum requirements:
 1. Project Scope
 2. Health and Safety Policy
 3. Hazard Identification and Risk Assessment
 4. Legal & Other requirements
 5. Accountabilities and Responsibilities
 6. Competence, training and awareness
 7. Occupational Health and Hygiene
 8. Working at Heights
 9. Incident Reporting and Investigation
 10. Audits and Inspections
2. Safety, Health & Environmental Policy signed and dated by the Chief Executive Officer.
List the five elements -
 1. Commitment to Safety and prevention of pollution,
 2. Continual improvement,
 3. Compliance to legal requirements, appropriate to the nature of contractor's activities,
 4. Hold management accountable for development of the safety systems
 5. Include objectives and targets.
3. Complete and return with tender documentation the Contractor Health & Safety Questionnaire included as a returnable, attach all required supporting documents.
 1. Letter of Good Standing
 2. Safety Induction/ orientation booklet or similar
 3. Incident Management Procedure
 4. Previous H&S Recognition Certificate

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The scoring of the Tenderer's Health and safety requirements will be as follows:

Points (10)	3	2	5
	Signed Health and Safety Plan as per scope of work in line with TNPA H&S specification. 1.Project Scope 2.Health and Safety Policy 3.HIRA 4.Legal & Other requirement 5.Accountabilities and Responsibilities 6.Competence, training and awareness 7.Occupational Health and Hygiene 8.Working @ Heights 9.Incident Reporting and Investigation 10.Audits and Inspections	Signed and date Health and Safety Policy: 1) Commitment to Safety, Pollution Prevention 2) Continual Improvement 3) Compliance to Legal requirements 4) Holding management accountable for development of safety systems 5) Included objectives and targets.	Complete and return with tender documentation the Contractor Health & Safety Questionnaire included as a returnable, attach all required supporting documents. 1. Valid Letter of Good Standing 2. Safety Induction/ orientation booklet or similar 3. Incident Management Procedure 4. Previous H&S Recognition Certificate
Score 0	No response – Generic document submitted or irrelevant to the project.	No response - The Tenderer has submitted no information or Health & Safety Policy not signed and dated.	No response - Health and Safety questionnaire is not fully completed and no supporting documents attached.

Score 20	The tenderer has submitted project specific H&S Plan including two (2) -three (3) stated employer's requirements	Safety, Health & Environmental Policy signed and dated by the Chief Executive Officer including one (1) key element.	The tenderer has submitted one (1) document either Contractor Safety Questionnaire or supporting documents.
Score 40	The tenderer has submitted project specific H&S Plan including four (4) -five (5) stated employer's requirements	Safety, Health & Environmental Policy signed and dated by the Chief Executive Officer including two (2) key elements.	The tenderer has submitted two (2) documents either Contractor Safety Questionnaire or supporting documents.
Score 60	The tenderer has submitted project specific H&S Plan including six (6) -seven (7) stated employer's requirements	Safety, Health & Environmental Policy signed and dated by the Chief Executive Officer including three (3) key elements.	The tenderer has submitted three (3) documents either Contractor Safety Questionnaire or supporting documents.
Score 80	The tenderer has submitted project specific H&S Plan including eight (8) -nine (9) stated employer's requirements	Safety, Health & Environmental Policy signed and dated by the Chief Executive Officer including four (4) key elements.	The tenderer has submitted four (4) documents either Contractor Safety Questionnaire or supporting documents.
Score 100	The tenderer has submitted project specific H&S Plan including ten (10) stated employer's requirements	Safety, Health & Environmental Policy signed and dated by the Chief Executive Officer including all five (5) key elements.	The tenderer has submitted five (5) documents either Contractor Safety Questionnaire or supporting documents.



T2.2-05A: Evaluation Schedule: Health and Safety Requirements Contractor Safety Questionnaire

1A	Injury Experience / Historical Performance – Alberta			0.5
	Use the previous three years injury and illness records to complete the following:			
	Year			
	Number of medical treatment cases			
	Number of restricted workday cases			
	Number of lost time injury cases			
	Number of fatal injuries			
	Total recordable frequency			
	Lost time injury frequency			
	Number of worker manhours			
	Action taken to prevent re-occurrence			
	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 Workday 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? (Please provide letter of confirmation) 0.5			Yes



1. Citations						
2A	Has your company been cited, charged or prosecuted under Health, Safety and/or Environmental Legislation in the last 5 years? If yes, provide details:				Yes	No
2B	Has your company been cited, charged or prosecuted under the above Legislation in another Country, Region or State? If yes, provide details:				Yes	No
2. Citations						
Does your company have a Certificate of Recognition?					Yes	No
If yes, what is the		Certificate No:	Issue Date:			
3. Safety Program						
4A	Submit your company written health and safety plan? Submit for provide a copy for review					2
4B	Submit your company pocket safety booklet for field distribution?					0.5
4C	Health and safety plan should contain the following elements					
		Yes	No		Yes	No
	Health and Safety Policy			Equipment Maintenance		
	Incident Management and reporting			Emergency Preparedness/Response		
	Recordkeeping & Statistics			Hazard Assessment and Risk Management and training		
	Reference to Legislation			Safe Work Practices		
	General Rules & Regulations			Safe Work Procedures and Safe operating procedures		
	Roles and responsibilities			Workplace Inspections		
	Responsibilities			Investigation Process		
	PPE Standards			Training Policy & Program		
	Environmental Standards			Communication Processes		
	Work Program or look ahead plan			Competency and Training		
4. Training Program						
5A	Attach orientation program for new hire employees? include a course outline. Does it include any of the following:					1
		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	Submit a program for training newly hired or promoted supervisors? Tenderer must submit an outline for evaluation which include instruction on the following:					1
		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		
	5. Safety Activities					
6A	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?					
6B	Do you hold site safety meetings for field employees? If Yes, how often?	Yes	No	Daily	Weekly	Biweekly
6C	Do you hold site meetings where safety is addressed with management and field supervisors?	Yes	No	Weekly	Biweekly	Monthly
6D	Is pre-job safety instruction provided before to each new task?	Yes		No		
	Is the process documented?	Yes		No		
	Who leads the discussion?					
6E	Do you have a hazard assessment process?	Yes		No		
	Are hazard assessments documented?	Yes		No		
	If yes, how are hazard assessments communicated and implemented on each project?					
	Who is responsible for leading the hazard assessment process?					
6F	Submit your company policies and procedures for environmental protection, spill clean-up, reporting, waste disposal, and recycling as part of the Health & Safety Program?					
6G	How does your company measure its H&S success? Attach separate sheet to explain					
6. Safety Stewardship						
7A	Are incident reports and report summaries sent to the following and how often?	Yes	No	Monthly	Quarterly	Annually



	Project/Site Manager									
	Vice President/Managing Director									
	Safety Director/Manager									
	President/Chief Executive Officer									
7B	How are incident records and summaries kept? How often are they reported internally?	Yes	No	Monthly	Quarterly	Annually				
	Incidents totalled for the entire company									
	Incidents totalled by project									
	Subtotalled by superintendent									
	Subtotalled by foreman									
7C	How are the costs of individual incidents kept? How often are they reported internally?	Yes	No	Monthly	Quarterly	Annually				
	Costs totalled for the entire company									
	Costs totalled by project									
	Subtotalled by superintendent									
	Subtotalled by foreman/general foreman									
7D	Does your company track non-injury incidents?	Yes	No	Monthly	Quarterly	Annually				
	Near Miss									
	Property Damage									
	Fire									
	Security									
	Environmental									
7. Personnel										
List key health and safety officers planned for this project. Attach resume (CV and qualification).						0.5				
Name		Position / Title		Designation						
				Category	SACPCMP Number					
8. 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		Telephone Number						

T2.2-06: 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 of _____, 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

T2.2-07: Record of Addenda to Tender Documents

The tenderer hereby confirms that the following communications were received from the *Employer* before the submission of this tender offer, amending the tender documents and have been taken all the Addenda into account in this tender offer:

	Date	Title or Details of Addenda
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Attach additional pages if more space is required.

T2.2-08 Letter/s of Good Standing with the Workmen’s Compensation Fund

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

- 1.
- 2.
- 3.
- 4.

Name of Company/Members of Joint Venture:

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

T2.2-09: 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.

T2.2-10 : 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 less than or equal 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 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.

Either the 80/20 or 90/10 preference point system will apply

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	POINTS
PRICE	80	90
B-BBEE STATUS LEVEL OF CONTRIBUTION		
B-BBEE LEVEL OF CONTRIBUTOR (1 OR 2) (20/10)	20	10
NON-COMPLIANT AND/OR B-BBEE LEVEL 3-8 CONTRIBUTORS (0)		
Total points for Price and B-BBEE must not exceed	100	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-BBEE 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 or 90 points is allocated for price on the following basis:

80/20

or

90/10

$$P_s = 80 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right) \quad \text{or} \quad P_s = 90 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right)$$

Where

P_s = Points scored for comparative price of bid under consideration

P_t = Comparative price of bid under consideration

$P_{\min}$ = Comparative price of lowest acceptable bid

4. EVIDENCE 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 Status contributor	B-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 .]
EME¹	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

¹ In terms of the Implementation Guide: Preferential Procurement Regulations, 2017, Version 2, paragraph 11.11 provides that in the Transport Sector, EMEs can provide a letter from accounting officer or get verified and be issued with a B-BBEE certificate by SANAS accredited professional or agency as the Transport Sector Code has not been aligned to the generic Codes. EMEs in the Transport Sector are not allowed to provide a sworn affidavit as the generic codes are not applicable to them.

- 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: . = ...(maximum 10 or 20 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:

BIDDER'S DISCLOSURE (SBD 4)

1. PURPOSE OF THE FORM

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 and further expressed in various pieces of legislation, it is required for the bidder to make this declaration in respect of the details required hereunder.

Where a person/s are 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. Bidder's declaration

2.1 Is the bidder, or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest² in the enterprise, employed by the state? **YES/NO**

2.1.1 If so, furnish particulars of the names, individual identity numbers, and, if applicable, state employee numbers of sole proprietor/ directors / trustees / shareholders / members/ partners or any person having a controlling interest in the enterprise, in table below.

Full Name	Identity Number	Name of State institution

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

2.2.1 If so, furnish particulars:

.....

² the power, by one person or a group of persons holding the majority of the equity of an enterprise, alternatively, the person/s having the deciding vote or power to influence or to direct the course and decisions of the enterprise.

- 2.3 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

- 2.3.1 If so, furnish particulars:

.....

3 DECLARATION

I, the undersigned, (name)..... 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 not to be true and complete in every respect;
- 3.3 The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium³ will not be construed as collusive bidding.
- 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.
- 3.4 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.
- 3.5 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.
- 3.6 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 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 ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

³ Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.

I CERTIFY THAT THE INFORMATION FURNISHED IN PARAGRAPHS 1, 2 and 3 ABOVE IS CORRECT.

I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME IN TERMS OF PARAGRAPH 6 OF PFMA SCM INSTRUCTION 03 OF 2021/22 ON PREVENTING AND COMBATING ABUSE IN THE SUPPLY CHAIN MANAGEMENT SYSTEM SHOULD THIS DECLARATION PROVE TO BE FALSE.

.....
Signature

.....
Date

.....
Position

.....
Name of bidder



T2.2-11 NON-DISCLOSURE AGREEMENT

[August 2025]

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

- 2.1 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.
- 2.2 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.
- 2.3 Notwithstanding clause 2.1 above, the Receiving Party may disclose Confidential Information:
- 2.3.1 to those of its Agents who strictly need to know the Confidential Information for the sole purpose set out in clause 2.2 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
- 2.3.2 to the extent required by law or the rules of any applicable regulatory authority, subject to clause 2.4 below.
- 2.4 In the event that the Receiving Party is required to disclose any Confidential Information in accordance with clause 2.3.2 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.

- 2.5 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.
- 2.6 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

- 3.1 The Receiving Party agrees to ensure proper and secure storage of all Information and any copies thereof.
- 3.2 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.
- 3.3 The Company shall, within 7 [seven] days of receipt of a written demand from Transnet:
- 3.3.1 return all written Confidential Information [including all copies]; and
 - 3.3.2 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.
- 3.4 The Company shall on request supply a certificate signed by a director as to its full compliance with the requirements of clause 3.3.2 above.

4. ANNOUNCEMENTS

- 4.1 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.
- 4.2 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

- 8.1 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.
- 8.2 The Receiving Party warrants that it and its Agents have the appropriate technical and organisational measures 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

- 9.1 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.
- 9.2 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.
- 9.3 The provisions of this Agreement shall be severable in the event that any of its provisions are held by a court of 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.

- 9.4 This Agreement may only be modified by a written agreement duly signed by persons authorised on behalf of each party.
- 9.5 Nothing in this Agreement shall constitute the creation of a partnership, joint venture or agency between the parties.
- 9.6 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

T2.2-12: Three (3) years audited financial statements

Attached to this schedule is the last three (3) years audited financial statements of the single tenderer/members of the Joint Venture.

NAME OF COMPANY/IES and INDEX OF ATTACHMENTS:

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T2.2-13: TENDER 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 Transnet Supply Chain Management (SCM) Complaints and Allegations Office process and will be subject to the Terms of Reference of SCM Complaints and Allegations Office. Transnet Supply Chain SCM Complaints and Allegations Office 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 SCM Complaints and Allegations Office without having to follow a formal court process to have such award or decision set aside.

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

IMPORTANT NOTICE TO RESPONDENTS

- Transnet established the SCM Complaints and Allegations Office to investigate any material complaint in respect of any tenders regardless of the value. Should a Respondent have any material concern regarding a tender process, a complaint may be lodged with Transnet SCM Complaints and Allegations Office for further investigation.
- It is incumbent on the Respondent to familiarise himself/herself with the Terms of Reference for the Transnet SCM Complaints and Allegations Office, details of which are available for review at Transnet's website www.transnet.net.
- An official complaint form which will be shared upon receipt of a complaint should be completed and submitted, together with any supporting documentation, to groupscmcomplaints@transnet.net
- All Respondents 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 bidder on its List of Excluded Bidders.

T2.2-14: 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 TENDERER

T2.2-15: 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 RFP. 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

T2.2-16 Service Provider Integrity Pact

Important Note: All potential tenderers must read this document and certify in the RFP 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.

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- 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

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- 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 RFP; 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.

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- 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.

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- 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.

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- 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 to 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

T2.2-17: 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

T2.2-18 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-BBEE 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-BBEE 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 issued 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
	Educational Institution	Specialised 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	
	Educational Institution	Specialised 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	YES ☐ NO ☐

A supplier that is not as yet in our value chain that we are assisting in their developmental area.	
SUPPLIER DEVELOPMENT BENEFICIARY	
A supplier that we are already doing business with or transacting with and we are also 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



APPENDIX C

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 of the following enterprise and am duly authorised to act on its behalf:

Enterprise Name:	
Trading Name (If Applicable):	
Registration Number:	
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 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 Financial Statements/Management Accounts and other information available on



the latest financial year-end of _____, 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

APPENDIX D

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 of the following enterprise and am duly authorised to act on its behalf:

Enterprise Name:	
Trading Name (If Applicable):	
Registration Number:	
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 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 Financial Statements/Management Accounts and other information available on the latest financial year-end of _____, 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)	
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



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.		

T2.2-19 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 (... insert name of Tenderer/Contractor) 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 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/infoereg/>, 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 _____ 2025

Name: _____

Title: _____

Signature: _____

XXXXX (Pty) Ltd

(Operator)

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

AS WITNESSES:

1. Name: _____

Signature: _____

2. Name: _____

Signature: _____

T2.2-20 Domestic Prominent Influential Persons (DPIP) Or Foreign Prominent Public Officials (FPPO)

Transnet is free to procure the services of any person within or outside the Republic of South Africa in accordance with applicable legislation. Transnet shall not conduct or conclude business transactions, with any Respondents without having:

- Considered relevant governance protocols;
- Determined the DPIP or FPPO status of that counterparty; and
- Conducted a risk assessment and due diligence to assess the potential risks that may be posed by the business relationship

As per the Transnet Domestic Prominent Influential Persons (DPIP) and Foreign Prominent Public Officials (FPPO) and Related Individuals Policy available on Transnet website <https://www.transnet.net/search/pages/results.aspx?k=FPIDP#k=DPIP>, Respondents are required to disclose any commercial relationship with a DPIP or FPPO (as defined in the Policy) by completing the following section:

The below form contains personal information as defined in the Protection of Personal Information Act, 2013 (the "Act"). By completing the form, the signatory consents to the processing of her/his personal information in accordance with the requirements of the Act. Consent cannot unreasonably be withheld.						
Is the Respondent (Complete with a "Yes" or "No")						
A DPIP/FPPO		Closely Related to a DPIP/FPPO		Closely Associated to a DPIP/FPPO		
List all known business interests, in which a DPIP/FPPO may have a direct/indirect interest or significant participation or involvement.						
No	Name of Entity / Business	Role in the Entity / Business (Nature of interest/ Participation)	Shareholding %	Registration Number	Status (Mark the applicable option with an X)	
					Active	Non-Active
1						
2						

3						

Respondents declaring a commercial relationship with a DPIIP or FPPO are to note that Transnet is required to annually publish on its website a list of all business contracts entered into with DPIIP or FPPO. This list will include successful Respondents, if applicable.

2. SERVICE LEVELS

2.1 Transnet reserves the right to request that any member of the Service provider's team involved on the Transnet account be replaced if deemed not to be adding value for Transnet.

2.2 The Service provider guarantees that it will achieve a 95% [ninety-five per cent] service level on the following measures:

- a) Random checks on compliance with quality/quantity/specifications
- b) On-time delivery

2.3 The Service provider must provide a telephone number for customer service calls.

2.4 Failure of the Service provider to comply with stated service level requirements will give Transnet the right to cancel the contract in whole, without penalty to Transnet, giving 30 [thirty] calendar days' notice to the Service provider of its intention to do so.

Acceptance of Service Levels:

YES	

NO	

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T2.2-21: Insurance provided by the *Consultant*

Clause 81.1 in NEC3 Professional Services Contract (June 2005)(amended June 2006 and April 2013) requires that the *Consultant* 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 *Consultant* 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 81.1 of the PSC)	Minimum amount stated in the Contract Data & Name of Insurance Company	Cover	Premium
Liability of the <i>Consultant</i> for claims made against him arising out of his failure to use the skill and care normally used by professionals providing services similar to the <i>services</i>	The amount stated in the Contract Data		
Liability for death of or bodily injury to a person (not an employee of the <i>Consultant</i>) or loss of or damage to property resulting from an action or failure to take action by the <i>Consultant</i>	The amount stated in the Contract Data for any one event		
Liability for death of or bodily injury to employees of the <i>Consultant</i> arising out of and in the course of their employment in connection with this contract	The greater of the amount required by the applicable law and the amount stated in the Contract Data for any one event		
(Other)			

T2.2-22: Form of Intent to Provide a Performance Guarantee

It is hereby agreed by the Tenderer that a Performance Guarantee drafted **exactly** as provided in the tender documents will be provided by the Guarantor named below, which is a **bank or insurer registered in South Africa**:

Name of Guarantor
(Bank/Insurer)

Address

The Performance Guarantee shall be provided within **2 (Two)** weeks after the Contract Date defined in the contract unless otherwise agreed to by the parties.

Signed

Name

Capacity

On behalf of (name of
tenderer)

Date

Confirmed by Guarantor's Authorised Representative

Signature(s)

Name (print)

Capacity

On behalf of Guarantor
(Bank/insurer)

Date



T2.2-23: Forecast Rate of Invoicing

Tenderer to submit the forecast rate of invoicing (cash-flow) based on the Tender Price and Tender Programme.

Index of documentation attached to this schedule:

Part C1:

Agreements and

Contract Data

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:

PROVISION OF DETAILED DESIGN FOR A PERIOD OF 9 MONTHS WITH AN OPTION FOR PROVISION OF CONSTRUCTION SUPERVISION FOR THE REPLACEMENT OF STURROCK DRYDOCK OUTER CAISSON FOR PORT OF CAPE TOWN FOR THE PERIOD OF CONSTRUCTION.

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 NEC3 PSC *Consultant* 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.

Detailed Design Outer Caisson (C.2.2.1)

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)	

Construction Supervision (C2.2.2)

The Total Time Charge for the supervision of the execution works, shall be determined by the staff and expense rates as presented in the Pricing Schedule C2.2.2. The Total cost for Construction supervision as per form offer

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)	

Please note that Transnet reserves the right to award only the scope of work related to detailed design and reserves the right to proceed with Construction Supervision at its sole discretion.

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 *NEC3 PSC Consultant* 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

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 *Consultant* 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 Services

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 and *conditions of contract* 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.

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Notwithstanding anything contained herein, this agreement comes into effect on the date of award of contract. Unless the tenderer (now the *NEC3 PSC Consultant*) 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:

Transnet SOC (Ltd)

Name &
signature of
witness

Date

Schedule of Deviations

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)***Transnet SOC (Ltd)**Name &
signature
of witness

Date



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C1.2 Contract Data

Part one - Data provided by the *Employer*

Clause	Statement	Data
1	General	
	The <i>conditions of contract</i> are the core clauses and the clauses for main Option	
	dispute resolution Option	A: Priced contract with pricing schedule
	and secondary Options	W1: Dispute resolution procedure
		X2 Changes in the law
		X7: Delay damages
		X9: Transfer of rights
		X10 <i>Employer's Agent</i>
		X18: Limitation of liability
		Z: <i>Additional conditions of contract</i>
	of the NEC3 Professional Services Contract (June 2005) (amended June 2006 and April 2013)	
10.1	The <i>Employer</i> is (Name):	Transnet SOC Ltd
	Address	Registered address: Transnet Corporate Centre 138 Eloff Street Braamfontein Johannesburg 2000
	Having elected its Contractual Address for the purposes of this contract as:	Transnet National Ports Authority HR/Procurement South Arm Road V&A Waterfront 8001
11.2(9)	The <i>services</i> are	provision of detailed design for a period of 9 months with an option for provision of construction supervision for the replacement of sturrock drydock outer caisson for port of cape town for the period of construction.
11.2(10)	The following matters will be included in the Risk Register	



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11.2(11)	The Scope is in	Part C3.1: The Scope of the Contract Document	
12.2	The <i>law of the contract</i> is the law of	the Republic of South Africa subject to the jurisdiction of the Courts of South Africa.	
13.1	The <i>language of this contract</i> is	English	
13.3	The <i>period for reply</i> is	2 (two) weeks	
13.6	The <i>period for retention</i> is	5 (five) years following Completion or earlier termination.	
2	The Parties' main responsibilities		
25.2	The <i>Employer</i> provides access to the following persons, places and things	access to	access date
		1	Port of Cape Town
		2	
		3	
3	Time	05 Jan 2026	
31.2	The <i>starting date</i> is		
11.2(3)	The <i>completion date</i> for the whole of the services is	9 months after award	
11.2(6)	The <i>key dates</i> and the <i>conditions</i> to be met are:	Condition to be met	key date
		1	
		2	
		3	
31.1	The <i>Consultant</i> is to submit a first programme for acceptance within	2 (two) weeks of the Contract Date.	
32.2	The <i>Consultant</i> submits revised programmes at intervals no longer than	4 (four) weeks.	
4	Quality		
40.2	The quality policy statement and quality plan are provided within	2 (two) weeks of the Contract Date.	
41.1	The <i>defects date</i> is	52 weeks after Completion of the whole of the services.	
5	Payment		
50.1	The <i>assessment interval</i> is on the	18th day of each successive month.	
50.3	The <i>expenses</i> stated by the <i>Employer</i> are	Item	Amount



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		Economy air fares	Charged at proven costs strictly on limits as set out in National Treasury Instructions as amended from time to time.
		Car hire not exceeding group B	Charged at proven costs strictly on limits as set out in National Treasury Instructions as amended from time to time.
		Accommodation	Charged at proven costs strictly on limits as set out in National Treasury Instructions as amended from time to time.
51.1	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.	
51.2	The <i>currency of this contract</i> is the	South African Rand (ZAR).	
51.5	The <i>interest rate</i> is	the prime lending rate of Rand Merchant Bank of South Africa	
6	Compensation events	No additional data required for this section of the <i>conditions of contract</i>.	
7	Rights to material	No additional data required for this section of the <i>conditions of contract</i>.	
8	Indemnity, insurance and liability		
81.1	The amounts of insurance and the periods for which the <i>Consultant</i> maintains insurance are		
	Event	Cover	Period following Completion of the whole of the <i>services</i> or earlier termination
	failure by the <i>Consultant</i> to use the skill and care normally used by professionals providing services similar to the <i>services</i>	Professional Indemnity insurance for not less than R5 000 000.00 (Five Million Rand) in respect of each claim, without limit to the number of claims	52 Weeks



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	death of or bodily injury to a person (not an employee of the <i>Consultant</i>) or loss of or damage to property resulting from an action or failure to take action by the <i>Consultant</i>	General Third Party Liability Insurance for all amounts falling within the excess of the policy, currently R50 000.00 (Fifty Thousand Rand) each and every claim, and/or for all amounts in excess of the policy limits as detailed in the policy document or whatever the <i>Consultant</i> deems desirable in respect of each claim, without limit to the number of claims	0 Weeks
	death of or bodily injury to employees of the <i>Consultant</i> arising out of and in the course of their employment in connection with this contract	The minimum limit of indemnity for insurance in respect of death of or bodily injury to employees of the <i>Consultant</i> arising out of and in connection with this contract for any one event is that which is prescribed by the Compensation for Occupation Injuries and Diseases Act No. 130 of 1993 as amended.	0 Weeks
	Motor Vehicle Liability Insurance	Comprising (as a minimum) "Balance of Third Party" Risks including Passenger Liability Indemnity for an amount of not less than R 10 000 000.00	
81.1	The <i>Employer</i> provides the following insurances	Professional Indemnity insurance in respect of failure of the <i>Consultant</i> to use the skill and care normally used by Professionals providing services similar to the services General Third Party Liability cover in respect of death of or bodily injury to a person (not an employee of the <i>Consultant</i>) or loss of or damage to property resulting from an action or failure to take action by the <i>Consultant</i>	



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82.1	The <i>Consultant's</i> total liability to the <i>Employer</i> for all matters arising under or in connection with this contract, other than the excluded matters, is limited to	<i>For all matters covered under the Employer's Professional Indemnity (PI) and General Third Party Liability policies, the Consultant's liability will be limited to the excesses applicable under the Employer's Professional Indemnity and General Third Party Liability policies as detailed in the policy wordings. The current excesses amounts to R5 000 000.00 (Five Million Rand) PI and R50 000.00 (Fifty Thousand Rand) General Third Party Liability, respectively, each and every claim. For all matters not covered under the Employer's Professional Indemnity and General Third Party Liability policies the Consultants liability will be limited to the final total of the Prices.</i>
9	Termination	No additional data required for this section of the conditions of contract.
10	Data for main Option clause	
A	Priced contract with pricing schedule	
21.3	The <i>Consultant</i> prepares forecasts of the total of the <i>expenses</i> at intervals of no longer than	25th day of each successive month.
11	Data for Option W1	
W1.1	The <i>Adjudicator</i> is	Both parties will agree to an <i>Adjudicator</i> as and when a dispute arises. If the parties cannot reach an agreement on the <i>Adjudicator</i>, the Chairman of the Association of Arbitrators (Southern Africa) will appoint an <i>Adjudicator</i>.
W1.2(3)	The <i>Adjudicator nominating body</i> is:	the Association of Arbitrators (Southern Africa)
W1.4(2)	The <i>tribunal</i> is:	Arbitration
W1.4(5)	The <i>arbitration procedure</i> is	The latest addition of the South African Rules for the Conduct of Arbitrations of the Association of Arbitrators (Southern Africa)
	The place where arbitration is to be held is	Cape Town, South Africa
	The person or organisation who will choose an arbitrator	
	• if the Parties cannot agree a choice or • if the <i>arbitration procedure</i> 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	



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X2.1	The <i>law of the project</i> is	South African Law.
X7	Delay damages	
X7.1	Delay damages for late Completion of the whole of the <i>services</i> are	R3 260.00 per day
X9	Transfer of rights	The <i>Employer</i> owns the <i>Consultant</i> rights over any of the material whatsoever prepared for the <i>Services</i> of this Contract by the <i>Consultant</i> . The <i>Consultant</i> provides on request by the <i>Employer's Agent</i> , all documentation in whatever form as required (native's, PDF's, CD's, etc) and all other material items which transfer these rights to the <i>Employer</i> .
X10	The <i>Employer's Agent</i>	
X10.1	The <i>Employer's Agent</i> is	
	Name:	Katleho Lepati
	Address	
	The authority of the <i>Employer's Agent</i> is	Fully empowered to act on behalf of the <i>Employer</i> for the services covered by the contract.
X18	Limitation of liability	
X18.1	The <i>Consultant's</i> liability to the <i>Employer</i> for indirect or consequential loss is limited to:	Nil
X18.2	The <i>Consultant's</i> liability to the <i>Employer</i> for Defects that are not found until after the <i>defects date</i> is limited to:	The cost of correcting the defect (The Total of the Prices)
X18.3	The <i>end of liability date</i> is	2 (Two) years after Completion of the whole of the <i>services</i> .
Z	Additional conditions of contract	
	The <i>additional conditions of contract</i> are	
Z1	Obligations in respect of Joint Venture Agreements	



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Z1.1	Insert the additional core clause 21.5 21.5.1 In the instance that the <i>Consultant</i> is a joint venture, the <i>Consultant</i> shall provide the <i>Employer</i> with a certified copy of its signed joint venture agreement, and in the instance that the joint venture is an 'Incorporated Joint Venture,' the Memorandum of Incorporation, within 4 (four) weeks of the Contract <i>starting date</i>. The Joint Venture agreement shall contain but not be limited to the following: • A brief description of the Contract and the Deliverables; • The name, physical address, communications addresses and domicilium citandi et executandi of each of the constituents and of the Joint Venture; • The constituents' interests; • A schedule of the insurance policies, sureties, indemnities and guarantees which must be taken out by the Joint Venture and by the individual constituents; • Details of an internal dispute resolution procedure; • Written confirmation by all of the constituents: i. of their joint and several liability to the <i>Employer</i> to Provide the <i>services</i>; ii. proof of separate bank account/s in the name of the joint venture; iii. identification of the leader in the joint venture confirming the authority of the leader to bind the joint venture through the <i>Consultant's</i> representative; iv. Identification of the roles and responsibilities of the constituents to provide the <i>services</i>. • Financial requirements for the Joint Venture: i. the working capital requirements for the Joint Venture and the extent to which and manner whereby this will be provided and/or guaranteed by the constituents from time to time; ii. the names of the auditors and others, if any, who will provide auditing and accounting services to the Joint Venture
Z1.2	Insert additional core clause 21.6 21.6. The <i>Consultant</i> shall not alter its composition or legal status of the Joint Venture without the prior approval of the <i>Employer</i>.
Z2	Additional obligations in respect of Termination



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Z2.1	The following will be included under core clause 90.1: In the second main bullet, after the word 'partnership' add 'joint venture whether incorporate 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 • repudiated this Contract
Z2.2	<i>Clause 90.5 is added as an additional clause</i> Where all or part of the Services are suspended for a period of six months or more either party may terminate the Contract by notifying the other.
Z3	Right Reserved by the <i>Employer</i> to Conduct Vetting through SSA
Z3.1	The <i>Employer</i> reserves the right to conduct vetting through State Security Agency (SSA) for security clearances of any <i>Consultant</i> 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.
Z4	Additional Clause Relating to the <i>Employer's</i> rights to take appropriate action



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Z4.1	The contract award is made without prejudice to any rights the <i>Employer</i> may have to take appropriate action later with regard to:	Any declared, exposed or confirmed tender rigging.
Z4.1.1		The <i>Consultant</i> further undertakes: not to give or cause any offer, payment, consideration, or benefit of any kind, which constitutes or could be construed as an illegal or corrupt practice, either directly or indirectly, as an inducement or reward for the award or in execution of this contract.
Z 4.1.2		To comply with all laws, regulations or policies relating to the prevention and combating of bribery, corruption and money laundering to which it or the <i>Employer</i> is subject, including but not limited to the Prevention and Combating of Corrupt Activities Act, 12 of 2004.
Z4.1.3		The <i>Consultant's</i> breach of this clause constitutes grounds for terminating the <i>Consultant's</i> obligation to Provide the Services or taking any other action as appropriate against the <i>Consultant</i> (including civil or criminal action). However, lawful inducements and rewards shall not constitute grounds for termination.
Z4.1.4		If the <i>Consultant</i> is found guilty by a competent court, administrative or regulatory body of participating in illegal or corrupt practices, including but not limited to the making of offers (directly or indirectly), payments, gifts, gratuity, commission or benefits of any kind, which are in any way whatsoever in connection with the contract with the <i>Employer</i> , the <i>Employer</i> shall be entitled to terminate the contract forthwith and take any other action as appropriate against the <i>Consultant</i> (including civil or criminal action).
Z4.2	The contract award is made without prejudice to any rights the <i>Employer</i> may have to take appropriate action later with regard to:	Politically Exposed Persons including any allegations with regards to State Capture.
Z4.3	The contract award is made without prejudice to any rights the <i>Employer</i> may have to take appropriate action later with regard to:	Blacklisting by any State Entity on the National Treasury database.
Z5	Protection of Personal Information Act	



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Z5.1	The <i>Employer</i> and the <i>Consultant</i> are required to process information obtained for the duration of the Contract in a manner that is aligned to the Protection of Personal Information Act.
Z6	Time
Z6.1	<i>Clause 33.2. is added as an additional clause.</i> The <i>Employer</i> may at any time suspend part or all of the <i>services</i>. As a consequence, if the <i>Consultant</i> is required to demobilise and then remobilise its staff and equipment, the <i>Consultant</i> will be reimbursed at cost. The <i>Consultant</i> will be required to reduce and mitigate all its costs during the period of suspension and will be entitled to compensation only to the extent that it can demonstrate it has incurred costs which were not capable of being mitigated.
Z7	Compensation Events
Z7.1	Clause 61.4: The first bullet point is amended to read as follows: arises from the fault, error, negligence or default of the <i>Consultant</i> .
Z8	Limitation of liability
Z8.1	Add to core clause 82.1 and X18 For the avoidance of doubt the parties expressly agree that the total liability of the <i>Consultant</i> to the <i>Employer</i> applies jointly and severally across all organisations comprising of the <i>Consultant</i>.
Z9	Additional clauses relating to cession of rights
Z9.1	The <i>Consultant</i> shall not cede any rights under this contract without the approval of the <i>Employer</i> .
Z9.2	The <i>Employer</i> may on written notice to the <i>Consultant</i> cede and assign its rights and obligations under this contract to any of its subsidiaries or any of its present divisions or operations which may be converted into separate legal entities as a result of the restructuring of the <i>Employer</i> .
Z10	Additional clauses relating to interpretation of the law
Z10.1	Add to core clause 12.3 Any extension, concession, waiver or relaxation of any action by the Parties, the <i>Employers' Agent</i> or <i>Adjudicator</i> does not constitute a waiver of rights and does not give rise to an Estoppel or Lien, unless the Parties agree otherwise and confirm such an agreement in writing.



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Z11 ***Employer's Step in rights***

Z11.1	If the <i>Consultant</i> defaults by failing to comply with his obligations and fails to remedy such default within 2 weeks of the notification of the default by the <i>Employer's Agent</i>, the <i>Employer</i>, without prejudice to his other rights, powers and remedies under the contract, may remedy the default either himself or procure a third party (including any <i>sub-consultant</i> or supplier of the <i>Consultant</i>) to do so on his behalf. The reasonable costs of such remedial works shall be borne by the <i>Consultant</i>.
Z11.2	The <i>Consultant</i> co-operates with the <i>Employer</i> and facilitates and permits the use of all required information, materials and other matter (including but not limited to documents and all other drawings, CAD materials, data, software, models, plans, designs, programs, diagrams, evaluations, materials, specifications, schedules, reports, calculations, manuals or other documents or recorded information (electronic or otherwise) which have been or are at any time prepared by or on behalf of the <i>Consultant</i> under the contract or otherwise for and/or in connection with any subsequent <i>works</i>) and generally does all things required by the <i>Employers' Agent</i> to achieve this end.



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C1.2 Contract Data

Part two - Data provided by the *Consultant*

The tendering consultant is advised to read both the NEC3 Professional Services Contract (April 2013) and the relevant parts of its Guidance Notes (PSC3-GN) in order to understand the implications of this Data which the tenderer is required to complete. An example of the completed Data is provided on pages 151 to 159 of the PSC3 Guidance Notes.

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

Clause	Statement	Data
10.1	The <i>Consultant</i> is (Name): Address Tel No. Fax No.	
22.1	The <i>Consultant's</i> key persons are: 1 Name: Job: Responsibilities: Qualifications: Experience: 2 Name: Job: Responsibilities: Qualifications: Experience:	
Info.		CV's (and further <i>key persons</i> data including CVs) are appended to Tender Schedule entitled.....
11.2(3)	The <i>completion date</i> for the whole of the services is	
11.2(10)	The following matters will be included in the Risk Register	
11.2(13)	The <i>staff rates</i> are:	name/designation rate



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25.2	The <i>Employer</i> provides access to the following persons, places and things	access to	access date
		1	Port of Cape Town
		2	
		3	
31.1	The programme identified in the Contract Data is		
50.3	The <i>expenses</i> stated by the <i>Consultant</i> are	item	amount
A Priced contract with pricing schedule			
11.2(14)	The <i>pricing schedule</i> is in		
11.2(18)	The tendered total of the Prices is		(in figures)
			(in words), excluding VAT
G Term contract			
11.2(25)	The <i>task schedule</i> is in		



Part C2: Pricing Data

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PART 2: PRICING DATA

Document reference	Title	No of pages
C2.1	Pricing instructions: Option G	4
C2.2	Pricing Schedule	8
	Total number of pages	12



C2.1 Pricing instruction: Option G

C2.1 Pricing assumptions: Option G

C2.1.1 Pricing Instructions

- 1) The *Consultant* shall be paid under NEC PSC Option G for *services* performed. The scope Review, Detailed Engineering Design and Feasibility Study Task order will be activity based.

2)

Identified and defined terms

11.

11.2

(17) The Price for *Services* Provided to Date is, for each Task, the total of

- The Time Charge for work which has been completed on time-based items on the Task Schedule and
- A proportion of the lump sum price for each other item on the Task Schedule which is the proportion of work completed on that item.

(20) The Prices are:

- The Time Charge for items described as time based on the Task Schedule and
- The lump sum price in the Task Schedule for each other item.

(21) A Task is work within the *services* which the *Employer* may instruct the *Consultant* to carry out within a stated period of time.

(22) Task Completion is when the *Consultant* has done all the work which the Task Order requires him to do by the Task Completion Date, and corrected Defects which would have prevented the *Employer* or Others from using the *services* and Others from doing their work.

(23) Task Completion Date is the date for completion stated in the Task Order unless later changed in accordance with this contract.

(24) A Task Order is the *Employer's* instruction to carry out a Task.

(25) The Task Schedule is the task schedule unless later changed in accordance with this contract.

- 3) Any Defined Costs, such as fieldwork done by sub-consultants, sub-contractors will be dealt with in terms of the applicable NEC clauses.
- 4) The staff hourly rates are the prices charged for staff and shall include for all the costs to the *Consultant*, including basic salary, any additional payments or benefits and social costs, overhead charges incurred as part of normal business operations including the cost of management, as well as payments to administrative, clerical, and secretarial staff used to support professional and technical staff in general.
- 5) The total annual cost of employment of a person is the total amount borne by the *Consultant* in respect of the employment of such a person per year, calculated at the amounts applicable to such a person at the time when the *services* are rendered, including basic salary, or a nominal market related salary, fringe benefits not reflected in the basic salary, including normal annual bonus; *Employer's* contribution to medical aid; group life insurance premiums borne by the *Consultant*; the *Consultant's* contribution to a pension or provident fund; and all other benefits or allowances payable in terms of a letter of appointment, including any transportation allowance or company vehicle benefits, telephone and / or computer allowances, etc; and amounts payable in terms of an Act. All benefits and any other costs borne by the *Consultant* shall be carried by the *Consultant* and included for in the hourly rate. Costs that are not defined shall be included in the rate and Transnet SOC shall not cover newly introduced costs other than the rates and defined items within this document.
- 6) OFF-SITE hourly rates (Part C.2.2) for salaried staff include: "Work Site Facilities and Equipment" including all PPE (As per PPE policy) etc., workstations and IT items.
- 7) ON-SITE hourly rates (Part C.2.2) for salaried staff include: all items identified above however where a consultant is required to establish works on-site, Transnet SOC shall cover the costs of "Work Site Facilities and Equipment"; items as set out but not limited to that set out in Part 3 The Scope of this document. PPE, and IT workstations and network costs (if any) for staff permanently deployed to site shall still be covered by the *Consultant* and recovered as disbursements.
- 8) Staff rates are based on a 40-hour working week and include all burdens included in 3 above and that staff total cost to company rates are amortised within the 45-hour week over a 12-month period.



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- 9) Approved overtime rates are to be at a rate exclusive of all burdens detailed in item 3 above.
- 10) The staff rates derived from the Pricing Schedule exclude value added tax.
- 11) Staff Rates quoted must be categorised in line with each of the built environment disciplines.
 - a. The Engineering Council of South Africa ECSA scale of categories of Rates, (A, B, C or D)
 - b. SACQSP
 - c. SACCMPPMP
 - d. Or where not defined by a statutory body or registered industry body the definition of the work function and qualifications and experience required shall be approved by the *Employer's* Agent before any work commences.
- 12) The cost of a director or member providing strategic guidance in planning and executing a task order completed by a staff resource shall be covered as an overhead deemed to be included in the staff resource's hourly rate.

C2.1.2 Expenses

Expenses shall be as follows:

- 1) Travel expenses may only be claimed in respect of the cost of transportation of the *Consultant's* staff from their usual place of business to the jobsite and return from the jobsite to *Consultant's* usual place of business. Travel will be reimbursed at the rate included in this contract.
- 2) All air travel and accommodation need to be pre-approved by the *Employer's* Agent in writing if it is not specifically included in an approved task order. The *Employer* will cover the costs of pre-approved air travel and accommodation at cost as well as the hourly rate for the clerical staff administering the procurement of these *services* and their reimbursement from this contract.
- 3) All air travel shall be in accordance with the Transnet Travel Policy and be billed as a disbursement.
- 4) All persons defined in the price list (C2.2) are classified as non-executive and shall travel economy class for domestic flights.



5) Accommodation means a

- a) bed and breakfast.
- b) guest house.
- c) self-catering; or
- d) hotel having a star rating of 1, 2 or 3.

As defined by the Tourism Grading Council of South Africa (see www.tourismgrading.co.za).

Note: A lodge, country house or 4 star or higher star rated hotel is not accommodation. Any stay in such a facility cannot be claimed as an expense.

6) The cost of breakfast will be deemed to be included in the accommodation cost and must be procured by the *Consultant* accordingly.

7) A hired car means a motor vehicle having an engine capacity of not more than 1600cc.

Note: A hired car having an engine capacity greater than 1600cc is not a hired car and cannot be claimed as an expense.

C2.1.3 Project bonds and permits

- 1) Any bonds, permits and/or special licences which the *Employer* formally requests the *Consultant* to obtain shall be reimbursed at cost.

C2.1.4 Audits and Monitoring

- 1) Business between the *Consultant* and *Employer* is conducted on an open book basis. The *Employer* is entitled to have external auditors inspect the books of the *Consultant* in so far as they pertain to the execution of the projects and has the rights to have its external auditors audit any invoice submitted by the *Consultant* and any relevant information which may affect the amounts due to the *Consultant*.

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C2.2 Pricing Schedule

C2.2.1 Detailed Design Outer Caisson

Item No.	Description	Unit	Quantity	Rate	Total Amount
1	<u>TASK ORDER 1- TECHNICAL REVIEW</u>				
1.1	Review of current floating caisson gate design including:				
1.1.1	Site Investigation Report (Seating Groove, Capstan layout, Haulage Chamber structural assessment, Drive Mechanism, Power Supply and Caisson Drive System)	Sum	1		
2	<u>TASK ORDER 2- CONCEPTUAL DESIGN</u>				
2.1	General Arrangement drawing	Sum	1		
2.2	Order of Magnitude Cost and Schedule	Sum	1		
2.3	Expected design life including maintenance costs.	Sum	1		
2.4	Concept Design Report (Inclusive of Multi Criteria Analysis) and Basic Repair Methodology	Sum	1		



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	<u>TASK ORDER 3- DETAILED DESIGN</u>				
3.1	Detailed Design/ repair methodology of haulage chamber	Sum	1		
3.2	Detailed Design of floating caisson gate power and drive system	Sum	1		
3.3	Design Report	Sum	1		
3.4	Detailed Design Drawing Pack of (haulage and Caisson groove, Power, and drive system)	Sum	1		
3.5	Bill of Quantities	Sum	1		
3.6	Work Information Pack Execution	Sum	1		
4	<u>TASK ORDER 4- TENDER DOCUMENTATION</u>				
4.1	Technical Evaluation	Sum	1		
4.2	Part C3: Works information	Sum	1		
4.3	Part C2: Pricing Data	Sum	1		
4.4	Part C4: Site Information	Sum	1		
4.5	Bill of Quantities and Basis of estimates	Sum	1		
4.6	Project Schedule and Basis of Schedule Report	Sum	1		

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5	<u>TASK ORDER 5- PLP DOCUMENTATION FOR GATE- REVIEW APPROVAL</u>				
5.1	Business Case	Sum	1		
5.2	Specification documents:				
5.2.1	Design specifications	Sum	1		
5.2.2	Functional specifications	Sum	1		
5.2	Operational readiness	Sum	1		
5.3	Project Execution Plan	Sum	1		
5.4	Quality Project plan	Sum	1		
5.5	Construction drawings	Sum	1		
5.6	Feasibility Study Report	Sum	1		
	Sub Total of the Prices Item 1.1 – 5.6				
6	<u>DISBURSEMENTS</u>				
6.1	Disbursements (Site Meetings, Site Visits etc.) 15% of the overall cost	Sum	1		
6.2	Provision of Health and Safety file				
	Sub Total of the Prices Item 6.1 – 6.2				
	Total of the Prices Excluding VAT to be carried forward to collection 2.2.1				

The consultant shall estimate rates forecasting 2 years to construction start. The Employer shall reserve the right to appoint the consultant for Construction Supervision, which coincides appointment of the main contractor.

C2.2.2 Pricing Schedule – Construction Supervision

No.	Category All Disciplines	Basis of <i>staff rate</i> , excluding VAT (Rate per hour in Rand)	Category	Estimated Hours	Total Cost
1	Project Manager (Professional)		C	1086	
2	Construction Manager (Professional)		C	720	
3	Health & Safety Agent (Professional)		C	720	
4	Naval Architect (Professional)		C	680	
5	Civil/Structural Engineer(Professional)		C	2903	
6	Mechanical Engineer (Professional)		C	1086	
7	Electrical & Controls and Instrumentation Engineer (Professional)		C	543	
8	Draughts person		C	30	
9	Quantity Surveyor (Professional)			869	
10	Cost Engineer			217	

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No.	Category All Disciplines	Basis of <i>staff rate</i> , excluding VAT (Rate per hour in Rand)	Category	Estimated Hours	Total Cost
11	Planners / Schedulers			407	
12	Contracts Manager			120	
Subtotal Item 1 -12					
13	<u>DISBURSEMENTS</u>				
13.1	Disbursements (Site Meetings, Site Visits etc.) 15% of the overall cost				
Subtotal Item 13					
Total of the Price to be carried to Collection 2.2.2					

COLLECTION	
Total Brought forward from C.2.2.1	
Total Brought forward from C.2.2.2	
Total excluding VAT – carried forward to Form of Offer	



Part C3: Scope of Work



PART C3: SCOPE

Document reference	Title	No of pages
C3.1	This cover page	1
	Scope	5
Total number of pages		18

C3.1 Scope

1 Description of the services

1.1 Executive overview

The Ship Repair Department within the Port of Cape town consist of three facilities, namely Sturrock and Robinson Dry docks, as well as a Syncrolift Facility. These facilities work in conjunction with one another in order to service the ship repair industry, and the requirements of vessels making use of the industrial services.

The 2 graving docks, Sturrock and Robinson Dry Docks (SDD and RDD), consists of a narrowed basin, which is attached to a larger basin or body of water and divided by means of a sluice gate. This narrowed basin can be flooded and dewatered on command, making allowance for vessels to be floated in and docked on a prepared bed when the basin is dewatered. This allows for vessel repairs to be conducted within a dry environment.

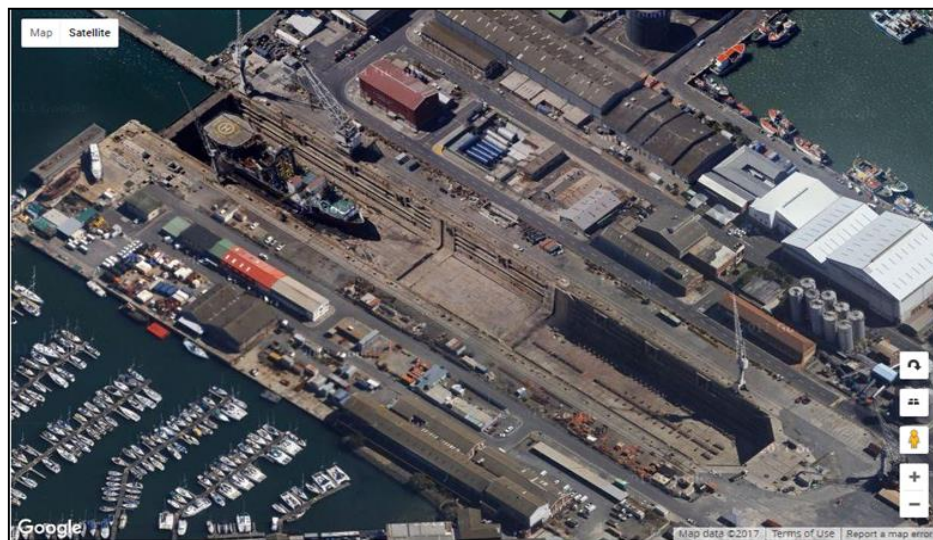


Figure 1. Overview of one of the graving docks, Sturrock Dry Dock

The graving dock is flooded and dewatered via a network of culverts, pumps and valves that are referred to as the flooding and dewatering systems respectively. The flooding system is conducted under the hydrostatic pressure on the head of water within the larger basin, and purely consists of culverts and valves, as well as auxiliary supportive equipment. The dewatering system includes a pumping system, which adds hydraulic pressure to overcome the pressure at the outlet of the culvert system. This allows for water within the partitioned dock to be displaced out of the dock and into the larger basin. The sluice gate, or caisson gate, allows for the partitioning of the 2 spaces to occur.

The equipment within these networks have been in operation since the establishment of the facilities (SDD est. 1945 & RDD est. 1882) and are long overdue for a replacement. These projects are in

process, and there is a much-needed requirement to appoint a contractor to conduct maintenance on an as and when require basis to ensure the continuity of the facility operations.

The services that the Consultant are to perform includes a phased approach to the design and implementation supervision of a new Sliding Caisson gate for the Sturrock Dry Dock facility. The Consultant is required to design a new caisson fit for use within the current physical battery limits, and compatible with the and fully functional given the operational requirements of the Sliding Caisson Gate.

1.2 Employers Objective

The *Employer's* current objective is to leverage of the expertise of a consultant with a naval architect, for the replacement of the Sliding Caisson Gate, its associated electrical infrastructure and civil works at the Sturrock Dry Dock. To achieve this objective the service provider will be required to conclude a detailed design for a new sliding caisson gate and its associated infrastructure.

On completion of the detailed design stage Transnet reserves the right to retain the service provider for construction supervision which consist of quality assurance, control and monitoring during the caisson fabrication of caisson gate, upgrading of power supply and associated civil infrastructure.

The following phased approach shall be adopted for the project, consisting of the following main scope items within their respective phases:

a) Phase 1 – Detailed Design Phase:

- Review of condition assessment reports to establish the failure modes and develop countermeasures to anticipated failure modes.
- Review of current sliding caisson gate design including interfacing infrastructure e.g. power delivery system and associated electrical infrastructure, drive train, motor/winch house, concrete sealing groove, haulage chamber etc. The service provider shall do a physical and desktop inspection.
- Repair methodology of sealing grooves.
- Establishing final concept requirements in conjunction with the Employer, ensuring technological enhancements and modern practices.
- Undertake all necessary surveys and tests of the existing infrastructure.
- Undertake all required HAZOP studies at each project stage.
- Development of concept designs including all drawings.
- Undertaking detailed design process based on approved concept.
- Developing PLP and tender documentation for the gate review process. Compile all documents required for provision of appointment of a construction contractor, including BOQs, plans and cost schedule, specifications, technical evaluation criteria, construction methodology and all deliverables required as per ECSA Stage 3 and 4.

b) Phase 2 – Execution Supervision:

- The *Employer* shall, using the service provider's design, acquire a fabrication contractor to undertake the fabrication, assembly and commissioning of the new caisson gate.
- Providing quality assurance and control during construction of sliding caisson gate, power.
- Provide resources as listed within section 1.4 for fabrication and construction oversight to ensure quality control, and adherence to the approved designs.
- Act as and represent the Employer, and the Employer's interest to ensure successful delivery of the Final Sliding Caisson.
- Ensure commissioning is conducted safely and successfully.
- Assume responsibility for the detailed design, design functionality and the overall system integrity of the fabricated caisson gate, power supply and associated civil works, perform quality assurance to check that designs and specification are adhered to.

The *Employer* shall issue task orders for each phase and for any additional work required.

1.3 Access to the Services

The appointed service provider shall be required to make available a competent and adequately qualified team, equipment, tools and material to undertake the detailed design and produce a feasibility study for the fabrication and commissioning of the gate.

The Contractor will be required to execute the works in accordance with the following SHE Requirements:

- ANNEXURE A: TNPA SHE Specifications
- ANNEXURE B: Baseline Risk Assessment Register
- ANNEXURE C: H&S Functional Execution Management Plan
- ANNEXURE D: Environmental Management Plan

Access to the Services Shall be granted to the appointed consultant upon award for the relevant phases as follows:

a) Phase 1 – Detailed Design Phase:

- The employer's representative/ Project manager shall provide the appointed consultant with the procedure to apply for access permits throughout the port.
- Any delays relating to the appointed consultant not fulfilling the requirements set out within the permit process shall not constitute as an Employer delay and shall be attributed to the Appointed consultant's costs and penalties.

- Access to the various facilities within the Sturrock Dry Dock facility is subject to availability due to the operations within the area. The caisson shall be available for inspection in operation only and shall not be fully accessible given the nature of the operation.
- The winch house and drive train operation can be viewed only during undocking/dockings; however, the equipment therein shall be available for inspection anytime as long as it is safe to do so.
- The sealing arrangement is only visible above the water line and would require a special docking if any detailed inspection below the waterline is required. This will require operational buy-in.

b) Phase 2 – Execution Supervision:

- In the event that the Employer wishes to retain the services of the Appointed Consultant, the process for apply for access permits shall apply again.
- The fabrication is intended to be conducted offsite at the facilities of an appointed contractor to conduct the execution scope, and access to that facility shall be granted by said appointed contractor.
- Any delays relating to the appointed consultant not fulfilling the requirements set out within the permit process shall not constitute as an Employer delay and shall be attributed to the Appointed consultant's costs and penalties.
- The fabrication facilities shall make allowance for and shall be within the scope of the Main contractor, office space for both the Appointed consultant and the employer's representative.
- The main contractor shall regulate safety within his own facility, with the Appointed consultant conducting Quality assurance, Design adherence, and overall supervision of the fabrication.
- The Main contractor, being liable for safety, shall be empowered to regulate any safety related matters within his facility. However, any works related to the Sliding caisson fabrications shall be supervised and observed by the Appointed consultant without any hindrance.

1.4 Provisions

1.4.1 The *Consultant* provides a fully resourced team to conduct the works as described above, including but not limited to the following resources:

a) Phase 1 – Detailed Design Phase:

Resources	Professional Registration	Estimated hours
Project Manager	PrCPM / PMP	Consultant determined
Mechanical Engineer	PrEng / PrTech	Consultant determined
Naval Architect	PrEng / PrTech / RINA	Consultant determined

Draughtsman		Consultant determined
Electrical Engineer	PrEng / PrTech	Consultant determined
Electronics Engineer (Control and Instrumentation)	PrEng / PrTech	
Civil/Structural Engineer	PrEng / PrTech	Consultant determined
SHE Officer		Consultant determined
CHS Agent	PrCHSO	Consultant determined
Project Planner		Consultant determined
Cost Engineer		Consultant determined
Quantity Surveyor	Pr QS	Consultant determined
Construction Manager	PrCPM / Pr CM	Consultant determined
Contracts Manager		Consultant determined
Quality Manager		Consultant determined

b) Phase 2 – Execution Supervision:

The baseline shall be for the pricing of this execution supervision works shall be conducted as follows:

- Pricing shall be given for the project scope execution to be conducted over 30 Months.
- Tender prices shall be given noting that execution shall only commence 24 months post the design completion date. Escalations must be incorporated accordingly.
- Tender pricing must include all the resources below,
- Hour estimations for the resources must account for adequate project supervision in both design and execution phases to ensure the project deliverables are met to the standards outlined by TNPA and Class.

Resources	Professional Registration	Estimated hours
Project Manager	PrCPM/PMP	Consultant determined
Mechanical Engineer	PrEng / PrTech	Consultant determined
Naval Architect	PrEng / PrTech/Rina	Consultant determined
Draughtsman		Consultant determined
Electrical Engineer	PrEng / PrTech	Consultant determined
Civil/Structural Engineer	PrEng / PrTech	Consultant determined
SHE Officer		Consultant determined
CHS Agent	PrCHSO	Consultant determined
Project Planner		Consultant determined
Cost Engineer		Consultant determined
Quantity Surveyor	Pr QS	Consultant determined
Construction Manager	PrCPM/PrCM	Consultant determined
Contracts Manager		Consultant determined

Authorised Authority	Inspection	Class certified	Consultant/Class determined
Quality Assurance Officer			Consultant Determined

1.5 List Of Abbreviations

The following abbreviations are used in this Works Information:

Table 1 List of abbreviations

Abbreviation	Meaning given to the abbreviation
AIA	Authorised Inspection Authority
BBBEE	Broad Based Black Economic Empowerment
CEMP	Construction Environmental Management Plan
CSHEO	<i>Contractor's</i> Safety, Health and Environmental Officer
CM	Construction Manager
DTI	Department of Trade and Industry
DWG	Drawings
EO	Environmental Officer
HSSP	Health and Safety Surveillance Plan
OHSA	Occupational Health and Safety Act
PLC	Programmable Logic Controller
PSPM	Project Safety Program Manager
PSSM	Project Site Safety Manager
ProgEM	Programme Environmental Manager
ProjEM	Project Environmental Manager
PIRPMP	Project Industrial Relations Policy and Management Plan
PIRP	Project Industrial Relations Plan
QA/QC	Quality Assurance / Quality Control
QCP	Quality Control Plan
R&D	Research and Development
SANS	South African National Standards
SAMSA	South African Maritime Safety Authority
SHE	Safety, Health and Environment
SHEC	Safety, Health and Environment Co-ordinator
SIP	Site Induction Programme
SMP	Safety Management Plan
TNPA	Transnet National Ports Authority

2 ENGINEERING AND DESIGN

The Employer has in its possession drawings for the current sliding caisson gate. These drawings will be made available to the appointed service provider for review. The professional service provider shall use the drawings as the bases of the design, noting the infrastructural interfaces and battery limits when designing the new Sliding Caisson Gate.

Table 2. List of Drawings (Existing)

Drawing number	Description

2.1 Consultant's Design

2.1.1 The *Consultant's* design for the services is to design a new sliding caisson gate for the SDD facility, accounting for but not limited to:

- 2.1.1.1 Design of the entire superstructure of the caisson gate, inclusive of all structural steel members, and outer platework
- 2.1.1.2 Design of the ballasting system, inclusive of permanent ballast, water ballast tanks, and the automations and operations of ballasting
- 2.1.1.3 Design, calculations and verifications of the buoyancy and stability calculations relating to the caisson operations and maintenance removals.
- 2.1.1.4 Design of the entire bilge network, inclusive of all valves, pumps and culverts to ensure the smooth operation of the caisson gate
- 2.1.1.5 Design of the mechanical drivetrain, inclusive of the drives, winches, gearboxes and transmission, power transmission system, automation and controls
- 2.1.1.6 Design of the sealing arrangement, inclusive of the remedial methodology for the concrete sealing faces.
- 2.1.1.7 Design of the associated electrical infrastructure, inclusive of power delivery and transmission systems, drive systems and motor startup methodology.
- 2.1.1.8 Design of the electrical control and instrumentation for operation and monitoring of the sliding caisson
- 2.1.1.9 Draughting of the operational methodology pertaining to the design, and design of any related and associated equipment to the functional operation of the caisson gate.

2.2 Parts of the Services and works which the *Consultant* is to design.

The new Sliding caisson gate is envisaged to be of a newer, more advanced technology based on current standards. The design deliverables are:

- 2.2.1 The *Consultant* is to conduct a technical review of the infrastructural limitations and design the following parts of the services:
- 2.2.1.1 Review of the physical restrictions of the Seating Groove and haulage chamber: The new caisson gate shall be operable within the dimensional limits of the current concrete groove. The new caisson design should also account for the dimensional restrictions within the haulage chamber.
 - 2.2.1.2 Review of the operational restrictions of the Capstan layout: The new caisson gate shall be operable using existing capstans layout for maintenance works.
 - 2.2.1.3 Review of the operational methodology: The new caisson gate shall serve the same function as it's predecessor, with operational improvements and modifications made to ensure more practical and smoother operation of the new caisson gate.
 - 2.2.1.4 Review of the existing housing of the electrical infrastructure and equipment supplying the sliding caisson with power.
 - 2.2.1.5 Review of the operational restrictions of the Capstan layout: The new caisson gate shall be operable using existing capstans layout for maintenance works.
- 2.2.2 The *Consultant* is to conduct multiple Conceptual designs noting all the findings arising from the technical review and recommendations made by the Employer's stakeholders. Hereafter, the consultant shall conduct an optioneering analysis for all the designs tabled. Each conceptual design shall include at a minimum:
- 2.2.2.1 General Arrangement drawings
 - 2.2.2.2 Order of magnitude cost, construction schedule and life cycle cost
 - 2.2.2.3 Anticipated Design life maintenance costs
 - 2.2.2.4 Basic operational methodologies for the various options, detailing operational efforts and times, infrastructural interfaces and improvements implemented in design.
- 2.2.3 The *Consultant* is required to further detail the design that proves most feasible as a result of the optioneering analysis conducted. The design must be complete and include AFC (As for Construction) drawings, with sufficient detail for a 3rd party to quote and fabricate on. The deliverables on the detail design scope shall include at a minimum:
- 2.2.3.1 General Arrangement drawings
 - 2.2.3.2 100% Detailed design of Sliding caisson
 - 2.2.3.3 100% detailed drawings, with BOM and dimensions and assemblies of the detailed design
 - 2.2.3.4 3D designs and models, with a general assembly showing the interface with the Dry Dock infrastructure.
 - 2.2.3.5** Finite Element Analysis of all structural members, bodies and the entire design to prove functionality and soundness of design
 - 2.2.3.6 SHE Specifications
 - 2.2.3.7 Engineering Design report with all supporting calculations (Stability, Ballasting, etc.).
 - 2.2.3.8 Design specifications
 - 2.2.3.9 Equipment list
 - 2.2.3.10 P&ID drawings (for all valves, controlled valves, pumps and all controlled elements etc.)
 - 2.2.3.11 HAZOP study
 - 2.2.3.12 Associated Electrical Infrastructure detailed design with loading calculations.
 - 2.2.3.13 Detailed design of electrical drives and startup technology for operations

- 2.2.3.14 PLC System design (for all valves, controlled valves, pumps and all controlled elements etc.)
 - 2.2.3.15 SCADA design
 - 2.2.3.16 Operating and maintenance philosophy
 - 2.2.3.17 Construction plan, with timelines
 - 2.2.3.18 Indicative BOQ and basis of estimate
 - 2.2.3.19 Cost estimates for construction with detailed basis of estimate
 - 2.2.3.20 Quality management specifications
 - 2.2.3.21 Feasibility report (report will include the Design bases, life cycle costs and all of the above to be included on the report).
 - 2.2.3.22 Anticipated Design life maintenance costs
 - 2.2.3.23 Basic operational methodologies for the various options, detailing operational efforts and times, infrastructural interfaces and improvements implemented in design.
- 2.2.4 The *Consultant* is required to develop and prepare the PLP documentation required for the Transnet procurement process and the advertisement, which includes but is not limited to:
- 2.2.4.1 Technical evaluation
 - 2.2.4.2 Part C3: Works information
 - 2.2.4.3 Part C2: Pricing data
 - 2.2.4.4 Part C4: Site information
 - 2.2.4.5 Bill of Quantities and Basis of estimates
 - 2.2.4.6 Project schedule and basis of schedule report
 - 2.2.4.7 Operational Readiness plan
 - 2.2.4.8 Business Case
 - 2.2.4.9 Risk Management Plan and Risk Register
 - 2.2.4.10 Functional Specifications and Design Specifications
 - 2.2.4.11 AFC Drawings
 - 2.2.4.12 Quality management Plan

Table 3 Design Deliverables

<u>Item</u>	<u>Discipline</u>	<u>Deliverable</u>
Design Report	Naval Architecture	• Hull-form Design Calculations • Performance Predictions • Sea-keeping and Manoeuvring Analysis • Model Testing • Weight Engineering & Stability Analysis • Other Statutory Calculations
	Structural:	• General Arrangement Drawings • Finite element analysis calculations and report • Groove and Haulage chamber repair methodology • Approved for construction drawings

<u>Item</u>	<u>Discipline</u>	<u>Deliverable</u>
	Mechanical	- General Arrangement drawings - Equipment specifications and data sheets
	Electrical, Control and Instrumentation (EC&I)	- Substation General arrangement drawings - Electrical single line drawings - Electrical equipment specifications and data sheets - Control wiring diagrams - Instrumentation specification and data sheets - PLC Program - I/O list
Drawing Pack	Structural:	- General Arrangement drawings - AFC shop detail drawings
	Mechanical	- General Arrangement drawings - System Layout Drawings - P&ID drawings
	Electrical, Control and Instrumentation (EC&I)	- Electrical single line drawings - Control wiring diagrams
Bills of Quantities	Structural:	- Steel BOQ's - Groove and civil works
	Mechanical	Equipment List with specifications and data sheets
	Electrical, Control and Instrumentation (EC&I)	- Electrical equipment list - Cable schedule - Instrument list
Works Information Pack Execution	All Disciplines	- Complete works information and pricing data for the procurement of Fabrication contractor. - The works information shall comply with the requirements of NEC3.

Feasibility Study

- a) The service provider shall undertake feasibility study for the fabrication and commissioning of the new sliding caisson gate. The study shall be conducted to suit the Transnet project Lifecycle Process (PLP) with a minimum of the following chapters:

Table 4. Feasibility Report Chapters

<u>Item</u>	<u>Chapter</u>	<u>Deliverable</u>
Feasibility Report	Feasibility Report	Summary of the feasibility report to be used for executive presentations.
	Scope	- Complete scope description of the project to fabricate and commission the new caisson gate. - Battery Limits - Assumptions - Exclusions
	Engineering	Complete Engineering report summarizing the work undertaken in 2.2.2

<u>Item</u>	<u>Chapter</u>	<u>Deliverable</u>
	Project Execution Plan	• Sourcing and Procurement Plan • Fabrication Methodology • Traffic Management Plan for transportation of completed caisson gate • Commissioning Management Plan • SHE Management Plan • Quality Management Plan
	Project Cost Estimate	• Complete Project cost estimate with an accuracy level of -5%+10%. • The cost estimate shall be read in conjunction with the schedule estimate below.
	Schedule Estimate	• Complete Project schedule estimate with an accuracy level of -5%+10%. • The schedule estimate shall be read in conjunction with the cost estimate and project execution plans above.
	Risk Management Plan	• Risk workshop that includes all stakeholders • Detailed Design risk report • Risk register outlining treatment of all identified risks • HAZOP studies

- b) All documentation shall be compiled and developed in the Transnet template to be provided to the appointed contractor.

2.3 Procedure for the Submission and Acceptance of *Consultant's* Design

2.3.1 The *Consultant* shall adhere to the following procedures:

- All communications shall include TNPA's Document Controller assigned to this project
- The *Consultant* shall have at a minimum:
 - 2 engagement sessions for the purposes of technical review with the Project stakeholders, which will be identified by the Employer's Project Manager
 - 1 Engagement session with the entire operational team to incorporate their concerns into the design where possible.
 - 3 engagement sessions for the purposes of discussing the conceptual Designs with the Project stakeholders, which will be identified by the Employer's Project Manager. These sessions must be fruitful and engaging, noting all the comments and recommendations made by the operational teams.
- The *Consultant* shall, at the end of each of the design phases, send through a formal report to the Employer's representative and copy in Document control. The *Consultant* shall afford the project team from TNPA 2 week for the review of documents, and where signatures are required an additional week for comments and signatures.
- During these times, the *Consultant* must be available for clarifications.

2.3.2 The *Consultant* undertakes design safety as per standard, and best practice codes of Engineering.

2.4 Review and Acceptance of *Consultant's* Design

The *Consultant* submits documentation as the Scope Deliverables to the *Employer's Agent* for review and acceptance.

The *Consultant* shall, at the end of each of the design phases, send through a formal report to the Employer's representative and copy in Document control. The *Consultant* shall afford the project team from TNPA 2 week for the review of documents, and where signatures are required an additional week for comments and signatures.

During these times, the *Consultant* must be available for clarifications.

2.5 Other Requirements of the *Consultant's* Design

The *Consultant's* design must conform to standardized specifications and the *Consultant* must submit these specifications to the *Employer's Agent*.

3 Construction / Execution Phase

The *Consultant* shall be contracted in a phased approach, in which the *Consultant* may be retained to provide supervisory services for the Employer to ensure Quality control and assurance and ensure the design specification are met.

3.1 Supervision Scope of works

3.1.1 The *Consultant's* scope shall include, but is not limited to:

- Project and Construction management services, inclusive of project close out.
- Review and approval of fabricator's Quality manual, including Quality control plans (QCPs) and procedures.
- Review and approval of fabricator's welding procedures, specifications and personnel.
- Review and approval of fabricator's paint specifications, surface preparation, application procedure.
- Review and approval of deviations or modifications from the approved designs.
- Review and approval of any scopes of works finalised within the execution phase, such as concrete remedial repair methodology, etc.
- Responding of technical queries during the period of the execution works.
- Compiling and reviewing all quality related documents, including material certificates, weld test reports, NDT reports, and paint thickness testing, etc.
- Allow for Quality monitoring and inspections during fabrication, installation, testing and commissioning.

- Provide third party, by means of a class approved / certified Authorised independent authority to conduct inspections to ensure class adherence.
- Provide H&S oversight during on site construction works, and where else applicable.
- Preparation and compilation of Operation and maintenance (O&M) manuals and provide the necessary training for the new equipment.
- Prepare and produce monthly compliance reports on progress of works for submission and approval, inclusive of cost control, project schedules and SHEQ report.

Table 5 Description of Construction Supervision

Item	Description	Deliverable
Project and Construction Management	Allow for the monitoring of project during execution and closing out.	•
Design Clarification	Allow for closing of technical queries during execution.	• Provide a suitably qualified team of engineering professionals to close off any queries during execution. • As a minimum the team shall include: -Naval Architect -Mechanical Engineer -Electrical, Control and Instrumentation Engineer -Structural Engineer
Quality Monitoring	Allow for Quality Monitoring and inspection during fabrication, installation and testing stage	• Provide a suitably qualified team of quality assurance and control (QA/QC) professionals to undertake regular inspection of the works during: -Fabrication -Assembly, and -Commissioning
Project Controls	Prepare and produce monthly compliance reports on progress of works for submission and approval	• Provide a suitably qualified team of project control services professionals to prepare and submit regular compliance and progress reports with regards to: -Cost Control -Schedule
HSE Monitoring	Prepare and produce monthly compliance reports on progress of HSE statistics for submission and approval	• Provide a suitably qualified team of SHE professionals to prepare and submit SHE regulatory requirements inclusive of permits. • Approve Safety files • Conduct construction monitoring and conducting of compliance audits.

3.1.2 The *Consultant's* supervision project team (with the necessary qualifications or skills as listed in table ## above) shall include, but is not limited to:

- Project Manager
- Mechanical Engineer
- Naval Architect
- Naval Draughtsman
- Electrical Engineer

- Civil/Structural Engineer
- SHE Officer
- HS Agent
- Project Planner
- Cost Engineer
- Quantity Surveyor
- Construction Manager
- Contracts Manager
- Authorised Inspection Authority

3.2 Temporary services, Site services & Construction constraints

3.2.1 Design team, site entry and security control, permits, and Site regulations

The *Consultant* complies with the Employer's Site entry and security control, permits and Site regulations.

3.2.2 Restrictions to access on Site, roads, walkways and barricades:

- 3.2.2.1 The *Consultant* is specifically excluded from entering the Employer's Operational Areas which are adjacent to the Site and Working Areas. The *Consultant* plans and organises his work in such a manner so as to cause the least possible disruption to the Employer's operations.
- 3.2.2.2 The *Consultant* ensures safe passage of his team, to traffic and around the site working areas at all times which includes providing flagmen.
- 3.2.2.3 The *Consultant* ensures that any of his staff, labour and Equipment moving outside of his allocated Site and Working Areas does not obstruct the operations of the rail line. To this end, access routes are allocated and coordinated by the Employer's Agent.
- 3.2.2.4 The *Consultant* ensures that all his construction staff, labour, and Equipment remains within his allocated and fenced off construction area.
- 3.2.2.5 All *Consultant's* staff and labour working within Railway boundary complies with Transnet Freight Rail (TFR) operational safety requirements and are equipped with all necessary personnel protective equipment (PPE).

3.2.3 People restrictions on Site; hours of work, conduct and records:

The *Consultant* keeps daily records of his people engaged on the Site and Working Areas (including subconsultants) with access to such daily records available for inspection by the Employer's Agent at all reasonable times.

4 LIST OF REFERENCE DRAWING/SKETCH AND SUPPORTING DESIGN INFORMATION

The above stipulation is for information and reference purposes only.
Please refer to electronic references.

Drawing number	Revision	Title

5 Procurement

5.1 The *Consultant's* Invoices

5.1.1 The invoice states the following:

- Invoice addressed to Transnet Limited;
- Transnet Limited's VAT No: 4720103177;
- Invoice number;
- The *Consultant's* VAT Number; and

5.1.2 The invoice contains the supporting detail:

A bill format as per the tender document indicating previously paid, paid to date and amount due for the month.

The invoice is presented either by post or by hand delivery.

5.1.3 Invoices submitted by post are addressed to:

Finance Department
Corporate Services Building, Ground Floor
Transnet National Ports Authority (TNPA)
Port of Cape Town

5.1.4 Invoices submitted by hand are presented to:

Finance Department

Corporate Services Building, Ground Floor
Transnet National Ports Authority (TNPA)
Port of Cape Town

The invoice is presented as an original.

5.1.5 Payment, Invoicing and Cash flow:

The service provider shall invoice on a monthly basis in accordance to the project progress and against the agreed project schedule and cash flow. All invoices shall be submitted on or before the 20th of each month for payment after 30 days of acceptance. 5.1.4 Invoices submitted by hand are presented to:

6 Management Meetings

a) The consultant shall be deemed an integral part of the Employer's team during this phase of the project; as such, he shall attend all contract management meetings between the Employer and the fabrication contractor at the Project Manager's request at a specified venue. It is envisaged that the meetings will be scheduled as follows:

- o Kick off meeting at the start of the contract
- o Progress meetings will be held at least once every 2 weeks
- o The contractor will attend a close out meeting at the end of the contract.

c) At these meetings, the service provider will share all relevant information including early warnings of compensation events, quality plans, schedules, subcontractor management, and health, environmental, risk and safety issues.

6.1 Fabrication and Site Activities

a) The service provider shall make available suitable qualified resources to undertake quality monitoring and design clarifications both at the execution contractor's fabrication facilities and on site for the duration of the works.

6.2 Project Tracking and Reporting

a) The service provider shall make available a suitable qualified team of project control specialists to track and report to the Employer the progress of the project.

6.3 Services and other things provided by the Employer

a) The employer will provide the service provider with access permit to the Port for the duration of the contract.



Part C4: Site Information

PART C4: SITE INFORMATION

Document reference	Title	No of page
	This cover page	1
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C4.2	Annexures	12
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1. Project Site

1.1. Site Location

The Sturrock Dry Docks is situated on the South-Eastern end of the port of Cape Town, as shown in Figure 1 below.

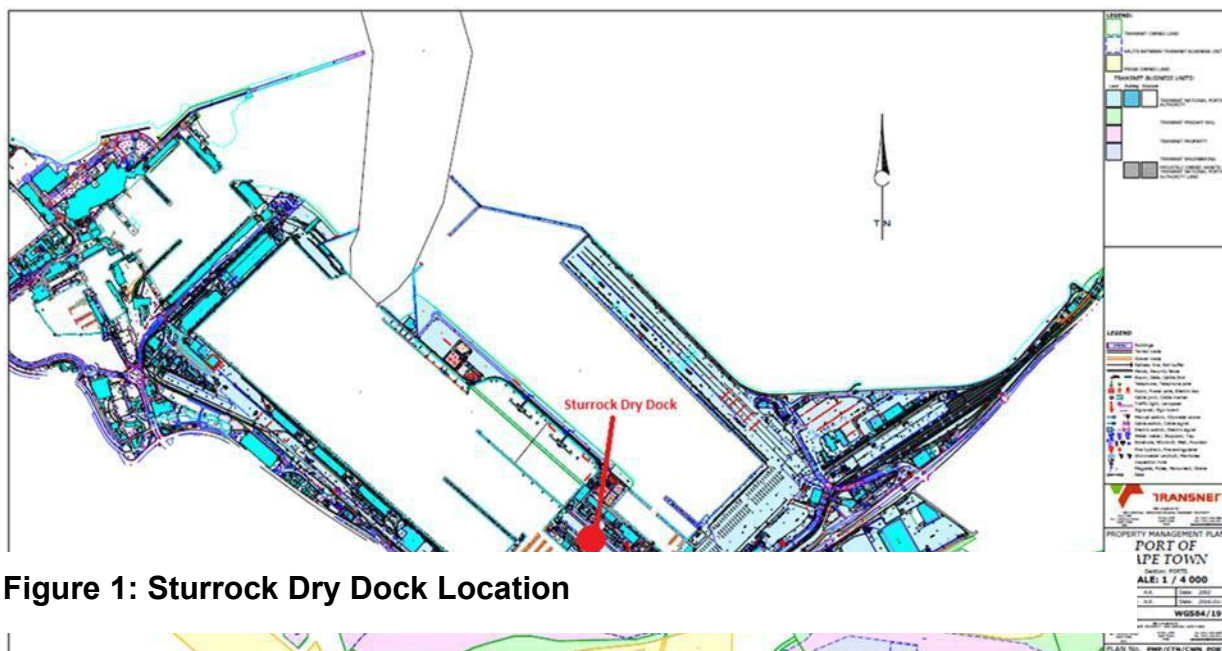


Figure 1: Sturrock Dry Dock Location

1.2. Battery Limits

The project falls within the Sturrock Dry Dock (SDD), with the design battery limit being the Sturrock Dry Dock grooves and substation. The groove location and substation are shown in Figure 2.

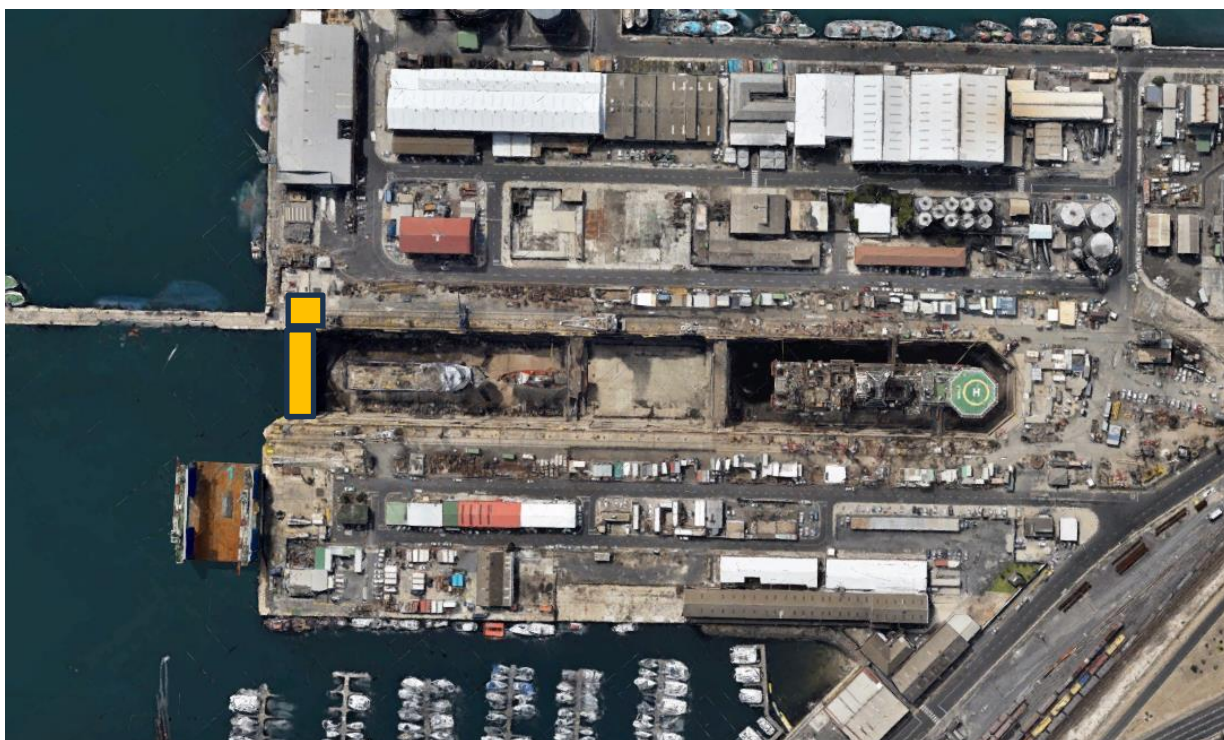


Figure 2: Plan View of Sliding Caisson and substation (with caisson drive train)

From the Civil perspective the new caisson shall fit in the existing infrastructure and haulage chamber Figure 3.

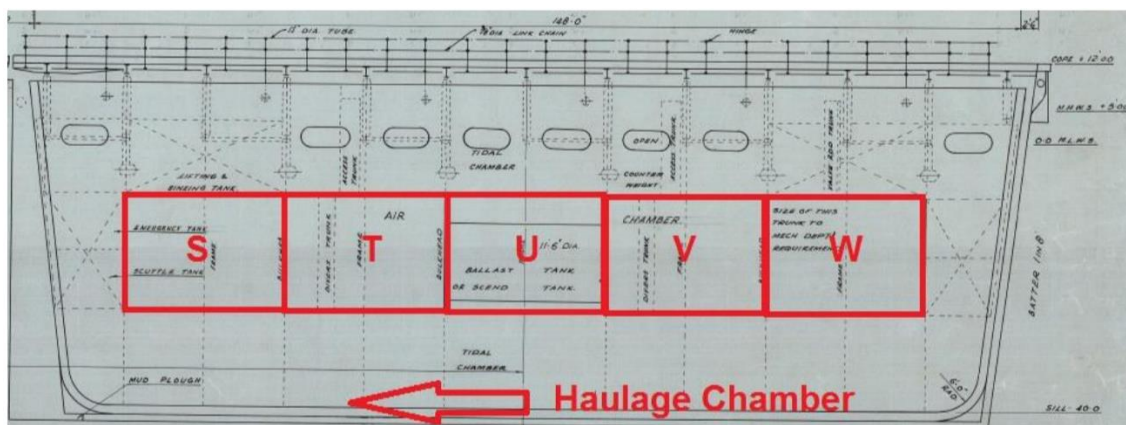


Figure 3: Existing Caisson Cross and Long Section of Caisson

The Contractor should provide a high-definition laser scan survey of the groove at the start of construction to confirm the dimensions of the groove and associated mechanical drive train.

2. Description of Existing Facilities

Sturrock Dry Dock, commissioned in the 1940's is a graving type dock that consists of a narrow mass concrete basin that is flooded to allow ships or other marine vessels to be floated in for repairs and maintenance. The basin is then sealed by means of floating and sliding caisson gates before being drained, using a system of pumps and culverts, to allow that load to come to rest on a dry platform.

The key specifications are shown in Table 1, Figure 4 and Figure 5.

Table 1: Sturrock Dry Dock Key Specifications

Dimension	Description	Measure
Length	Maximum Available Dock length	359m
	1st Alternative division into two	132m + 216m
	2nd Alternative division into two	205m + 143m
Width	At Cope Level	45m
	At Gutter level	37m
	Draft Over Sill	12m below LAT
Capacity	Maximum Volumetric Capacity	240 000m ³

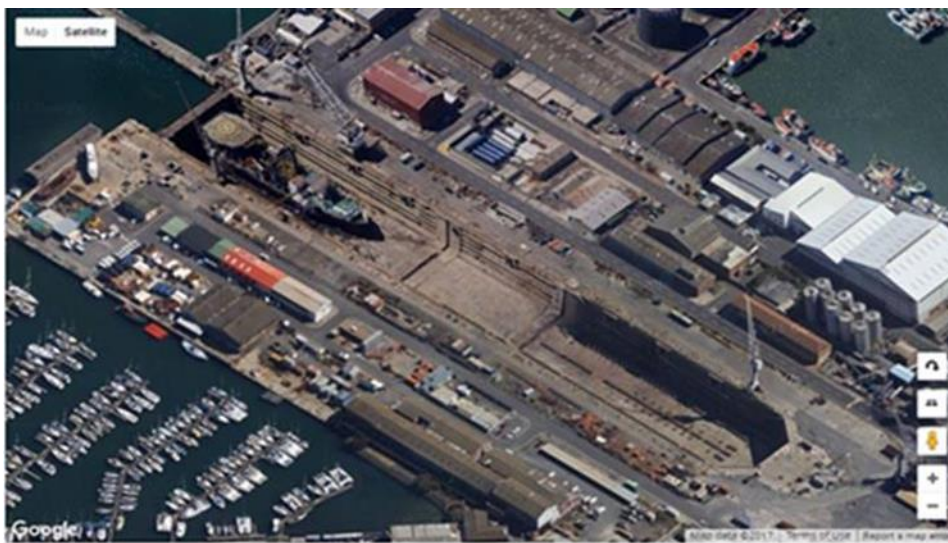


Figure 4: Overview of Sturrock Dry Dock



Figure 5: Sturrock Dry Dock Sliding Caisson Gates (in Dock)



Figure 6 Winch House (Caisson Drive Train)

2.1. Topographical Survey of Groove

A topographical survey was undertaken in December 2019 and the survey report is provided in Annexure A. The 2 gate grooves were filled with water and debris and therefore the groove floor could not be inspected. It was requested that the grooves be emptied prior to the site visit and topographical survey, but TNPA indicated that this was not possible at that stage due to the unavailability of a mobile pump. The inspection of the concrete surfaces was limited to a brief

visual inspection and a thorough condition assessment has not been undertaken. Figure 7 and Figure 8 illustrate the concrete deterioration and leaks at the dock gate grooves respectively.



Figure 7: Spalled Concrete and Repairs to Dock Gate Groove



Figure 8: Leaks at Dock Gate Grooves

3. Environmental Conditions

3.1. General

The following site conditions shall be taken into consideration in the design and selection of the plant and equipment:

Table 2: Site Conditions

Condition Description	Condition Value
Altitude above sea level	+4 m CD – thus, near mean sea level

Minimum Temperature	0°C
Average Temperature	18°C
Maximum Temperature	40°C
Average Relative Humidity	76%
Maximum Relative Humidity	80%
Corrosion Conditions	Severe
Lightning	Infrequent
Wind	Reaching very high speeds

The climate in the area entails high winter rainfall. Summers are generally hot to very hot and dry, with little rainfall, though some rainfall in summer months has occurred in the past. Mist is common during autumn months.

3.2. Water Levels

The tidal range for the Port of Cape Town is provided in Table 3.

Table 3: Port of Cape Town Tidal Range

Tide	m CD
HAT	2.02
MHWS	1.74
MSL	0.98
MLWS	0.25
LAT	0

3.3. Wind

Wind loading is not considered applicable to this structure as it functions as either a floating structure, which would react dynamically to wind load, or a semi-submerged structure where wind impact is negligible compared to other pressures. The Contractor should use WeatherSA and independent MetOcean services to confirm the design wind speeds for any temporary works design.

3.4. Waves

The following wave conditions will be considered during design:

- The static wave that is included in the design is 2.13 m tidal wave (up to coping height)
- The dynamic wave that would be reviewed for loading is 0.5 m wind generated wave which is assumed to be a maximum wave height likely at the Sturrock Dry Dock entrance position. This is considered to have a negligible impact upon the floating gate side panels as larger ocean-based waves are allowed for in the naval architecture design rules, but the uplift force of a trapped wave would be assessed for the static gate when fixed in the groove.

Since the sliding caisson is designed as a non-self-propelled vessel, designers must take cognisance of operability and manoeuvrability.

3.5. Working Hours

Normal working hours at the Port of Cape Town are from 08:00 to 16:30, Monday to Friday, Inclusive.

3.6. Access Permit Controls

There is a card access system to enter the Port Area. The Port Staff will arrange the required access permits and issue them to the *contractor* free of charge. Should any person lose his/her access permit these will be replaced at a cost of R 360-00 per person, to be paid by the service provider. This will also apply if permits are not returned at the end of the project completion.

Access to, and possession of, the Site will be granted for the purpose of executing the specified Works. The *Contractor* shall be aware that the dry docks is in permanent use and that Transnet staff and other *contractor* working at the dry dock.

3.7. Health and Safety

Transnet National Ports Authority has a strict health and safety policy in place. No persons may enter the site and undertake work on the site until undergoing the mandatory induction. The induction will be arranged by the Port staff at no cost to the *Contractor*.

3.8. People Restrictions on Site; Hours of Work, Conduct and Records

The *Contractor* shall advise the Project Manager of his intended working hours at the Contract Kick-off Meeting. The *Contractor* shall notify the Project Manager of any changes in his working hours.

The *Contractor* shall give 48 hours advance notification to the Project Manager on all occasions when he intends to operate extended working hours on a single shift or when he intends to institute shift working with two or more shifts.

The Project Manager's office hours are 08h00 to 17h00 Monday to Fridays. The offices are closed on Saturdays, Sundays and Public Holidays.

The *Contractor* shall record the hours of work for each day to demonstrate that the regulations are not being contravened. The *Contractor* shall keep daily records of his people engaged on the Site and Working Areas (including Sub-Contractors) with access to such daily records available for inspection by the Project Manager at all reasonable times.

The *Contractor* shall submit a Daily Activity Report to the Supervisor for acceptance no later than 10h00 on the next working day. The format of the Daily Activity Report is to be agreed at the start of the project with the Supervisor. The *Contractor* is free to propose his own template, provided that the information given complies with the Supervisor's requirements.

3.9. Employer's Site Entry and Security Control, Permits, and Site Regulations

No identity cards will be issued until the *Contractor* has been appointed and the contract has been registered with Transnet.

Identity cards are issued by Transnet National Ports Authority (TNPA) Port of Cape Town, during normal working hours on weekdays only.

The following items must be furnished with each application for an identity card:

- A letter on the Contractor's company letter head stating the applicant's full names, ID number, reason for requesting the ID card, area in TNPA that he/she will be working, a summary of the work to be done and the start and end date of the contract;

- A letter of confirmation on a TNPA letterhead signed by the TNPA Manager overseeing the contract with the Contractor / contracting company;
- A letter signed by the TNPA Security Manager (or delegated person) after perusing the above documentation, confirming the request for an ID card.
- A completed application form (available from TNPA Customer Services); and
- Positive identification of the applicant (green bar-coded RSA ID, new smart ID document or driver's license).

Temporary Access Permits, valid on the day of issue only, are obtainable from the TNPA Permit Office. The following items must be furnished with each application for a Temporary Access Permit:

- A letter on the *Contractor's* company letter head stating the applicant's full names, ID number, and reason for requesting the ID card and area in TNPA that he/she will be working;
- A letter of confirmation on a TNPA letterhead signed by the TNPA Manager overseeing the contract with the *Contractor* / contracting company;
- Positive identification of the applicant (green bar-coded RSA ID or drivers license or new smart ID document or driver's license); and
- Identification document copies shall be original copies certified (by SAPS) ID copies.

Drugs, firearms and alcohol are prohibited at all times and may not be carried or used within the confines of the Port. All personnel entering the Port are subject to breathalyser tests. Only those persons whose test result is negative will be allowed to pass the entrance gate. Breathalyser tests are also conducted at other control points within the Port boundary.

3.10. Permit to Work (TNPA)

In addition to statutory requirements, the *Contractor* must be in possession of a Permit to Work (PTW), as issued by TNPA, before commencing any activities on Site.

Permits will be issued and cleared on conditions as below:

- Safety File vetted and approved by TNPA Risk Specialist; and
- TNPA Safety Inductions completed.

Permit Requirements:

- Method Statement (each Task Scope of work) aligned to PTW;
- Risk Assessment (each Task Risk Assessment) aligned to PTW;
- Lock-Out Systems are in place;
- Comply with confined space procedures;
- Contingencies as required;
- All work to be screened and authorized before PTW Issued;
- Additional precautions by Hot work Inspector;
- Permit validity is for 5 days maximum for general hot work; and
- PTW Completion – sign off.

3.11. Port Rules 154 Hot Work Permit Requirements

Project Safety officer to define specific areas deemed as confined spaces and those not.

A hot work permit costs R500 and is valid for 5 days;

-
- Continuous gas monitoring for release of vapour or gas;
 - The fire watch to standby 30 minutes after the completion of hot work for the day to ensure that all hot spots are eliminated or extinguished;
 - Fire extinguishers and a charged water line to be placed at strategic points and to be in a state of readiness;
 - Ensure that all ignition sources feeds/ supply (generators; gas cylinders) are kept and stored outside the perimeters of the hazard zone;
 - Work is only to commence once the appropriate permit and RA has been completed and signed off. NO PERMIT- NO WORK;
 - All power supply cables and power cords are to be in a good working condition and inspection registers are kept and maintained;
 - Only a valid fire extinguisher is to be kept within a close proximity of the assigned task;
 - All cocoons to be constructed in such a way as to ensure 100% spark containment and has positive ventilation;
 - Inspection cocoon checklists to be signed by Supervisor. (Check prevailing wind);
 - All cocoon fire blankets are to be hosed down periodically and be kept damp as well as the ground surface area around the cocoon;
 - All potential hazards and controls are to be communicated to all the employees;
 - The foreman and the competent safety watcher are to be in attendance ensuring compliance throughout all hot work activities;
 - Ensure that there is compliance to TNPA safe working distance from the berth/ ships edge (30 metres);
 - Ensure the use of mandatory PPE requirements;
 - All work will be stopped when inclement weather has a direct impact on health and safety;
 - All work must stop immediately when emergency evacuation alarm is sounded – evacuate the area to assembly point; and
 - Emergency Evacuation Procedures to displayed and communicated to all personnel.

Please note: The above precautions are not limited and additional precautions or requirements may be mandatory, subjected to the Risk Assessment of the task/activities.

Annexures

Health and Safety Specification:
Replacement of Sturrock Dry Dock Outer Caisson Gate
for
Port of Cape Town

Doc. No: XCT.E.0042-HAS-SP-0001

SIGNATORIES:

Prepared by:  _____ 03/10/2024
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Accepted by:  _____ 07/10/2024
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Project Manager Date

00	03/10/2024	Issued for approval
Rev No	Date	Revision Details

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1. Purpose

This health and safety specification identifies and outlines the working behaviours and safe work practices that are expected of the contractors, consultant, visitors and suppliers, that will be undertaking activities associated with the Port of Cape Town- **Replacement of Sturrock Dry Dock Outer Caisson Gate Project**.

The specification has been developed in accordance with the requirements of the Occupational Health and Safety Act and its Regulations, mainly Construction Regulation 5(1)(b) as well as any other applicable legislation.

The Principal Contractor must comply with this Client's health and safety specification and related legislation and address it in their site-specific health and safety plan. It is the principal contractor's responsibility to ensure that all sub-contractors comply fully with all legal requirements as well as the requirements of this specification.

This Health & Safety Specification 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.

2. Scope

The requirements specified in this Health and Safety Specification are applicable to the Principal Contractor as well as any contractors, suppliers, Consultants, Vendors and Visitors that may be appointed by or on behalf of Transnet as an Employer at the Port of Cape Town- **Replacement of Sturrock Dry Dock Outer Caisson Gate Project**. It is the Principal Contractor's responsibility to ensure that all contractors and suppliers fully comply with all legal requirements as well as the requirements of this health and safety specification.

The Scope of Work for this Contract includes the following:

The extent of the works planned entails replacement of SDD Outer Caisson Gate.

The *Consultant's* scope shall include, but is not limited to:

- Review and approval of fabricator's Quality manual, including Quality control plans (QCPs) and procedures.
- Review and approval of fabricator's welding procedures, specifications and personnel.
- Review and approval of fabricator's paint specifications, surface preparation, application procedure.
- Review and approval of deviations or modifications from the approved designs.
- Review and approval of any scopes of works finalised within the execution phase, such as concrete remedial repair methodology, etc.
- Responding of technical queries during the period of the execution works.
- Compiling and reviewing all quality related documents, including material certificates, weld test reports, NDT reports, and paint thickness testing, etc.
- Allow for Quality monitoring and inspections during fabrication, installation, testing and commissioning.

- Provide third party, by means of a class approved / certified Authorised independent authority to conduct inspections to ensure class adherence.
- Provide H&S oversight during on site construction works, and where else applicable.
- Preparation and compilation of Operation and maintenance (O&M) manuals and provide the necessary training for the new equipment.
- Prepare and produce monthly compliance reports on progress of works for submission and approval, inclusive of cost control, project schedules and SHE report.

3. Definitions

Acceptable Risk

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

ALARP (As Low As Reasonably Practicable)

The concept of weighing a risk against the sacrifice needed to implement the measures necessary to avoid the risk. With respect to health and safety, it is assumed that the measures should be implemented unless it can be shown that the sacrifice is grossly disproportionate to the benefit.

Applicant (Permit to Work)

A person requesting permission to perform work for which a Permit to Work is required. Applicants must be authorised (in writing) to receive (or accept) Permits to Work and must be competent to do so by virtue of their training, experience and knowledge of the area or plant in which the work is to be performed.

Authorised Person (Permit to Work)

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

Barricade

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

Battering

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

Benching

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

Consequence

The outcome of an event expressed qualitatively or quantitatively.

Contractor

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

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

Competent Person

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

Construction Supervisor

A competent person responsible for supervising construction activities on a construction site

Clearance Certificate

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

Discipline Lock (many locks with a restricted number of identical keys)

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

Equipment Lock (many locks with one unique key)

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

Excavation

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

First-Aid Injury (FA)

A first-aid injury is any one time treatment and any follow up visit for observation of minor scratches, cuts, burns, splinters and the like which do not normally require medical care. Such treatment is considered to be first aid even if administered or supervised by a medical practitioner. First aid includes any hands on treatment given by a first aider. (E.g. Band-Aid, washing, cleansing, pain, relief). The following procedures are generally considered first aid treatment:

- Application of Antiseptics.
- Application of Butterfly adhesive dressing or sterile strips for cuts and lacerations.
- Administration of tetanus shot(s) or booster(s). However, these shots are often given in conjunction with more serious injuries, consequently injuries requiring these shots may be recordable for other reasons.
- Application of bandages during any visit to medical personnel.
- Application of ointments to abrasions to prevent drying or cracking.
- Inhalation of toxic or corrosive gas, limited to the removal of the employee to fresh air or the one time administration of oxygen for several minutes.
- Negative X-Ray diagnosis.
- Removal of foreign bodies not embedded in the eye if only irrigation is required.
- Removal of foreign bodies from a wound if procedure is uncomplicated, for example by tweezers or other simple technique.
- Treatment for first degree burns.
- Use of non-prescription medications and administration of single dose of prescription medication on first visit for any minor injury or discomfort.

Hazard

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

Hierarchy of Controls

A sequence of control measures, arranged in order of decreasing effectiveness, used to eliminate or minimise exposure to workplace health and safety hazards:

- Elimination – Completely removing a hazard or risk scenario from the workplace.
- Substitution – Replacing an activity, process or substance with a less hazardous alternative.

- Isolation (Engineering) Controls – Isolating a hazard from persons through the provision of mechanical aids, barriers, machine guarding, interlocks, extraction, ventilation or insulation.
- Administrative Controls – Establishing appropriate policies, procedures and work practices to reduce the exposure of persons to a hazard. This may include the provision of specific training and supervision.
- Personal Protective Equipment – Providing suitable and properly maintained PPE to cover and protect persons from a hazard (i.e. Prevent contact with the hazard).

Isolation and Lockout Procedure

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

Isolation Bar

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

Isolation Officer

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

Incident

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

Likelihood

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

Lost Time Injury (LTI)

Any occurrence that resulted in a permanent disability or time lost from work of one day/shift or more.

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

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

Light Vehicle

A vehicle that:

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

Examples of light vehicles include passenger cars, four-wheel drive vehicles, sports utility vehicles (SUVs), pick-ups, minibuses, and light trucks.

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

Medical Treatment Injury (MTI)

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

The following procedures are generally considered medical treatment:

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

Mobile Equipment

A vehicle (wheeled or tracked) that generally requires:

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

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

Near Hit

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

Personal Lock

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

Regulation

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.

Risk Assessment

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

Risk Management

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

4. Abbreviations

DSTI - Daily Safety Task Instruction

CR – Construction Regulations

EPC - Engineering Procurement and Construction

EPCM - Engineering Procurement and Construction Management

HIRA - Hazard Identification and Risk Assessment

HEALTH AND SAFETY - Integrated Management System

MS - Management System

OHS Act - Occupational Health and Safety Act

SOC - Safety Observation and Conversation

VFL - Visible Felt Leadership

OHS - Occupational Health and Safety

SHS Management Plan

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

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

- A copy of the contractor's **Health and Safety Policy**; in terms of the OHS Act section 7
- Procedures concerning **Hazard Identification and Risk Assessment**, including both Baseline and Task-Based Risk Assessments;
- Arrangements concerning the identification of applicable **Legal and Other Requirements**, measures to ensure compliance with these requirements, and measures to ensure that this information is accessible to relevant personnel;
- Details concerning **Health and Safety Objectives** – a process must be in place for setting objectives (and developing associated action plans) to drive continual improvement;
- Details concerning **Resources, Accountabilities and Responsibilities** – this includes the assignment of specific health and safety responsibilities to individuals in accordance with legal or project requirements, including the appointment of a Project Manager, Health and Safety Officers, Supervisors, Health and Safety Representatives, and First Aiders;
- Details concerning **Competence, Training and Awareness** – a system must be in place to ensure that each employee is suitably trained and competent, and procedures must be in place for identifying training needs and providing the necessary training;
- **Communication, Participation and Consultation** arrangements concerning health and safety, including Safety Observations and Coaching, Toolbox Talks, Daily Safe Task Instructions, project health and safety meetings, and notice boards;

- **Documentation and Document Control** – project-specific documentation required for the effective management of health and safety on the project must be developed and maintained, and processes must be in place for the control of these documents;
- Processes and procedures for maintaining **Operational Control**, including rules and requirements (typically contained in Safe Work Procedures) for effectively managing health and safety risks, particularly critical risks associated with working at heights, confined spaces, mobile equipment and light vehicles, lifting operations, hazardous chemical substances, etc.;
- **Emergency Preparedness and Response** procedures;
- **Management of Change** – a process must be in place to ensure that health and safety risks are considered before changes are implemented;
- **Sub-contractor Alignment** procedures – a process must be in place for the assessment of sub-contractors and suppliers with regard to health and safety requirements and performance (before any contract or purchase order is awarded);
- **Measuring and Monitoring** plans, including a plan for the measuring and monitoring of employee exposure to hazardous substances or agents (e.g. Noise, dust, etc.) In order to determine the effectiveness of control measures;
- **Incident Reporting and Investigation** procedures describing the protocols to be followed with regard to incident reporting, recording, investigation and analysis;
- **Non-conformance and Action Management** procedures concerning the management of corrective actions;
- **Performance Assessment and Auditing** procedures concerning health and safety performance reporting, monthly internal audits to assess compliance with the project health and safety requirements, and daily site health and safety inspections; and
- Details concerning the **Management Review** process followed to assess the effectiveness of health and safety management efforts.

Prior to mobilisation, the Health and Safety Management Plan must be forwarded electronically, and as a hard copy, to the nominated project management representative for review. The plan will be audited for completeness and, if found to be adequate, will be accepted (typically “with comments”). Work may not commence until the plan has been accepted.

Once the plan has been accepted, the contractor must action and resolve any issues within 30 days from the start of work.

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

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

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

5. Policy

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

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

The policy must commit to:

- Compliance with all applicable legal requirements in the TNPA Legal Register

- The effective management of health and safety risks;
- The establishment of measurable objectives for improving performance, and the provision of the necessary resources to meet these objectives;
- The prevention of incidents; and
- Achieving continual improvement with regard to health and safety performance.

All employees of the contractor as well as the employees of any sub-contractors that may be appointed by the contractor must be made aware of the policy. This must be done through Health and Safety Induction Training and Toolbox Talks (refer to Sections 11 and 12).

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

6. 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 16);
- All employees, sub-contractors, suppliers and visitors; and
- All infrastructure, equipment and materials.

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

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

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

6.1 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 7.2), Hazard (Energy) Types must be specified in accordance with the categorisation detailed in Table 6-1. Risk scenarios must be described indicating the manner in which a person may come into contact with, or be exposed to, a specific hazard.

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

Ratings must be assigned qualitatively using TNPA consequence and likelihood scales and descriptors (i.e. TNPA 5x5 qualitative risk matrix). Refer to Annexure 1 Baseline Risk Assessment.

Table 6-1: Hazard (Energy) Types

Gravitational									
Falling or Rolling Object		Person Falling from Height		Slip, Trip or Fall (Same Level)		Collapsing Structure		Collapsing, Flowing Substance	Slumping Material or
Mechanical									
Moving Component of Fixed Machinery		Moving Component of Powered Tool	Projectile		Moving Hand Tool	Sharp Object		Moving Mobile Equipment or Light Vehicle	Moving Person or Object (Mechanically or Manually)
Elastic									
Object under Tension or Compression					Compressed Fluid (Gas or Liquid)				
Acoustic									
Noise									
Vibrational									
Hand / Arm Vibration					Whole Body Vibration				
Electrical									
Electricity					Electro-Magnetic Field				
Radiation									
Ionising Radiation					Non-Ionising Radiation				
Illumination									
Lighting									
Thermal									
Heat					Cold				
Fire									
Fire									
Explosion									
Explosion									
Particulates and Aerosols									
Dust		Fibres		Fume		Spray		Mist	Smoke
Chemical									
Corrosive Substance	Irritant	Asphyxiate	Narcotic Anaesthetic /	Poison	Allergen Sensitizer /	Carcinogen	Teratogen Mutagen /	Venom	
Microbiological									
Virus		Bacterium			Parasite			Fungus	
Weather									
Lightning		High Wind			Flooding			Hail	
Physiological									

Stress		Fatigue	
Ergonomic			
Exertion	Repetitive Movement	Awkward Posture	Awkward Movement

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 11 and 12).

6.2 Task-Based Risk Assessments

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

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

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

A Task-Based Risk Assessment must at least:

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

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

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

6.3 Pre-Task Hazard Assessments

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

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

7. 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.

8. 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".

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

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

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

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

9. Resources, Accountabilities and Responsibilities

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

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

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

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

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

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

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

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

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

Visible commitment is essential to providing and maintaining a safe workplace. The contractor's managers and supervisors at all levels must demonstrate their commitment and support by adopting a risk management approach to all health and safety issues. These individuals must consistently take immediate and firm action to address violations of health and safety rules, and must actively participate in day to day activities with the objective of preventing harm.

The contractor's management representatives are responsible and accountable for health and safety performance on the project. Key responsibilities include the following:

- Preparing, implementing and maintaining a risk-based Health and Safety Management Plan specific to the work that will be carried out (refer to Section 5);
- 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 7);
- Providing the resources necessary to meet the requirements of this specification (refer to Section 10);
- 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 10);
- Establishing, implementing and maintaining a system for ongoing training and assessment of skills and competence (refer to Section 11);

- 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 11);
- Establishing, implementing and maintaining effective communication and consultative processes concerning health and safety for the duration of the contract (refer to Section 12);
- Maintaining operational control for the protection of all persons on the project site(s) as well as the public (refer to Section 14);
- Establishing, implementing and maintaining effective emergency preparedness and response procedures (refer to Section 15);
- Establishing, implementing and maintaining effective management of change processes and procedures (refer to Section 16);
- Establishing, implementing and maintaining effective incident reporting and investigation processes and procedures (refer to Section 19);
- Establishing, implementing and maintaining effective auditing and inspection processes and procedures (refer to Section 21); 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 22).

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.

9.1 Project Manager

The Contractor must appoint a full-time competent Project Manager with the duty of managing construction work on a single site ensuring health and safety compliance.

Training and Competences:

- Diploma or equivalent and registered with the relevant registration body.
- Legal Liability
- Hazard Identification and Risk Assessment (HIRA).

The contractor's Project Manager shall be responsible for:

- Ensuring that a Health and Safety Policy that clearly states the contractor's values and objectives for the effective management of health and safety on the project is in place and is communicated to all contractor and sub-contractor employees;
- Ensuring that all applicable legal and project health and safety requirements are identified and complied with at all times;
- Ensuring that effective hazard identification and risk management processes are established and implemented for all work to be carried out by the contractor;
- Participating in the Baseline Risk Assessment for the contractor's scope of work (prior to site establishment);
- Participating in (and approving) all Task-Based Risk Assessments conducted for the work to be carried out by the contractor;
- Driving the achievement of agreed health and safety objectives;
- Ensuring that the necessary resources are made available for the effective implementation of the contractor's Health and Safety Management Plan;
- Ensuring that all work is adequately and competently supervised;

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

Participating in an annual review of the contractor's Health and Safety Management System.

9.2 Health and Safety Officers

The contractor must appoint a full-time Health and Safety Officer for the duration of the contract who is professional registered with the relevant body. The project site(s) (directly or through sub-contractors), must at least appoint one 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 shift and must remain on site until all activities for that day (including the activities of sub-contractors) have been completed. A Health and Safety Officer must be present during all shifts, so if work is carried

out over more than one shift per day, the contractor must make provision for an additional Health and Safety Officer.

Each Contractor Health and Safety Officer shall be responsible for:

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

The contractor must ensure that each Health and Safety Officer is adequately equipped to enable him to perform his duties effectively. Each Health and Safety Officer must be provided with the following:

- A computer with access to all necessary systems, including access to e-mail and the internet;
- A mobile telephone on contract or with adequate pre-paid airtime; and
- A vehicle where required or instructed by a nominated project management representative (depending on the size and location of the project site(s)).

A Health and Safety Officer must 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 projects;
- SAMTRAC, NEBOSH or an equivalent training course with accredited health and safety service provider as a minimum qualification ;
- Experience and appropriate training with regard to implementing and maintaining a health and safety management system compliant with national legislation or an international standard;
- Experience and appropriate training with regard to construction related hazard identification and risk management processes;
- Competence, experience and relevant training with regard to incident investigation procedures and causation analysis;
- Health and safety auditing experience and training;
- A valid First Aid certificate of competency;
- Fire prevention and protection training; and
- A valid Driving Licence (light motor vehicle).

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.

9.3 Contractor Supervisors

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

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

Each Contractor Supervisor shall be responsible for:

- Ensuring that all work carried out under his supervision is done so in accordance with the requirements of all applicable legislation, rules, standards, specifications, plans and procedures;
- Participating in Baseline and Task-Based Risk Assessments;
- Ensuring that all employees under his supervision are made aware of the hazards, risk scenarios and control measures identified in relevant risk assessments;
- Ensuring that the control measures stipulated in all relevant risk assessments are in place and are implemented fully for all work carried out under his supervision;
- Ensuring that all employees under his supervision conduct pre-task hazard assessments when necessary;
- Driving the achievement of health and safety objectives set for his team;
- Ensuring that the necessary written appointments are in place for each employee under his supervision (e.g. First aider, mobile crane operator, etc.);
- Ensuring that all employees under his supervision attend all required training;
- Ensuring that no employee carries out any work that he is not competent to perform or has not been appointed to perform;
- Identifying training needs within his team;

- Carrying out Safety Observations and Coaching (one per day);
- Conducting a weekly Toolbox Talk with his team;
- Leading a Daily Safe Task Instruction discussion with his team;
- Attending Health and Safety Meetings as required;
- Maintaining a Health and Safety Management Information Notice Board in the work area for which he is responsible;
- Recording, on a daily basis, a description of the day's activities as well as a breakdown (by occupation) of the personnel on site under his supervision (e.g. 5 bricklayers, 2 carpenters, 3 welders, 22 general workers, and 1 supervisor);
- Ensuring that all Safe Work Procedures applicable to the work carried out under his supervision are adhered to and are fully implemented;
- Maintaining discipline and taking the necessary action whenever an employee under his supervision does not adhere to a rule or requirement;
- Carrying out Planned Task Observations (one per day);
- Ensuring that emergency response procedures are understood by all employees under his supervision and that these procedures are followed in the event of an emergency;
- Reporting all incidents immediately, participating in incident investigations, communicating the lessons learnt to all employees under his supervision, and implementing corrective actions where required; and
- Carrying out workplace health and safety inspections.

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

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

9.4 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.

9.5 First Aiders

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

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

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

9.6 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;
- Where changes are brought about to the design or construction work, make sufficient health and safety information and appropriate resources available to the principal contractor to execute the work safely; and
- Ensure that the health and safety file contemplated in CR regulation 7(1) (b) is kept and maintained by the Principal contractor.

Where a client requires additional work to be performed as a result of a design change or an error in Construction due to the actions of the client, the client must ensure that

sufficient safety information and appropriate additional resources are available to execute the required work safely.

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

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

Where a construction work permit is required as contemplated in CR 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.

Where 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.

9.7 Duties of Principal Contractor

As per the Construction regulations of 2014, regulation 7(1) – (8) a Principal Contractor and Contractor must

- Provide and demonstrate to the client a suitable, sufficiently documented and coherent site specific health and safety plan, based on the client's documented health and safety specifications contemplated in CR 5(1)(b), which plan must be applied from the date of commencement of and for the duration of the construction work and which must be reviewed and updated by the principal contractor as work progresses;
- Open and keep on site a health and safety file, which must include all documentation required in terms of the Act and these Regulations, which must be made available on request to an inspector, the client, the client's agent or a contractor; and
- On appointing any other contractor, in order to ensure compliance with the provisions of the Act-
- Provide contractors who are tendering to perform construction work for the principal contractor, with the relevant sections of the health and safety specifications contemplated in CR regulation 5(1)(b) pertaining to the construction work which has to be performed;

- Ensure that potential contractors submitting tenders have made sufficient provision for health and safety measures during the construction process;
- Ensure that no contractor is appointed to perform construction work unless the principal contractor is reasonably satisfied that the contractor that he or she intends to appoint, has the necessary competencies and resources to perform the construction work safely;
- Ensure prior to work commencing on the site that every contractor is registered and in good standing with the compensation fund or with a licensed compensation insurer as contemplated in the Compensation for Occupational Injuries and Diseases Act, 1993;
- Appoint each contractor in writing for the part of the project on the construction site
- Ensure that 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.

9.8 Duties of Contractor

A contractor must -

- Prior to performing any construction work provide and demonstrate to the principal contractor a suitable and sufficiently documented health and safety plan, based on the relevant sections of the client's health and safety specification) and provided by the principal contractor), which plan must be applied from the date of commencement of and for the duration of the construction work and which must be reviewed and updated by the contractor as work progresses;
- Open and keep on site a health and safety file, which must include all documentation required and must be made available on request to an inspector, the client, the client's agent or the principal contractor;
- Before appointing another contractor to perform construction work be reasonably satisfied that the contractor that he or she intends to appoint has the necessary competencies and resources to perform the construction work safely;
- Co-operate with the principal contractor as far as is necessary to enable each of them to comply with the provisions of the Act; and
- As far as is reasonably practicable, promptly provide the principal contractor with any information which might affect the health and safety of any person at work carrying out construction work on the site, any person who might be affected by the work of such a person at work, or which might justify a review of the health and safety plan.

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

A contractor must take reasonable steps to ensure co-operation between all contractors appointed by the principal contractor to enable each of those contractors to comply with these Regulations.

No contractor may allow or permit any employee or person to enter any site, unless that employee or person has undergone health and safety induction training pertaining to the hazards prevalent on the site at the time of entry.

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

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

A contractor must ensure that all his or her employees have a valid medical certificate of fitness specific to the construction work to be performed and issued by an occupational health practitioner in the form of Annexure 3.

9.9 Management and supervision of the project

A principal contractor must in writing appoint one full-time competent person as the project manager with the duty of managing all the construction work on a single site, including the duty of ensuring occupational health and safety compliance.

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

Where the project manager has not appointed assistant project managers as in the opinion of an inspector, a sufficient number of such assistant project managers have not been appointed, that inspector must direct the project manager in writing to appoint the number of assistant project managers indicated by the inspector,

No project 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 health and safety officer in writing to assist in the control of all health and safety related aspects on the site: Provided that, where the question arises as to whether a health and safety officer is necessary, the decision of an inspector is decisive.

No contractor may appoint a 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 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 project manager must in writing appoint 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 supervisor and every such employee has, to the extent clearly defined by the contractor in the letter of appointment, the same duties as the supervisor: Provided that the designation of any such employee does not relieve the supervisor of any personal accountability for failing in his or her supervisory duties in terms of this regulation.

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

9.10 Operational legal appointment letters

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

- OHSA Sec 16(2)
- Sec 17,18,19 SHE Representative
- GSR 3(4) First Aider
- GAR 9(2) Incident investigator
- GMR 2(1) Supervisor of machinery
- GMR 2(7) Assistant Supervisor of machinery
- CR 4(1)(c) Principal Contractor
- CR 8(1) Construction Manager
- CR 8(2) Assistant Construction Manager
- CR 8(7) Construction Supervisor
- CR 8(8) Assistant Supervisor of construction work
- CR 8(5) Construction Health and Safety Officer
- CR 9(1) Construction Risk Assessor
- CR 10(1)(a),(b) Fall protection plan Developer
- CR 10(2)(d) Inspector of fall arrest system
- CR 14(2) Scaffolding Supervisor
- DMR 17(2),18 Inspector of lifting machinery
- 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

10. Competence, Training and Awareness

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

The contractor must implement systems and procedures to ensure that:

- The necessary competencies required by employees are identified (by occupation), along with selection, placement and any training requirements;

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

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

Roles requiring technical certification, registration or licensing are identified and documented, and these roles are filled only by suitably qualified personnel;

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

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

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

- health and safety induction training pertaining to the hazards prevalent on the site at the time of entry
- training for all persons required to erect, move or dismantle temporary works structures and instruction to perform those operations safely
- training of employees working from a fall risk position
- training to work or to be suspended on a platform which includes at least:
 - how to access and egress the suspended platform safely;
 - how to correctly operate the controls and safety devices of the equipment;

- information on the dangers related to the misuse of safety devices; and
- information on the procedures to be followed in the case of-
 - 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.

10.1 Induction Training

Each employee must attend all mandatory Induction Training applicable to the project. No employee will be permitted to enter any project work site until he has attended this training. Each employee must carry proof that he has completed the induction training and may be removed from a site if such proof cannot be produced on request, this as required by the Construction regulations of 2014, regulation 7(5).

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

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

10.2 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
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)
Mobile Equipment Licence	All mobile equipment operators

Training requirements marked with an * must be arranged through accredited external training institutions by the contractor.

11. Communication, Participation and Consultation

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

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

11.1 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.

11.2 Daily Safe Task Instructions (DSTI's)

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

At the start of each day or shift, prior to the start of any work, each appointed supervisor must inspect the work area for which he is responsible and ensure that it is safe. He must then conduct a DSTI with his work team specifically concerning the tasks that they will be performing during the course of the day or shift. The relevant Task-Based Risk Assessment for the activity must be used as the basis for the discussion. The correct work method must be reiterated and the identified hazards, risks and control measures must be discussed with the team (each team member must be given the opportunity to contribute and participate in the discussion).

Any team member arriving late must first be taken through the information that was discussed (work method, hazards, risks and control measures) before being permitted to start working. If the work method changes after activities have already begun, the DSTI must be revisited and updated with the team, and the changes must be signed off by the relevant Contractor Health and Safety Officer.

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

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

11.3 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.

11.4 Meetings

12.4.1 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.

12.4.2 Site Meetings

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

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

The meeting will address the following as a minimum:

- Feedback from the contractor concerning health and safety performance for the period;
- New incidents for the period and corrective actions taken or to be taken;
- Implementation status of outstanding actions associated with previous incidents;
- SOC's, PTO's and DSTI's carried out for the period and action required to correct trends identified;
- Results of any audits, inspections or site visits carried out;
- A look ahead to ensure that appropriate health and safety planning and preparation

Is done for upcoming work;

- Risk Assessments, Safe Work Procedures, etc. That are outstanding or due for review (as well as the quality of these documents); and
- Any other health and safety related matter.

11.5 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.

11.6 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;
- Safety Data Sheets (SDS'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 21);
- 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.

11.7 Involvement (Other)

The participation of all contractor (and sub-contractor) employees in activities that promote improvements in health and safety performance must be encouraged. In particular, this must include their appropriate involvement in:

- Hazard identification, risk analysis and determining control measures;
- Incident investigation; and
- Reviewing policy and objectives.

All regulations, instructions, signage, etc. Must be communicated in a language understood by all employees.

Health and safety personnel must be actively involved in planning activities so that they have the opportunity to highlight hazards and risks associated with upcoming work well in advance to ensure sufficient time to arrange and / or implement the necessary control measures.

12. 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.

12.1 Contractor compliance File Requirements

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

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

- Letter of Good Standing from the Workman's Compensation Commissioner (where applicable) must have dol stamp;
- Proof of Public Liability Insurance;
- Scope of Work under the contract;
- List of Contacts and their Telephone Numbers;
- Health and Safety Policy;
- Health & Safety 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;
- 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.

13.2 Site Access Certificate

TNPA Project Manager shall issue site access certificate prior to commencement of construction work to all appointed contractors after the approval of the HSE File.

13. Notification of Construction Work

A contractor who intends to carry out any construction work other than work contemplated in CR regulation 4(1), must at least 7 days before that work is to be carried out notify the provincial director in writing in a form similar to Annexure 2 if the intended construction work will—

- include excavation work;
- include working at a height where there is risk of falling;
- include the demolition of a structure; or
- include the use of explosives to perform construction work.

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

14. 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.

14.1 Project-Specific HS Standards

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

Project-specific HS 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.

14.2 Safe Work Procedures

Procedures to be developed and maintained on site

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

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

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

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

14.3 Management Participation and involvement CR 8

14.4 Planned Task Observations

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

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

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

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

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

14.5 General Rules of Conduct

All persons are required to conform to the following rules of conduct while on the site.

The following acts are prohibited:

- Engaging in practical jokes, horseplay, scuffling, wrestling, fighting, or gambling;
- Assault, intimidation, or abuse of any person;
- Insubordination towards any supervisor or manager;
- Refusing to carry out a reasonable and lawful instruction concerning health and safety;
- Entry into any restricted area (including barricaded areas), unless authorised to do so by the responsible person;
- Unauthorised use / operation of any equipment or machinery;
- Negligently, carelessly or wilfully causing damage to any property;
- Destroying or tampering with safety devices, signs, or signals;
- The use of water from fire hydrants or hose reels for any purpose other than extinguishing a fire;
- The wilful and unnecessary discharging of fire extinguishers;

- Refusing to give evidence or deliberately making false statements during incident investigations;
- Bringing alcohol, drugs, or any other intoxicating substance onto site;
- Bringing a firearm, ammunition, or any other offensive weapon onto site;
- Bringing animals onto site;
- Running, except in an emergency;
- The use of an iPod (or similar) whilst working on site;
- Sleeping on the job;
- Building fires on site, unless in a suitably constructed barbecuing facility; and
- Pouring / pumping / flushing any substance (chemical / hydrocarbon / waste water) into a storm water drain, onto bare soil, or into any area where the substance is not effectively contained.

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

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

14.6 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.

14.6.2 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.

14.6.3 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.

14.6.4 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.

14.6.5 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.

14.6.6 Vehicles

All vehicles brought onto site must meet the safety requirements stipulated in Section 15.6.

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

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

The contractor must allow any vehicle that is brought onto site (including privately owned vehicles) to be searched at any time while on the premises, or when entering or leaving the premises.

The contractor is solely responsible for the safety and security of all vehicles (including private vehicles) that he brings onto the site.

All road-going vehicles used by the contractor on the site must be roadworthy and registered with the relevant traffic authority.

A vehicle will not be permitted to enter the site in an un-roadworthy condition. Access will be denied if, for example:

- The vehicle has a defective exhaust system;
- A serious oil or fuel leak is evident;
- The vehicle has unsafe bodywork or is carrying an unsafe load;
- The vehicle is fitted with extraneous or non-standard equipment;
- Passengers are not seated properly;
- The vehicle is not fitted with a seat belt for each occupant; or
- The vehicle has any obvious mechanical defect;
- Pre-inspection requirements are not met.

Overloaded vehicles will not be permitted to enter the site.

The driver / operator of any vehicle / mobile equipment must carry a copy of his appointment with him at all times. Each driver / operator must:

- Comply with all site / project rules and regulations pertaining to traffic and the safe operation of vehicles / mobile equipment;
- Obey all road signs;
- Obey all instructions given by security or emergency services personnel;
- Remain within the boundaries of the site; and
- Ensure that the vehicle that he is operating is never overloaded, and that loads are always properly secured.

In the interest of safety, only the minimum number of vehicles required by the contractor to complete the work under the contract will be permitted to enter the site.

When not in operation, the contractor's vehicles / mobile equipment must be parked within the boundaries of his lay-down area or yard.

Parking is only permitted in designated parking areas.

All cars are parked on site at the owner's risk.

In the event of a vehicle accident on site, the driver(s) must report the incident immediately and must remain at the scene until a nominated project management representative arrives, or until a nominated project management representative authorises him to leave (unless, of course, the driver requires medical attention).

14.7 Mobile Equipment and Light Vehicles

All Contractors must ensure all applicable legislation concerning mobile equipment and light vehicles are complied with at all times.

Each contractor must provide evidence to the nominated project management representative that all light vehicles and mobile equipment to be used on the project (including, but not limited to, lift and carry cranes (or mobi-lifts), mobile cranes, forklifts, mobile elevating work platforms (e.g. Cherry pickers), tractors, dozers, dump trucks, haul trucks, graders, excavators, loaders, back-actors, drill rigs, and road-going cars, light delivery vehicles, and trucks) comply with the requirements of all applicable legislation. This evidence must be provided prior to the equipment being brought onto the project site. The contractor remains responsible for meeting this requirement even if the equipment to be used is leased or provided by a sub-contractor (i.e. not owned directly by the contractor).

An Equipment Profile (dossier) must be compiled for each light vehicle and each item of mobile equipment to be used on the project site.

All mobile equipment and light vehicles (used for work purposes) must be subject to a risk assessment compiled. The assessment must:

- Involve operators and maintenance personnel who will use and work on the equipment; and
- Address all aspects of safe operation including handling, driver vision, brake failure, tyre blow out, and access and egress for operators and maintenance personnel.

Each light vehicle and each item of mobile equipment must be serviced and maintained as prescribed by the manufacturer of the vehicle or equipment.

No major repairs or services may be carried out on site.

No repairs may be carried out by a driver or operator. Only suitably qualified and competent persons may carry out repair work.

An appropriate pre-operation safety check based on a risk assessment must be carried out for each light vehicle or item of mobile equipment driven or operated for work purposes. For each vehicle or equipment type, an approved checklist must be in place (and must be used). The pre-operation check must include, but not be limited to, inspection and / or testing of the following safety critical features:

- Brakes (testing method must be provided);
- Wheels and tyres (including the spare);
- Lights and indicators;
- Steering;
- Seats and seat belts; and
- Windscreen and windows, including windscreen wipers and washers.

Should any critical feature be defective or damaged, the vehicle or equipment may not be operated until it has been fully repaired.

Supervisors must review the completed checklists on a daily basis to satisfy themselves that there are no major deficiencies that could place a driver or operator at risk.

No person may drive or operate any light vehicle or item of mobile equipment without authorisation.

All drivers and operators must be appointed in writing by the contractor's Project Manager.

No driver or operator may be appointed without proof that the individual has been trained, tested and found competent, or is currently licensed.

The appointment letter must specify the type of vehicle or equipment for which authorisation is being given and must clearly confirm that the driver or operator:

- Is 18 (eighteen) years of age or older;
- Has undergone a medical examination and has been declared fit for work by an occupational medical practitioner; and
- Has received suitable training and has been found competent, or is in possession of a valid driving licence issued by a state, provincial or civil authority that is applicable to the class of vehicle or equipment that is to be driven or operated.

The principal accountability for preventing accidents and incidents lies with the driver or operator of a light vehicle or item of mobile equipment, as he is in full control of any given situation at any given time. It must be stressed to each driver and each operator that safety is his prime responsibility – this must be clearly instructed and understood.

Drivers and operators must be empowered to stop driving or operating immediately should an unsafe condition arise, and refuse to drive or operate any light vehicle or item of mobile equipment that is defective and / or has any inoperative safety features. Similarly, a supervisor must never force a driver or operator to drive or operate a defective vehicle or item of equipment.

If a driver or operator does not adhere to the site rules and regulations, his appointment must be withdrawn and he must not be permitted to continue with his duties. If necessary, site access will be denied (either temporarily or permanently) to any driver or operator who is deemed to not be adhering to site requirements.

No person may drive or operate a light vehicle or item of mobile equipment if he suffers from a medical condition that places both him and those around him at risk of injury.

A fit-for-work policy must be in place, incorporating clearly defined maximum levels of drugs (including prescribed medication) and alcohol permitted in the system of a driver or operator.

Daily alcohol testing and random drug testing must be carried out.

Supervisors must regularly check on the physical condition of drivers and operators during the course of a shift.

A system must be in place to manage driver fatigue.

No eating or drinking is permitted while driving or operating a light vehicle or item of mobile equipment.

A mobile phone, whether hands-free or not, may only be used by the driver or operator of a light vehicle or item of mobile equipment when the vehicle or equipment is stationary and in a safe location.

Behaviour-based observations and coaching must include the operation of light vehicles and mobile equipment.

A site-specific traffic management plan must be compiled and submitted to the nominated project management representative for approval. The plan must include, but not be limited to, the following:

- Segregation of pedestrians, light vehicles, and mobile equipment where possible (using barriers where feasible);
- Systems to control the movement of mobile equipment in areas accessible to pedestrians, the movement of mobile equipment into and out of workshops, and pedestrian and light vehicle movement around mobile equipment;
- Setting of appropriate speed limits for vehicle types, road surfaces and environmental conditions;
- Installation and maintenance of road traffic control signs;
- Right-of-way rules (including overtaking restrictions);

- Overtaking protocols;
- Clear communication protocols for interactions between all vehicles and equipment;
- Procedures for light vehicles and / or mobile equipment entering hazardous or restricted areas;
- Standards for safe following distances based on operational circumstances, environmental conditions and near sight (blind spot) limitations of mobile equipment;
- The minimum safe distance to be maintained between light vehicles and mobile equipment (i.e. 50 metres unless positive contact is made);
- Designated parking areas for mobile equipment and light vehicles, including parking associated with maintenance areas;
- Parking procedures (e.g. Safe parking distances, safe parking locations, requirements for reverse parking, etc.);
- Systems to control approaching, refuelling, parking, boarding and disembarking mobile equipment (a driver or operator must exit the cabin and must disembark the vehicle or equipment entirely when his direct involvement with maintenance or servicing is not required);
- Guidelines for abnormal road conditions (e.g. Heavy rain, fog, or high winds) providing "go / no go" criteria and contact details for the person(s) responsible for making the "go / no go" decisions;
- Truck loading and unloading procedures to avoid material or objects falling from the vehicle;
- Guidelines for wide or abnormal loads including offsite transport; and
- Systems to control mobile equipment use in the vicinity of overhead power lines.

The design and layout of the road system (including entrance and exit points, intersections and other potential points of interaction between pedestrians, light vehicles and mobile equipment) must be reviewed periodically.

A risk assessment must be carried out prior to any changes being made to traffic movements or road systems.

Designated walkways (both indoors and outdoors) must be provided for pedestrians, and pedestrians must make use of these walkways. Good lighting must be provided along all walkways, particularly at road junctions. Wherever possible, rigid barricading must be used to separate pedestrians from moving light vehicles and / or mobile equipment.

No pedestrians are permitted on haul roads (or as far as this can reasonably be achieved in situations where a haul road runs through an area occupied by a local community). All personnel must be transported to site and must be dropped off at a designated area. Controls must be in place to ensure the safety of people working on roads, including those working on broken-down vehicles.

High visibility clothing must be worn by all persons at all times whilst on the project site. Speed limits and traffic rules must be reviewed regularly and must be rigorously enforced. Local traffic rules must be complied with at all times.

Pedestrians and cyclists must give way to light vehicles and / or mobile equipment except at pedestrian crossings.

All light vehicles and mobile equipment must give way to emergency vehicles. Pedestrians and light vehicle drivers must be made aware of the blind spots associated with mobile equipment.

The driver or operator of a light vehicle or item of mobile equipment must stop the vehicle or equipment and sound the horn before proceeding at blind corners, where his view of the path or intended path is obstructed, and when entering or leaving a building. Whenever a light vehicle or item of mobile equipment is stopped or parked, the handbrake (if applicable) must be applied.

Measures (such as chocking or the use of ditches or trenches) must be in place for the immobilisation of parked mobile equipment.

A parked light vehicle must be chocked in situations where the vehicle would roll forwards or backwards if placed in neutral with the handbrake disengaged.

No light vehicle or item of mobile equipment may be left unattended with the engine running or with a key in the ignition.

No light vehicle or item of mobile equipment may be parked so as to cause an obstruction to any roadway, passage or access way.

No light vehicle or item of mobile equipment may be parked within 50 metres of a loading or off-loading point.

Light vehicles and mobile equipment must be loaded safely. All loads must be secure and must be within the load limit of the vehicle or equipment. A load must be properly secured before the vehicle or equipment is set in motion. Adequate precautions must be taken for any overhanging load.

No unauthorised light vehicle or item of mobile equipment may enter a restricted area or building.

14.7.1 Light Vehicles

All Contractors must ensure that Light vehicles have the following minimum safety features:

- Fixed seats and suitable seat (safety) belts for all occupants (i.e. Driver and all passengers);
- Roll-over protection for all vehicles intended to be driven on dirt or steep roads;
- Cargo barriers and load restraints for all vehicles designed for carrying loads (other than passengers), or that are unable to have cargo separated from the occupant-carrying space of the vehicle; and
- An air bag on the driver's side, and where available as a manufacturer fitted item, a passenger's air bag;
- A Reverse Alarm.

All Contractors must ensure that Light vehicles that interact with mobile equipment are equipped or fitted with:

- Systems that enable positive communication with the equipment operators (e.g. A two-way radio);
- A high visibility flag (e.g. A whip flag or buggy whip);
- An amber flashing light (revolving or strobe);
- Reflective taping; and
- High visibility signage (i.e. Vehicle call numbers) facilitating easy and positive identification from a reasonable distance.

Note: Call number signs and reflective tape (magnetic or adhesive) must be applied to the front, back and sides of each vehicle.

All Contractors must ensure that Light vehicles carry:

- Emergency roadside triangles or beacons (three of either);

- Chock blocks for preventing uncontrolled movement of the vehicle when parked;
- A flashlight;
- A fire extinguisher (2.5kg DCP);
- A first aid kit; and

Survival or emergency equipment (e.g. a vehicle recovery kit) suitable for the operating environment.

A change management process must accompany all vehicle modifications, including the attachment of any equipment. Examples of changes or modifications include, but are not limited to, any change or modification:

- Made to the overall structure or design of the vehicle body;
- Made to the original manufacturer-fitted type of tyres or wheels;
- Made to the suspension system of the vehicle;
- Made to the mechanical system of the vehicle;
- That may adversely alter the centre of gravity of the vehicle;
- That alters the load carrying capacity of the vehicle; and
- That may affect the ability of the vehicle to withstand a crash (e.g. the fitment of a "bull bar").

Vehicle selection must be based on a risk assessment where consideration is given to the tasks, the application, the environment, roll-over protection and the rating of sturdiness in the event of a crash.

All Contractors must have a formal inspection and preventative maintenance system in place to ensure that vehicles are maintained in a safe and roadworthy condition at all times and, as a minimum, are serviced in line with the vehicle manufacturer's service schedule.

Should any safety critical feature be defective or damaged, the vehicle must be withdrawn from service until it has been fully repaired. Inspection and maintenance must be undertaken on critical features such as:

- Wheels and tyres (including the spare);
- Steering, suspension and braking systems;
- Seats and seat belts;
- Lights, indicators and reflectors;
- Windscreen and windows, including windscreen wipers and washers;
- The vehicle structure itself; and
- Other safety-related items on the vehicle body, chassis or engine, including instrumentation.

Persons may only be transported in vehicles equipped with manufacturer fitted or approved seats and seat belts.

Seat belts must be worn by all occupants of a light vehicle (i.e. the driver and all passengers) at all times.

Only the driver and one passenger are permitted in the cab (front) of a light delivery vehicle.

No personnel may be transported in the load-bin of a light delivery vehicle, even if the vehicle is fitted with a canopy. Only tools and equipment may be transported in the load-bin. Furthermore, no persons may be transported in a trailer behind a vehicle.

A pre-operation vehicle safety check and familiarisation system must be in place and must be used by the driver. An approved checklist must be used. All vehicle faults that are recorded must be attended to immediately.

All Contractors must have systems in place to ensure that risks associated with vehicle journeys are managed and controlled. The systems must include, but not be limited to:

- Formulation of journey management plans prior to the commencement of new or changed travel activities;
- Identification and monitoring of the risks associated with the various routes, intersections, etc. In order to minimise the overall exposure;
- Assessment and communication of changed environmental and road conditions at the time of travel;
- Outlining of actions required in the event of an emergency (e.g. Collision or breakdown); and
- Provision to manage driver fatigue.

Light vehicle running lights (low-beam headlights) must be switched on at all times when the vehicle is in operation.

All Contractors must have a system in place to ensure that drivers receive adequate training to ensure that the vehicle intended to be operated or driven can be operated or driven safely. As a minimum, training must include:

- Behaviour-based defensive driving principles;
- Vehicle familiarisation, taking into account the handling dynamics of the vehicle, maximum number of passengers, load limits and various features;
- Loading and restraining principles where the vehicle to be operated is designed for carrying cargo loads;
- Education and awareness concerning driving and travel risks that may be encountered within the environment where the vehicle may be operated or driven, and the requirements pertaining to traffic rules and speed limits;
- Securing (locking) equipment to prevent unauthorised use;
- Emergency crash and breakdown procedures; and
- Basic mechanical principles, including how to change a tyre and perform an adequate pre-operation check.

A system must be in place to ensure that persons operating any equipment associated with a light vehicle (e.g. Vehicle-mounted cranes and winches) are suitably trained and competent.

14.7.2 Mobile Equipment

All Contractors must ensure that Mobile equipment have the following minimum safety specifications:

- Fixed seats and seat belts for all occupants;
- Adequate lighting, including headlights, tail, turn and brake lights, and an amber flashing light (revolving or strobe);
- An identified isolation and lockout point;
- Adequate walkways, railings, steps and grab handle combinations, and boarding facilities including an alternative path of disembarking in the event of an emergency;
- Collision-avoidance technology and / or procedures;
- A reversing alarm or warning device;
- Chock blocks for preventing uncontrolled movement of rubber-tyred equipment when parked;
- A horn;
- Effective windscreen wipers;
- Effective guarding on accessible moving parts;
- A speedometer (if the mobile equipment is capable of exceeding the lowest applicable speed limit);

- High visibility signage (i.e. Mobile equipment call numbers) facilitating easy and positive identification from a reasonable distance; and
- A security system to prevent unauthorised operation.

Mobile equipment must have the following minimum safety specifications, unless a risk assessment stipulates otherwise:

- Approved or certified roll-over protection;
- Fail-to-safe brakes;
- A fire detection and suppression system capable of being activated from both ground level and cabin level (for certain types of mobile equipment, a suitably sized fire extinguisher may be adequate);
- A non-handheld two-way radio or another form of communication;
- Falling object protection (a protective structure over the operator cabin);
- An enclosed and tight-sealing air-conditioned cabin with suitable protective glass; and
- A means of moving supplies and personal items into and out of the operator cabin that enables an operator to continuously maintain three points of contact while boarding and disembarking the equipment (e.g. A backpack or shoulder strap bag).

When purchasing or hiring equipment, the ergonomics of the cabin must be considered, specifically with regard to the seating, operator controls and retrofitted devices.

Fleet and control consistency must be considered in order to minimise the possibility of operator error when changing machines.

For all new (to site) and modified mobile equipment, a formal risk-based selection and acceptance process must be followed prior to the equipment being used on site. Selection of equipment, and any modification, must be subject to a rigorous change management process.

An inspection and maintenance programme must be in place for all mobile equipment. A procedure and checklist system, including a brake functionality test, must be in place for pre-operation inspection by the operator. Registers must be maintained and audited, and must be kept on the machine.

Procedures must be in place to ensure that mobile equipment is only operated on sufficiently stable surfaces and on gradients that are within the limits of safe operation.

Seat belts must be used in all cases, by all occupants. Apart from the driver or operator, only an appointed flagman may be transported in mobile equipment (with the exception of buses) and only if the equipment is fitted with a passenger seat. No passengers are permitted on a lift and carry crane (or mobi-lift), mobile crane, forklift, mobile elevating work platform (e.g. A cherry picker), tractor, dozer, dump truck, grader, excavator, loader, back-actor, drill rig, or similar.

Risk assessments must be carried out as part of the planning process for mobile equipment operations and associated activities, and must consider the following:

- Maintenance activities;
- Risks associated with loading, unloading, towing and recovering mobile equipment; and
- The risk of fire.

Procedures must be in place for the safe isolation and lockout of mobile equipment.

Where two or more items of mobile equipment must be operated in proximity to each other, or where an item of mobile equipment must be operated in proximity to persons on foot, a risk assessment involving all persons who will be working in the area must be conducted prior to the work commencing. The risk assessment must be approved by the nominated project management representative. In such a work area:

- No item of mobile equipment may be driven to within 5 metres of another item of mobile equipment without the operator first making eye contact with, and signalling his intentions to, the other operator who must acknowledge that he understands and that it is safe to proceed.
- No person on foot may work or be positioned within 5 metres of an item of mobile equipment that is in operation. Before approaching mobile equipment on foot, a person must make eye contact with, and clearly signal his intentions to, the operator of the equipment. The operator must cease to operate the equipment, and must indicate that he understands and that it is safe to approach.

In certain circumstances (determined through risk assessment), mobile equipment may only move and operate with dedicated flagmen in place:

- Where flagmen are used, it must be ensured that the flagmen, mobile equipment operators, and all other personnel working in the vicinity of the mobile equipment, receive suitable training with regard to signals and signalling to ensure effective communication. The training must be formal and recorded, and competency must be tested.
- A flagman and the mobile equipment operator that he is directing must maintain eye contact. The flagman must never position him/her self where the equipment operator cannot see them.
- Should a mobile equipment operator lose sight of his flagman, he must stop his activities immediately until contact has been re-established.

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.

14.7.3 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.

14.8 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.

14.9 Machinery

The contractor must ensure that all plant and equipment brought onto the site is:

- Appropriate for the type of work to be performed
- Approved, inspected, tested, numbered and tagged (if appropriate) before being brought onto site
- Properly maintained in accordance with the manufacturer's recommendations; and
- Placed on a register and checked at least once per month or as required by the applicable legislation.

The contractor must supply, at his cost, all items of plant and equipment necessary to perform the work and must maintain all items in good working order.

Should any plant or equipment become inoperable for a period that is having or will have a significant impact on the work schedule, the contractor must, on instruction from the nominated project management representative, remove the out of service plant or equipment and replace it with similar fully operational plant or equipment at no additional cost.

No item of plant or equipment delivered to site for use on the contract may be removed from the site prior to the completion of the contract without approval in writing from the nominated project management representative.

Items of plant or equipment brought onto site by the contractor or his sub-contractors may be inspected by a nominated project management representative. Should the nominated project management representative determine that any item is inadequate, faulty, unsafe or in any other way unsuitable for the safe and satisfactory execution of the work for which it is intended, the contractor must, on instruction from the nominated project management representative, immediately remove the item from the site and replace it with a safe and adequate substitute. In such a case, the contractor or his sub-contractor shall not be entitled to additional payments or deadline extensions in respect of any delay caused.

14.10 Barricading

All applicable legislation concerning barricading must be complied with at all times.

Each contractor required to erect barricading on the project site(s) must develop, document and implement Safe Work Procedures that are aligned with the requirements of this standard.

Barricading must be erected to:

- Prevent persons from making contact with an identified hazard;
- Provide warning of the existence of a hazard;
- Prevent unauthorised access (by people, vehicles and mobile equipment) into an area where a hazard exists or where a hazardous activity is being carried out;
- Define the boundaries of a hazardous location and / or restricted area; and
- Allow a work team to perform hazardous tasks without persons unfamiliar with the hazard(s) accessing the area.

Although not limited to these situations, barricading must be erected or installed:

- Around excavations (trenches, pits, etc.) (refer to the Excavation Standard);
- To protect openings and edges (to prevent persons from falling, all openings and edges associated with floors, stairs, and the open sides of buildings and structures during the course of construction must be protected by sturdy, rigid barriers capable of withstanding a force of at least 110 kilograms applied in any direction at any point) (refer to the Working at Heights Standard);
- To prevent access into areas where overhead work is in progress;
- To route vehicles safely through (or around) construction areas; and
- To protect members of the public who may be in the vicinity of a work or construction site (by preventing access).

In all cases, the erection of barricading must be a temporary measure. It must only remain in place until the hazard is eliminated or the potentially dangerous situation is rectified.

A barricade must present a sturdy physical barrier to entering an area. Therefore, plastic cones, post and chain systems, "danger tape" and "snow netting" will not be accepted as barricading and may only be used for the purposes of low risk demarcation.

For example, snow netting may be used for the demarcation of lay down areas.

Acceptable forms of barricading include:

- Hoarding panels (no less than one metre in height) that can be securely fastened together to form a fence line may be used. Hoarding panels may be constructed from a variety of materials (e.g. wooden board, steel sheeting, wire mesh on a steel frame, etc.)
- Wire mesh fencing (no less than one metre in height with sturdy posts spaced at intervals of no more than 3 metres) may be used in certain circumstances, e.g. Around excavations.
- Sturdy, rigid, and securely fixed (i.e. bolted, welded, clamped, etc.) Metal guard rails may be used, particularly for protecting openings, holes and edges associated with floors, platforms, walkways, etc. The top rail must be positioned at a height of one metre above the working surface, and a mid-rail must be provided.
- Concrete Jersey barriers must be used for the routing of traffic and when work is being conducted in or alongside a roadway.

Regardless of the type of barricade used, the following requirements must be met:

- The installation, alteration and removal of barricades must be supervised by a competent person;
- The barricading must be uniformly and intelligently configured;
- The barricading must be stable, conspicuous and effective;
- The barricading must completely surround the work or hazardous area;
- General access requirements around the work or hazardous area (such as pedestrian walkways, operational access, or general thoroughfares) must be taken into consideration when erecting a barricade;

- The extent of the area that is barricaded must be kept to a minimum so as not to unnecessarily restrict access to other areas. If access routes to other areas are blocked by the barricade, alternative routes must be identified and signposted
- All barricaded areas must have properly designated points of entry and exit for persons and / or vehicles. Each pedestrian access point must be fitted with a self-closing gate. A sign indicating, "DESIGNATED ACCESS POINT – AUTHORISED PERSONNEL ONLY", must be fitted to each gate;
- Additional signage providing warning of specific hazards (e.g. falling objects, electricity, etc.) Including, "NO UNAUTHORISED ENTRY", must be attached to all gates and, where required, to the barricading itself. The signage must be visible from all angles and must be large enough to be read from a distance of 10 metres;
- Barricading must be clearly visible at all times (day and night). If necessary, flashing warning lights must be used;
- Tags must be attached to the barricading displaying the name and cell phone number of the person responsible for the barricade, and specifying the reason for the barricading and the date on which it is scheduled to be removed;
- Should a person require access to a barricaded area, authorisation must be obtained from the person responsible for the erection of the barricade. The hazards that are present and the Personal Protective Equipment that must be worn within the barricaded area must be communicated to the person seeking access;
- Each barricade must be listed in a register, and each must be inspected daily to ensure that it is still intact and that its positioning is still effective;
- All barricades must be properly maintained and repaired as required;
- When the work has been completed and the hazard has been eliminated, all barricading must be removed without delay. A barricade may not be left in place if no hazard exists;
- Before a barricade is removed (allowing general access), the area must be inspected by the person responsible for the work that was carried out, to ensure that the area is once again safe. If applicable, the person accepting the area back for general use shall do so on completion of his own safety inspection;
- Authorisation to remove (or modify) a barricade may only be granted by the person responsible for the erection of the barricade.

14.11 Excavations

All applicable legislation concerning excavation work must be complied with at all times.

Each contractor carrying out excavation work on the project site(s) must develop, document and implement Safe Work Procedures that are aligned with the requirements of this standard.

All excavation work must be properly planned. Site-specific conditions and hazards must be considered, including traffic, overhead and buried utilities, proximity to nearby structures, soil properties, presence of surface and / or ground water, position of the water table, and weather conditions.

Excavation work may only be carried out under the personal supervision of a competent Excavation Supervisor who has been appointed in writing.

Before any excavation work is carried out, a Permit to Work authorising the activities must be obtained.

Similarly, no person may enter an excavation unless a Permit to Work has been issued providing authorisation for specific tasks to be carried out within the excavation.

Before issuing a Permit to Work for excavation works, the Authorised Person (i.e. Permit issuer) must verify that:

- A detailed Risk Assessment has been conducted for the work to be performed;
- A Safe Work Procedure is in place; and
- No buried services are present in the area where the excavation works are to be carried out.

As a minimum, the Risk Assessment must consider hazards and risks associated with:

- A person being trapped or buried as a result of an excavation collapsing;
- A person being struck by an object falling into an excavation;
- A person falling into an excavation;
- A person being exposed to a hazardous atmosphere within an excavation (i.e. An oxygen deficiency, explosive or flammable gases, and / or harmful concentrations of a contaminant);
- Contact with belowground services; and
- Mobile equipment and / or light vehicle movement in proximity to an excavation.

On a plan (drawing) of the work area, the contractor must accurately indicate the position and dimensions of each intended excavation in order for it to be determined whether or not buried services would (or may) be encountered, such as electrical cabling, communications cabling, gas, fuel, potable water, fire water, effluent, sewage, or storm water pipelines.

In addition to a desk top review of existing drawings, a field survey must be carried out to verify the presence or absence of buried services. The positioning of all known belowground services must be accurately demarcated in the field before any excavation work commences.

Should there be any uncertainty, a pipe or cable locator must be used to determine if buried services are present, and if so, the positioning of the services.

If buried services are identified (or are suspected to be present) then the excavation plan must be altered if necessary to avoid these services. If the excavation plan cannot be altered then safe work methods (e.g. careful excavation by hand) must be specified and measures (e.g. Isolation and lockout of the service) must be put in place to minimise risk to personnel and prevent damage to the service(s).

Machinery may not be used to excavate material lying within one metre of any belowground service (i.e. Cable or pipe).

Excavation work that is carried out must be limited to what is described in the Permit to Work. All controls, precautions and restrictions identified in the Permit to Work (and Risk Assessment) must be strictly observed and fully implemented. The Excavation Supervisor must discuss these controls, precautions and restrictions with all persons who will be carrying out the work.

All excavation work must be carried out by persons who have been trained and are competent to perform the work.

All personnel working in or near any excavation must wear high visibility protective clothing.

Unexpected structures (e.g. Tanks, brick work, concrete work, etc.) Or services (e.g. Cables, pipe lines, etc.) As well as unusual conditions (e.g. inconsistent materials, voids, etc.) That are encountered during excavation work must be reported immediately. All work must cease until the nominated project management representative provides authorisation to continue.

If an excavation is more than 1.2 metres deep and people have to enter it, then the sides of the excavation must be suitably battered, benched, or shored, unless a registered professional geo-technical engineer confirms in writing that there is no risk of the excavation collapsing (i.e. That the sides of the excavation are stable without battering, benching or shoring).

If the sides of an excavation are battered (sloped), then this must be done at an angle that is suitable for the given soil conditions (to be determined by a registered professional geo-technical engineer).

When it is not possible to batter (or bench) the sides of an excavation to a safe angle, then the sides of the excavation must be suitably shored. Shoring may only be installed, altered or removed under the personal supervision of a competent person using a predetermined safe method. Only approved shoring systems and equipment may be used. Shoring requirements must always be determined and designed by a competent person for the specific conditions encountered at the excavation site.

All material removed from an excavation (spoil) must be placed no closer than three times the depth of the excavation away from the edges of the excavation.

The profile of this spoil must be flattened out to prevent the material from being washed back into the excavation by rain water.

Scaling must be carried out on the sides of all excavations to remove loose material.

Protective shields or barriers must be erected (when required) between the sides of an excavation and the work area in order to protect employees from falling, rolling or slumping rock, soil, or materials.

Persons may not work on the faces (sides) of battered (sloped) or benched excavations at levels above other persons.

Tools, equipment and materials may not be placed within two metres of the edges of an excavation. Alternatively, a suitable retaining device may be used to prevent tools, equipment and materials from falling, rolling or sliding into an excavation.

No vehicle or item of mobile equipment is permitted near an edge of an excavation.

Mobile equipment may not operate in or near an excavation whilst persons are working within the excavation.

To ensure that adjacent structures (such as buildings, walls, or sidewalks) remain stable during excavation work, support systems such as shoring, bracing, or underpinning must be provided if required. Excavation below or near the base or footing of any foundation or retaining wall is prohibited unless:

- A support system (designed by a registered professional geo-technical or Structural engineer) is provided, such as underpinning; or
- A registered professional geo-technical engineer determines that the structure is far enough away from the excavation that no hazard exists.

To prevent persons and / or mobile equipment from accidentally falling into an excavation and to prevent unauthorised entry into an excavation, rigid barricading must be erected around every excavation that is deeper than 500mm. Warning signage must be prominently displayed and, if necessary, flashing warning lights must be used at night.

The barricading must remain in place for as long as the hazard (i.e. the excavation) exists. Sections of barricading around an excavation may only be removed (and then only temporarily) to enable excavation work to continue (refer to the Barricading Standard).

For each excavation more than 1.2 metres deep, safe means of access and egress (e.g. Ladders, steps or ramps) must be provided for persons working in the excavation. Safe entry and exit points must be located every 15 metres along the side(s) of an excavation (i.e. an exit point must not be more than 7.5 metres away from any person working in the excavation).

If a hazardous atmosphere exists within any excavation (i.e. an oxygen deficiency, the presence of explosive or flammable gases, and / or harmful concentrations of a contaminant) or if there is a possibility that a hazardous atmosphere may develop, then the excavation must be declared a confined space. Furthermore, an excavation must be considered a confined space if any risk of entrapment or engulfment exists. If an excavation is declared a confined space then all precautions and requirements pertaining to confined spaces must be implemented and complied with (refer to the Confined Spaces Standard).

Internal combustion engines may not be used in or near the edge of an excavation unless the exhaust emissions are ducted away or suitable mechanical (forced air) ventilation is used to maintain a safe atmosphere within the excavation.

Any water and / or sludge present within an excavation must be removed completely before any work commences in the excavation.

Using ditches, dykes, sumps and pumps, or other suitable means, surface water must be prevented from entering an excavation and areas lying adjacent to an excavation must be adequately drained.

If equipment is used to prevent water from entering an excavation or to prevent water accumulation within an excavation, then the equipment must be monitored by a competent person to ensure that it remains operational and effective.

Suitable lighting must be provided in and around any excavation in which work must be carried out at night.

A high standard of housekeeping must be maintained in and around all excavations.

Tools that are not in use, and materials that are no longer required, must be removed from an excavation to prevent these items from causing injury or being lost (buried).

A register of all excavations must be compiled and maintained.

A competent person (i.e. an appointed Excavation Supervisor) must inspect each excavation as well as the areas around it:

- At the start of each day (or shift) before work commences within the excavation;
- After any alteration is made to the excavation or shoring;
- After rainfall;
- After any blasting activity carried out in the vicinity of the excavation; and
- After any event that may have affected the strength or stability of the excavation or the shoring.

An excavation must be inspected for collapses, signs of instability, failures or signs of overloading of protective systems and equipment, hazardous atmospheres, water accumulation, and any other hazardous condition that may arise.

The sides of an excavation as well as the surface of the ground around the excavation must be carefully inspected for signs of instability including fissures (cracks), slumping, and bulging. Shoring must be carefully inspected for signs of overloading (e.g. Distortion).

If a hazardous condition is identified, no person may enter the excavation until suitable corrective actions have been taken and / or suitable controls have been put in place to either eliminate the hazard or reduce the risks to acceptable levels.

A record of each inspection (including date, time, findings, and signature of the Excavation Supervisor who carried out the inspection) must be captured in the excavations register. Each inspection record must include a declaration as to whether the excavation is safe to work in or not.

All excavations must be monitored closely throughout each work day (or shift) by the Excavation Supervisor.

If an excavation has been declared a confined space, a safety observer (who will be able to initiate emergency response procedures if required and identify the location of any trapped or buried persons in the event of a collapse) must be stationed at ground level outside of the excavation whenever work is being carried out in the excavation.

If a hazardous condition is identified while work is being carried out in an excavation, then all persons in the excavation must be evacuated to safety without delay.

Under no circumstances may a person work alone in an excavation that is more than 1.2 metres deep without at least one other person being present in the immediate vicinity of where the work is being carried out.

Excavations must be backfilled as soon as possible, and the material used (usually the original material) must be properly compacted.

Where belowground services are present, the material used to backfill an excavation must be such that the services will not be damaged.

A layer of a material that is dissimilar to the general backfill material must be placed immediately above any buried service.

An excavated area must be restored to its original condition if at all possible.

Use of Explosives

All excavation work must be carried out without the use of explosives.

Explosives may not be brought onto the site or be used without written authorisation from the nominated project management representative.

If blasting operations are unavoidable, the contractor must:

- Provide a justification and obtain approval from the nominated project management representative;
- Strictly observe the provisions of all applicable legislation; and
- Carry out a detailed risk assessment covering the transportation, handling, storage and use of the explosives.

No explosives or detonators may be stored on site.

Detonators and other explosives must never be carried in the same box.

14.12 Cranes and Lifting Equipment

All applicable legislation concerning cranes and lifting equipment must be complied with at all times.

Each contractor carrying out lifting operations on the project site(s) must develop, document and implement Safe Work Procedures that are aligned with the requirements of this standard.

14.12.1 Design, Manufacturing and Safety Features

Before any crane or hoist is operated on the project premises (i.e. New to site), it must be formally accepted (authorised) by the nominated project management representative. The acceptance process must be based on an inspection and risk assessment, and must take the crane's or hoist's safety features and cabin ergonomics (if applicable) into account. The same process must be followed before any crane or hoist is returned to service following any modification or repair.

Note: An Equipment Profile (dossier) must be compiled for each crane.

As a minimum, the design and manufacturing of each crane or hoist used on the project premises must comply with the requirements of the relevant ISO standard. In countries where the requirements of a national standard are more stringent than the requirements of the relevant ISO standard, the national standard must apply.

The Safe Working Load (SWL) must be clearly indicated on each crane, hoist, and item of lifting equipment.

If the safe working load (rated capacity) of a crane varies with the conditions of use (i.e. varies with the angle of the boom and the boom length) then the manufacturer's load chart(s) indicating the crane's rated capacity at various boom lengths and angles must be available in the crane cabin. If the crane has a single load chart, it must be displayed in a position visible to the crane operator. If the crane has numerous load charts, they must be easily accessible to the operator.

For each crane or hoist, the manufacturer's operating manual must be available to the operator.

The load chart(s) and operating manual for a crane or hoist must be in a language understood by the operator.

All lifting hooks must be fitted with a safety latch to prevent the load from accidentally detaching.

Each crane or hoist must be fitted with a load cell (with the mass of the load displayed in the visual range of the operator) and a load limiting device to prevent the crane or hoist from being operated outside of its safe working limits.

Where practicable, each crane must be equipped with an upper hoist limit switch (or anti two-block device) to prevent the hook block from colliding with the drum, and a lower hoist limit switch to prevent the rope on the drum from unwinding completely. These systems must provide both a visual and an audible alarm to the operator.

Under no circumstances may any limit switch or warning device be bypassed, disconnected, or adjusted in order to lift a load higher (or to lower a load lower) than the respective switches allow. Limit switches MAY NOT be adjusted to stop the hoist at a particular height under normal operating conditions – these are safety devices, and as such, should not be used as operating tools.

Under no circumstances may a load limiting device be bypassed or disconnected in order to lift a load that exceeds the rated capacity of the crane. Load limiting devices MAY NOT be used to "measure" or "test" the mass of a load – these are safety devices, and as such, should not be used as operating tools.

Each overhead travelling crane (including cranes operated using a manual chain drive) must be fitted with an audible travel alarm or an equivalent warning device.

Anti-collision devices must be fitted to prevent motorised overhead travelling cranes from colliding with each other (where two or more cranes run on the same track) and from colliding with the track end stops or other structures.

For a vehicle-mounted crane, the operator control station must be located in a position protected from swinging loads and from the crane jib.

A fall protection system must be provided for the assembly, dismantling, operation, maintenance and inspection of any crane where falling from height is identified as a hazard.

Each crane should be fitted with a stability monitoring device to prevent it from toppling over.

Only items of lifting equipment (tackle) that have been designed and manufactured with adequate factors of safety may be used on site. The following minimum factors of safety (with respect to the Safe Working Load) must be met:

- Ten (10) for natural-fibre ropes;
- Six (6) for synthetic-fibre ropes or woven webbing;
- Six (6) for steel-wire ropes;
- Five (5) for steel chains; and
- Four (4) for high-tensile or alloy steel chains.

Note: An excavator may not be used to lift a load unless all of the requirements of this standard (as would apply to a crane) have been met, and authorisation has been granted by the relevant Project Manager and Health and Safety Manager.

14.12.2 Planning and Risk Assessment

For each critical lift that must be carried out on site, a documented and detailed lift plan and risk assessment must be prepared to address all associated hazards.

Only suitably qualified, competent and experienced persons (lift planners) may evaluate critical lifts and prepare lift plans.

The lifting supervisor, crane operators, riggers and spotters responsible for carrying out a critical lift must have input into the lift plan and risk assessment and must be consulted before these documents are finalised.

All lift planners, lifting supervisors, crane operators, riggers and spotters (safety observers) must be appointed in writing.

No critical lift may commence until the lift plan and risk assessment have been authorised by the nominated project management representative and a Permit to Work has been issued.

Critical lifts include:

- All multiple (including dual) crane lifts;
- Lifts where the operational arcs of two or more cranes can overlap;
- Lifts over operating facilities where this may endanger personnel;
- Lifts over or adjacent to power lines;
- Any lift carried out in close proximity to equipment or a vessel containing a flammable or toxic substance;
- Lifts where the centre of gravity of the load could change;
- Any lift where the total weight on the hook exceeds 20 tonnes;
- Lifts near the rated capacity of the crane (i.e. Exceeding 85% of the rated capacity at the working radius);
- Any lift when the wind speed (including gusting) exceeds 30 kilometres per hour;

- Lifts involving a man basket (safety cage);
- Lifts to and from water;
- Lifts requiring specialised equipment or involving complicated lifting or rigging configurations;
- Lifts requiring non-standard rigging or slinging techniques;
- Lifts involving the simultaneous use of more than one hoist on the same crane; and
- Any other lift deemed to be critical by the nominated project management representative, or assessed as critical during a risk assessment.

The lift plan for a critical lift must include:

- General Information – crane manufacturer, crane model, items to be lifted, and reason for lift;
- Lift Data – load weight, lifting block and hook weight, hoist rope weight, rigging weight, total weight, height of lift, radius of lift, surface area of load, and centre of gravity of load;
- Rigging Data – sling material (chain, wire rope, or synthetic), sling diameter, sling length, sling configuration, sling capacity, hook type, shackle size and capacity;
- Lift Computation – boom length, jib length, radius of lift, crane capacity as configured, size of outrigger footplates, and wind speed;
- Proximity to Power Lines and Process Areas – mobile cranes working in proximity to energised power lines must operate under a Permit to Work, which must define exclusion zones and spotter duties;
- Local Hazards and Controls – including the route for the crane, ground stability, proximity of people or equipment, and agreed communication method; and
- Diagrams (sketches) – a rigging diagram, and a crane set-up diagram illustrating the positioning of the crane(s) in relation to surrounding structures and the initial and final positions of the load (including crane boom movement).

Lifts that are not subject to detailed lift plans (i.e. Lifts that are not considered critical) must nevertheless be subject to a risk assessment, and be properly planned and executed. The use of a crane-suspended man basket (safety cage) may only be considered when all other avenues to safely perform the work (e.g. Scaffolding, mobile elevating work platform, etc.) Have been exhausted (refer to the Working at Heights Standard).

Cranes used to lift or suspend personnel must be approved as suitable for this purpose. If a crane must be operated in proximity to energised overhead power lines (or any other exposed electrical conductors) then minimum clearance distances (specified by the electrical power utility or the nominated project management representative) must be observed. Whenever possible, power lines must be de-energised and isolated while lifting operations are carried out (refer to the Electrical Safety Standard).

14.12.3 Operation

At the start of every day or shift, the operator of a crane or hoist must carry out a pre-operation safety check using a prescribed checklist.

The specific requirements of the pre-operation safety check (and associated checklist) must be based on:

- A risk assessment that addresses all aspects of safe operation of the crane or hoist; and
- The inspection recommendations of the manufacturer.

As a minimum, the pre-operation safety check must include:

- A thorough visual inspection of all wire ropes, chains, hooks and safety latches, hook blocks, sheaves, hydraulic hoses, electrical cables, and the general condition of the crane or hoist;
- Checks to confirm the serviceability of the operating controls;
- Tests to confirm the correct operation of all limit switches, emergency shutdowns, load indicators, alarms and other safety devices; and
- A thorough visual inspection of all lifting equipment (tackle) to be used.

The operator must:

- Check for any loose or missing parts;
- Make sure that the wire rope (or chain) of the hoist is properly seated in its drum and sheave grooves without any slack or overlapping;
- Operate each control to make sure it functions properly, releases immediately, and does not stick. Each control must be labelled to indicate its function;
- Listen for any unusual mechanical noises and look for any jerky movements while operating the crane and / or hoist several feet in each direction that it travels;
- Check the functionality of the upper and lower hoist limit switches (if applicable) by slowly raising and then lowering the block to trip the respective switches;
- Check all hooks. Hooks must not be cracked, stretched, bent or twisted. Each hook must have a safety latch that automatically closes the throat of the hook. If the latch is bent, has a broken spring, or is otherwise damaged, it must be repaired before use. Hooks must rotate freely in the block assembly without any "grinding" felt or heard;
- Check the wire rope by lowering the block to its lowest level and looking for the following signs of damage:
 - Reduced rope diameter. This may indicate that the rope has been stretched, has lost its inner core support, or has worn outside wires;
 - Broken wire strands (any number);
 - Kinked, crushed, cut, or "bird caged" wiring, or wiring with heat damage.
- Check all chains for damage including wear at contact points, cracks, or distorted links (bent, twisted or stretched). All mechanical coupling links must be inspected to ensure that the linking pins are secure and in good condition. The capacity rating of each chain must be adequate for the load and the attachment method;
- Check the condition and capacity of wire rope and synthetic web slings. Capacity ratings must be legible on the manufacturer's label. The capacity of the sling being used must be adequate for the load and the attachment method. A sling must be replaced immediately if it is excessively worn.

The operator must report any fault, defect or damage to his supervisor immediately.

A crane or hoist must not be operated if any safety device is out of order or defective, or if any rope, chain, hook or other component is worn or damaged.

Completed checklists must be made available (on request) for inspection by the nominated project management representative. Wherever possible, these checklists must be kept with the crane or hoist.

All lifting operations must be supervised by suitably qualified, competent and experienced supervisors.

An effective method of communication between the crane operator and those assisting with the lift must be in place. This must be documented and approved by the nominated project management representative.

Documented Safe Work Procedures must be in place to ensure the following:

- Access into an area where lifting operations are being carried out must be restricted. Such an area (i.e. where there is a risk of a load falling and striking a person) must be barricaded and only authorised persons may enter (i.e. those directly involved with the lifting operations). Warning signage must be conspicuously displayed;
- Where a load is being moved from one location to another (i.e. The lifting operations are not being carried out in a discrete area that can be barricaded), measures must be taken to ensure that all persons in the path of the suspended load are made aware of the approaching hazard and that they move, and remain, well clear of it. All persons potentially affected must be given warning before the load is lifted;
- A lift must be directed and controlled by a single person (a suitably qualified, competent and experienced rigger);
- Dedicated spotters must be in place during lifting operations to observe and provide warning (if necessary) to prevent incidents and ensure that safety protocols are adhered to;
- Before commencing with a lift, it must be verified that the load being lifted is both within the rated capacity of the crane (or hoist) and lifting equipment and within the limits set out in the lift plan and / or risk assessment. The rated load capacities of the crane, hoist, rope, chains, slings or other components may never be exceeded;
- Only certified lifting equipment (tackle) may be used to lift a load;
- No equipment (tackle) that has been used for towing may be used for lifting operations;
- Only an approved material box (skip box) may be used for lifting loose items or materials;
- Before commencing with a lift, it must be verified that no safety devices (including load limiting devices) have been bypassed, overridden or disconnected;
- To prevent the load from swinging as it is lifted, the hoist must be centred over the load (when using slings or chains) or positioned directly above the lifting point of the load;
- Hoisting ropes must be kept vertical. No side loading of a crane boom is permitted (i.e. A crane may not be used to make a side pull);
- Two full wraps of rope must remain on the hoisting drum at all times. If a lower hoist limit switch has been fitted, and it is working correctly, it should not be possible to lower the block below the point where less than two full wraps of rope are on the drum;
- Before commencing with a lift, it must be verified that all rigging connections are correct and secure. Slings, chains, or other lifting devices must be fully and securely seated in the saddle of the hook;
- Slack must be removed from the slings, chains and / or hoisting ropes before lifting the load. It must be ensured that multiple lines are not twisted around each other and that the hoist rope is not wrapped around the load;
- To ensure that the load is properly secured and balanced, it must initially only be lifted a few centimetres. Slings must be repositioned if required;
- Before moving a suspended load, it must be lifted high enough to clear all obstructions. The load must only be lifted to the height necessary to clear obstructions, and no higher;

- Directional movement must be made smoothly and deliberately (there must be no sudden acceleration or deceleration of the moving load). Abrupt, jerky movements of the load in any direction must be avoided;
- Tag lines must be used in situations where a load needs to be steadied or guided while suspended;
- When using tag lines to steady or guide a suspended load that is being moved using a mobile crane, personnel on foot must remain in sight of and in communication with the crane operator at all times, must never walk between the crane and the load, and must remain clear of the load and the crane at all times (at least 5 metres). The load must be moved at a slow walking speed;
- A suspended load must be monitored closely at all times;
- If a crane operator's view of a suspended load is unavoidably obscured (completely or partially), or if a suspended load is unavoidably obscuring (completely or partially) a crane operator's view, then suitably positioned spotters must be in place to provide guidance to the crane operator;
- A load MAY NOT be moved over, or be suspended above, any person or any occupied building. No person may walk beneath, or position 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) in order to prevent damage and / or deterioration.

A crane or hoist or an item of lifting equipment may only be used for the purposes for which it was designed.

14.12.4 Inspection, Testing and Maintenance

Any crane or hoist brought onto the project premises must have a current test certificate and record of inspection as well as a suitable checklist (derived from the crane or hoist manufacturer's inspection recommendations) for use by the operator(s) when carrying out pre-operation safety checks.

An Equipment Profile (dossier) must be compiled for each crane.

A register of all cranes, hoists and lifting equipment (tackle) brought onto the project premises must be compiled and maintained.

Each crane, hoist and item of lifting equipment must have a unique identification code or number, which must be referenced in the register.

For each crane, hoist and item of lifting equipment, the following documentation must be kept on site and must be made available (on request) to the nominated project management representative for inspection:

- Test records and certificates;
- Inspection records;
- Maintenance records; and
- Details of any modifications or repairs made.

All cranes, hoists and lifting equipment must be inspected, tested and confirmed fit for purpose (i.e. Safe for use):

- Before being operated or put into service;
- Before being returned to service following any repair or modification; and
- Periodically as follows (unless local regulations require examination more frequently):
 - Each crane or hoist (including all ropes, chains, hooks or other attaching devices, sheaves, brakes and safety devices that form an integral part of the crane or hoist) must be thoroughly examined by a competent, experienced and appointed person every 6 months;
 - Each crane or hoist must be subjected to an annual performance test (i.e. A load test) by a competent, experienced and appointed person; and
 - All lifting equipment (tackle) must be thoroughly inspected by a competent, experienced and appointed person every 3 months.
 - The system of inspection and testing must provide verification that each crane or hoist is able to function to its design specifications, and must verify the integrity of:
 - Mechanical and electrical components;
 - Controls;
 - Cables and all lifting attachments;
 - Structural components including boom, hoist, brakes, wheels, hooks, baskets, outriggers, hook-blocks and rails; and
 - Load limiting devices, hoist limit switches, alarms or warning devices, and other safety devices and control systems (including independent fail-safe braking systems, devices to stop the crane or hoist such as a dead man's switch, and emergency shut-off switches).

A preventative maintenance system must be in place to ensure that all cranes and hoists are maintained in a safe and serviceable condition.

For any crane or hoist, all inspections, testing, maintenance and repairs must, as a minimum, be carried out in compliance with the requirements and specifications of the manufacturer as well as all applicable regulatory requirements (in terms of both the

frequency of inspection, testing and maintenance, and the physical condition of the crane or hoist).

Repairs to a crane or hoist may only be carried out by competent persons. After repairs have been made, the crane or hoist must be tested and recertified fit for purpose (unless the repairs did not affect the integrity of the lifting mechanism).

Any modification to a crane or hoist must be subject to the approval of the original equipment manufacturer and a rigorous change management process. Each item of lifting equipment (tackle) must be tagged following each quarterly (3-monthly) inspection. Details of these inspections must be recorded in the lifting equipment register which must be made available to the nominated project management representative on request.

The following colour coding system must be used for the tagging of all lifting equipment:

Table 15-1 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.

14.12.5 Training and competency

Only suitably trained, competent and experienced persons who have been authorised in writing by the contractor's project manager are permitted to:

- Evaluate and plan critical lifts;
- Supervise lifting operations;
- Operate cranes and hoists;
- Use lifting equipment, and rig (sling) loads;
- Provide signals for controlling lifts; and
- Inspect, maintain or test cranes, hoists and lifting equipment.

Each operator must meet the competency requirements for the particular class or type of crane or hoist to be operated. Depending on the project location and applicable legislation, operators may need to hold a certificate of competency issued by a recognised training institution.

14.13 Working at heights

All applicable legislation concerning work performed from an elevated position must be complied with at all times.

Fall prevention or fall protection measures must be in place whenever the potential exists for a person to fall from height.

14.13.1 Fall prevention

15.13.1.1 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.

15.13.1.2 Floor openings, holes and edges

Any opening or hole (temporary or permanent) in a floor, platform or walkway must be protected by sturdy guard rails (removable if required) or a cover to prevent a person from stepping into or falling through the gap. Covers must be strong enough to support the loads that will be imposed on them and must be secured to prevent accidental displacement.

Ladder way floor openings and platforms must be protected by guard rails of standard construction and toe boards must be fitted along all edges, except at the entrance to an opening where a gate must be installed and so arranged that a person cannot walk directly into the opening.

When open, hatchways and floor openings must be protected by removable guard rails and toe boards of standard construction. When these openings are not in use, covers of adequate strength must be put in place and must be secured to prevent accidental displacement.

Where doors or gates open directly onto a stairway, a platform must be provided and the swing of the door or gate must not reduce the effective width of the platform to less than 500mm.

15.13.1.3 Wall openings

Wall openings, from which there is a drop of more than one metre, must be guarded as follows:

- When the height and position of the opening in relation to the working surface is such that standard guard rails will effectively eliminate the risk of accidentally falling through the opening, then these must be provided. The bottom edge of the opening must be fitted with a toe board. The guard rails and toe board may be removable if required;
- Alternatively, the opening may be closed using a screen. Wall opening screens must be of such construction and mounting that they are capable of withstanding a force of at least 100 kilograms applied horizontally at any point on the near side of the screen. A screen may be of solid construction, of grillwork, or of slat work.

An extension platform outside a wall opening, onto which materials can be hoisted, must have sturdy guard rails (or equivalent edge protection) on all sides. One side of the extension platform may have removable railings in order to facilitate the handling of materials.

15.13.1.4 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.

14.13.2 Fall protection

Whenever there is a risk of falling from height, whenever there is a risk of falling onto dangerous equipment or machinery even if the potential fall distance is less than 2 metres, or whenever work must be carried out within 2 metres of an opening through which (or an edge over which) a person could fall, no work may commence unless:

- a fall protection (and rescue) plan is in place (prepared by a competent person, approved by the nominated project management representative, and implemented by the contractor);
- A detailed task-specific risk assessment has been carried out;
- A safe work procedure is in place for the task to be performed;
- A permit to work has been obtained; and
- Each person has been provided with suitable fall protection equipment.

Fall protection equipment (either fall restraint or fall arrest equipment) must be used at all times whilst the work is being carried out.

To prevent persons from falling, fall restraint equipment must be used whenever work must be carried out within 2 metres of an opening through which (or an edge over which) a person could fall.

Fall arrest equipment must be used whenever the potential exists for a person to fall 2 metres or more.

A person has been provided with suitable fall protection equipment if he is secured by means of an approved full body harness (well fitted) with two shock absorbing lanyards or an inertia reel (when fall arrest equipment is required) or two short restraining lanyards (when fall restraint equipment is required), double or triple action snap hooks (or karabiner type rings), and secure anchorage points (a person's lanyard may be attached either directly to an anchorage point or indirectly through the use of a variety of systems that incorporate a lifeline).

A dual lanyard system must be used to ensure that at least one connection point is maintained at all times.

Note: When selecting fall arrest equipment, care must be taken to ensure that the potential fall distance is greater than the height of the person plus the length of the lanyard with its shock absorber deployed (taking the height of attachment into account).

Anchorage points must, where practical, be above the head of the person, and must ensure that in the event of a fall the person will neither swing nor touch the ground.

All permanent anchorage points must be designed and approved by a professional structural engineer.

All anchorage points must be periodically inspected and tested by a competent person to ensure that they are secure and can support the required load. A system must be in place to identify anchorage points as authorised for use.

Temporary anchorage points (and lifeline systems) may only be used if a competent person has certified them safe to use.

If an elevating work platform is used, such equipment must be fitted with a fixed anchorage point for the attachment of fall protection equipment.

The use of fall protection (fall restraint or fall arrest) systems must be avoided wherever and whenever possible through design, the installation of physical barriers that protect persons from falling, and employing alternative methods of working.

Only if physical barriers protecting against free falls cannot be installed must fall protection equipment be used.

Fall protection (fall restraint or fall arrest) systems are items of personal protective equipment and, if required, must be purchased, installed and provided to employees.

Prior to commencing with any work at height, an assessment must be conducted to determine if the work requires the use of fall protection equipment, and if so, which fall protection system is the most appropriate for the work.

There must be a system for ensuring that fall protection equipment is:

- Tested and certified for use;
- Inspected by the user before use; and
- Destroyed following a fall or where inspection has shown evidence of excessive wear or mechanical malfunction.

All persons that are required to work at height (in order to carry out routine or non-routine tasks) must first be trained and certified competent to do so. Furthermore, each person must be in possession of a valid medical certificate of fitness specifically indicating that the person is fit to work at height.

All persons required to use personal fall protection equipment must be trained and certified competent in the correct selection, use, maintenance and inspection of such equipment.

All fall protection equipment must be thoroughly inspected on a monthly basis by competent persons appointed in writing and each item of equipment must be tagged to show when it was last inspected. All inspections must be recorded in a register.

On finding defective or damaged equipment, appropriate action must be taken by the competent person (i.e. the destruction of the equipment to prevent further use).

Persons making use of personal fall protection equipment must do so in strict accordance with the instructions or requirements specified by the manufacturer or supplier of the equipment or system.

Specific pre-use inspection, maintenance and fitting protocols must be established in accordance with the manufacturer's requirements or guidelines and these protocols must be followed by all users of the fall protection equipment.

Solvents may not be used to clean fall protection equipment. Only manufacturer-approved cleaning solutions may be used.

No person required to use personal fall protection equipment may work in isolation (a minimum of two persons working together is required).

Competent supervision must be in place at all times for all work carried out at height. Supervisors must be appointed in writing.

Emergency response (rescue) procedures for the rapid retrieval of suspended persons in the event of a fall from height must be prepared and tested.

Note: Even though there is no risk of free fall, fall protection equipment may be required in situations where there is a risk of falling, slipping or sliding down a slope of more than 45 degrees.

Note: The maximum service life of fall protection equipment manufactured of synthetic fibre shall be 5 years from the date of first use and / or manufacture unless otherwise specified by the manufacturer.

A person may climb or descend a ladder without fall protection provided that he is able to use both hands and legs to do so, faces the ladder, and uses one step at a time. The ladder must be tied off or supported at its base.

Prior to any roof work being performed, or prior to persons accessing a roof, a structural engineer must verify that the roof is of sound construction and that it is capable of supporting the weight of the persons as well as any equipment that may be required. Should the engineer's findings be to the contrary, alternative methods of performing the work must be found. Particular care must be taken when work is carried out on an a fibreglass roof.

14.13.3 Risk Assessment and Permitting

The following documentation is required for any work where fall protection is required (i.e. where a risk of falling exists):

- A Fall Protection (and Rescue) Plan;
- A Risk Assessment for the task to be performed;
- A Safe Work Procedure for the task to be performed; and
- A Permit to Work.

As part of the Risk Assessment and planning processes, the following must be considered:

- Hazards relating to accessing the location at height;
- The nature of the work location;
- The nature of the work activities to be undertaken at height;
- Environmental and weather conditions;
- The presence of nearby persons who may be at risk due to falling objects (potentially) or who's activities may be affected by the work being performed at height;
- The selection of fall protection equipment (considering fall clearances) and / or access equipment;

- The selection of anchorage points;
- The load ratings of access platforms, work areas, anchorage points, etc.;
- The condition of supporting structures such as roofs;
- The need for the work to be carried out by multiple persons and the means of communication;
- A rescue plan that addresses retrieval or rescue contingencies;
- Working above open furnaces or molten metal;
- Exposure to heat sources;
- The use of a mobile elevating work platform, man basket, suspended scaffold or boatswain's chair; and
- Any other conditions that may affect the safe execution of the task.

14.13.4 Falling Objects

In the process of planning work activities, the risks associated with falling objects (i.e. materials, tools or equipment) must be assessed and appropriate control measures must be identified, implemented, and monitored taking the following hierarchy of controls into consideration:

- Preventing objects from falling – by using containment sheeting, toe boards, lanyards to secure tools (to a person or to the structure), ropes or chains to secure equipment (to the structure), lift boxes, brick cages, etc. and by properly securing loads when lifted by crane or hoist;
- Protecting people from falling objects – by establishing barricaded exclusion zones, installing catch platforms or catch nets, displaying warning signage, and posting safety watchers and / or traffic controllers; and
- Personal Protective Equipment (particularly safety helmets and safety boots) – protective equipment is a last line of defence and must be worn.

Where overhead work is being carried out, barricading must be erected around the work area (at the level at which the work is taking place and at every level below including ground level) to prevent persons from entering such an area and potentially being struck by falling objects.

Wherever hazards related to falling objects exist, appropriate warning signage (i.e. "Overhead Work In Progress" and "No Unauthorised Access") must be prominently displayed.

No items are permitted to lie loose in elevated positions (e.g. nuts and bolts must be securely stored) and good housekeeping standards must be maintained at all times.

No tools, equipment, material, debris, waste, etc. may be dropped from height. Objects must be lowered or chuted to ground level in a safe and controlled manner.

14.13.5 Scaffolding

15.13.7.1 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.

15.13.7.2 Erection and Dismantling of Scaffolding

Only approved scaffolding components may be used to erect a scaffold. Scaffolding must be erected, modified and used in accordance with the manufacturer's guidelines or recommendations, and in strict compliance with all applicable legislation and standards.

A free-standing scaffold must not exceed a height of three times the smallest dimension of its base.

Scaffolds with a height to base width ratio of more than 3:1 must be restrained from tipping over by guying, tying, or bracing.

Guy wires and ties prevent scaffolding from tipping away from the building or structure, and braces are rigid supports that prevent the scaffolding from tipping into the building or structure.

Scaffolding must be secured to the structure every 6 metres vertically and every 9 metres horizontally (as a minimum). Adequate underpinning, sills or footplates must be provided for scaffolds erected on filled or otherwise soft ground (including sand or gravel).

If the scaffolding is to be load bearing (i.e. other than normal access and workplace storage) then full calculations and a design must be prepared and authorised in writing by a structural engineer. The load limits specified by the scaffolding manufacturer may not be exceeded under any circumstances.

Scaffolds must be plumb and level at all times.

All scaffolding components must be in good condition (i.e. undamaged and free of corrosion).

All scaffolding components must be properly connected or secured and scaffolding must be effectively braced (diagonal bracing).

Each person erecting, maintaining, altering or dismantling scaffolding must use fall protection at all times (i.e. a full body safety harness with two shock absorbing lanyards fitted with scaffold hooks). The work must be planned to enable every Scaffolding Erector to be securely anchored at all times. A suitable lanyard length (not exceeding 2 metres) must be selected taking the potential fall distance and height of attachment (height of anchorage point) into account. If the lanyard is too long or the anchorage point is too low, the person may hit the ground, a platform, or objects below him before the lanyard is able to break his fall.

The area around the base of a scaffold must be barricaded to prevent unauthorised access into the work area. When scaffolding is erected or dismantled on a level, platform, or floor lying above ground level and the potential exists for components to fall to levels below the level on which the scaffolding is positioned, then the area directly below the scaffolding on each of those levels must also be barricaded. Appropriate warning signage (i.e. "Overhead Work In Progress" and "No Unauthorised Access") must be prominently displayed.

Hoists, lifts and approved material baskets must be used (where available) to lift scaffolding components to elevated positions.

Where components are passed from hand to hand during the erection or dismantling of a scaffold, each Scaffolding Erector must always stand on three boards and not directly above the person below him. During this process, each Scaffolding Erector must remain within the confines of the scaffold and must expose as little of his body as possible to minimise the risk of being struck by a falling component. Good communication between team members must be maintained at all times.

No scaffolding components, tools, or any other material may be dropped from height or thrown from one level to another. Components, tools and materials must be lowered or lifted in a controlled manner. Use may be made of a chute.

Each tool must be secured to the wrist, harness or structure by means of a lanyard. A tool bag (around the waist or over the shoulder) may be used for carrying tools up and down a scaffold structure. Tools or equipment may not be carried by hand up or down a structure, as both hands must be used for climbing. If necessary, a rope must be used for lifting or lowering tools or equipment.

While a scaffold is being erected or dismantled, no scaffolding components may be stacked on the scaffold structure unless it has been designed for that purpose. Any loading of a scaffold structure must be authorised in writing by a structural engineer.

For special scaffolding, a design must be prepared by the appointed Scaffolding Supervisor and this design must be authorised in writing by a structural engineer before the scaffolding is erected.

Scaffolding may not stand on steel grating unless the grating is adequately supported from below. Scaffolding must rather stand on the structure that supports the grating.

Empty drums, crates or bricks may not be used to prop up, support or anchor scaffolding. Before scaffolding is erected in close proximity to an electrical installation or live conductors, an electrical engineer (employed by Project or the client) must inspect the area and determine whether or not the scaffolding must be earthed. Should the scaffolding require earthing, this must be done as soon as possible while the scaffolding is being erected.

Scaffolding may not be erected if it is raining or in winds stronger than 32 km/h.

A green tag (displaying the words, "Scaffold Safe for Use") or a red tag (displaying the words, "Danger: Do Not Use Scaffold") must be prominently displayed on each scaffold at all times. The tag must be positioned close to the base of the ladder or staircase provided for safe access. The wording on the tags must be in English and any other language commonly used on site.

As a minimum, a green tag must display the Scaffolding Supervisor's name, the date that the scaffold was erected, and the date that the scaffold was last inspected.

Only an appointed Scaffolding Supervisor may attach, change, update the information on, or remove these tags.

Scaffolding must not be:

- Left partially erected or partially dismantled except for normal work stoppages (for example, over weekends);
- Left in an unsafe condition (if scaffolding is unavoidably in an unsafe condition, barricading must be in place to prevent unauthorised access and the required red tags must be prominently displayed on the scaffold structure); or
- Moved or altered while work is in progress.

Mobile scaffolding must be equipped with brakes, which must be engaged at all times when the scaffolding is in use. A scaffold may not be moved if any person is on the structure.

15.13.7.3 Safe Access

Safe and convenient access must be provided to every scaffold platform by means of properly installed ladders or approved stairways, which must remain unobstructed at all times. Climbing up or down a scaffold on the braces or ledgers is forbidden.

All ladders used to access scaffolding must be securely attached to the scaffold structure. Hook-on and attachable ladders must be specifically designed for use with the type of scaffolding being used.

If a ladder is used to access a scaffold platform at a height greater than 1.5 metres above the ground, then the ladder must be secured internally (i.e. within the scaffold structure) and there must be an opening (closed with a trap-door) in the platform at the top of the ladder.

If the scaffold platform is at a height of less than 1.5 metres above the ground, then the ladder may be attached externally provided the guard rails around the platform are modified to allow access (the opening in the guard rails must be kept closed using a self-closing gate). No person may climb over or through the guard rails to gain access to a platform.

If a vertical ladder used on scaffolding is more than 5 metres in length it must be equipped with a ladder cage extending from a point 2 metres from the base of the ladder to a height of 1 metre above the platform (or the uppermost platform) that the ladder is providing access to.

Circular ladder cages must have an internal diameter of no more than 700mm. Square ladder cages must have internal dimensions of no more than 700mm by 700mm.

The requirement for a ladder cage may be waived if platforms are provided at height intervals not exceeding 4 metres, with the vertical ladder secured on the inside of the scaffolding framework and an opening (closed with a trap-door) in each platform.

Vertical ladders must be braced at three metre intervals (as a minimum) to prevent undue movement.

All vertical ladders providing access to a platform must be left in place for as long as the scaffold remains in place and must be inspected as part of the scaffold structure.

Any deviation from the requirements stipulated above must be subjected to a risk assessment and the nominated project management representative must authorise the deviation in writing.

15.13.7.4 Scaffolding Platforms

Safe work platforms must be provided.

Every work platform must be complete (i.e. from ledger to ledger and from transom to transom without any gaps) in order to prevent personnel, materials, tools, etc. from falling through the platform.

Every work platform must be constructed from manufactured steel scaffold boards (planks) of equal thickness (height). Timber boards are not permitted under any circumstances.

Each steel scaffold board must be securely hooked (fastened) onto the ledgers or transoms that support it.

On all sides except the one facing the structure, every scaffold platform must be provided with:

- Sturdy guard rails positioned 500mm above the platform floor (the mid rail) and 1000mm above the platform floor (the top rail); and
- Steel toe boards that are at least 150mm high and securely attached such that no gap exists between the toe boards and the platform floor.

Note: Wire mesh infill panels incorporating a toe board may be used instead of a mid-rail.

Scaffold platforms must be as close to the structure as is practicable (but not closer than 75mm) except where personnel need to sit on the edge of the platform while they work in which case the distance may be increased to no more than 300mm.

Scaffold platforms must, at all times, be kept free of waste, protruding objects, and any other obstructions. Platforms must be cleaned if necessary to ensure that they are maintained in a non-slip state.

15.13.7.5 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.

15.13.7.6 Using Scaffolding

The user of a scaffold (i.e. the responsible supervisor) must inspect the erected structure prior to acceptance and must ensure, as far as is reasonably possible, that the scaffold is safe and fit for purpose before allowing his team to make use of the scaffold.

In particular, the user must ensure that:

- The scaffold and the platforms have been constructed to meet the loading requirements of the work that is to be carried out (the Scaffolding Supervisor must be consulted in this regard);
- The Scaffolding Supervisor has checked that adequate ties and braces are in place;
- The work platforms are in the correct positions and are complete with toe boards and guard rails;
- Safe and convenient access has been provided (ladders and / or stairways); and
- A green ("Scaffold Safe for Use") tag has been attached to the scaffold by the Scaffolding Supervisor.

Use of an incomplete or unsafe scaffold is prohibited.

Unsteady or non-rigid scaffolds must not be used and inadequacies must be reported to, and rectified by, the responsible Scaffolding Supervisor.

The user of a scaffold must ensure that every person in his team is aware that no alterations to the scaffold may be made by the team during the course of their work, and that if any alterations are required, they must be made by competent Scaffolding Erectors under the supervision of an appointed Scaffolding Supervisor.

A scaffold may not be used:

- If a red tag is displayed indicating that the scaffold is not safe to use; or

- During inclement weather, defined as wind speeds greater than 40km/h, thunderstorms, or heavy rain (in excess of 40mm/h).

Note: With due consideration of possible educational limitations, the contractor must ensure that all persons understand what green and red tags mean.

The area around the base of a scaffold must be appropriately barricaded to prevent unauthorised access into the work area. Appropriate warning signage (i.e. "Overhead Work In Progress" and "No Unauthorised Access") must be prominently displayed.

Loose tools and / or materials on scaffold platforms must be secured using lanyards, wire or fibre rope, or must be placed in secured containers.

Where appropriate, "catch nets" deemed may be installed as an additional safety measure to prevent materials or tools from falling to the ground.

The storage or placement of materials on scaffolding platforms must be kept to a minimum. Debris as well as tools and materials that are no longer required must be removed from all working platforms at least once per day.

Scaffolding platforms must be cleaned regularly.

A heavy load may not be placed on a scaffolding platform unless the scaffold has been designed and constructed specifically for that purpose. Any loading of a scaffold structure must be authorised in writing by a structural engineer.

Scaffolds may not be used as hoisting towers or to support piping or equipment.

Each person working from scaffolding must wear fall protection (i.e. a full body safety harness with two shock absorbing lanyards fitted with scaffold hooks) and must be securely anchored at all times.

All work must be carried out from properly constructed work platforms. Standing on railings or braces in order to perform work is forbidden.

Drums, boxes and other makeshift substitutes for scaffolding may not be used under any circumstances.

Where work on an electrical system is to be undertaken from a scaffold, an electrical engineer (employed by Project or the client) must determine whether or not the scaffolding structure requires bonding and earthing. The scaffolding may not be used until this has been determined, and if required, until the structure has been bonded and earthed.

15.13.7.7 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.

15.13.7.8 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.

14.13.6 Ladders

All ladders used on site must be of sound construction and adequate strength.

Only non-conductive ladders made of wood or fibreglass may be used for electrical work or work being performed in proximity to energised electrical equipment. Metal ladders and ladders with metal reinforcing may not be used.

The use of makeshift ladders is forbidden.

All ladders must be numbered, listed in a register, and inspected by a competent person on a monthly basis (the results of each inspection must be recorded in the register). Before using a ladder, the user must inspect it for damage.

Ladders with missing, broken, cracked or loose rungs, split stiles, missing or broken spreaders (stepladders) or any other form of damage or defect may not be used. A damaged ladder must be removed from service (and tagged, "Out of Service") without delay and must then either be repaired (if possible) or destroyed to prevent further use. Persons must receive instruction in the correct use and proper care of ladders.

Ladders may only be used as a means of access and egress. The use of ladders as working platforms is prohibited, except for inspection and carrying out minor tasks (i.e. light work and short duration) such as changing a light bulb.

Ladders may not be positioned horizontally and used as walkways or runways or as scaffolding.

All portable ladders must be fitted with non-skid safety feet (or some other means to prevent the base of the ladder from slipping) and the feet must always be placed (stand) on a firm level surface.

The use of bricks, stones, wood or any other material to level the stiles of a ladder is prohibited.

Ladders may not be placed on movable bases such as boxes, tables, trucks, etc.

The base or foot of a ladder must always be secured to prevent it from slipping. The ladder must be held by an assistant if the base cannot be secured in any other way (e.g. tied off).

A straight ladder must extend at least one metre above its support (or above the working platform that it is providing access to). The top of the ladder must be tied off (or otherwise secured to its support) to prevent accidental movement.

A straight ladder must be placed at a safe angle, i.e. tilted at a ratio of approximately 4:1, meaning that the base of the ladder must be one metre away from the wall (or other vertical surface) for every four metres of height to the point of support.

A stepladder may never be used as a straight ladder. A stepladder must be opened fully and the spreaders must be locked securely.

When using an extension ladder, at least four rungs must always overlap at the centre of the ladder.

Ladders may not be joined together unless they have been specifically designed and manufactured for that purpose.

A suspended ladder (i.e. not standing on a base) must be attached in a secure manner to prevent undue swinging or swaying, and to ensure that it cannot be displaced.

A ladder may not be placed against a window, glass or any other material which is unlikely to withstand the force exerted on it by the top of the ladder.

A ladder may not be placed in front of a door or window that opens towards the ladder unless the door or window has been locked or barricaded.

When a ladder is used near an entrance or exit, the base of the ladder must be barricaded. Materials and / or equipment may not be placed in close proximity to the base or landing of any ladder.

When ascending or descending a ladder, a person must always face the ladder and use both hands (i.e. maintain three points of contact).

Nothing may be carried up or down a ladder if it prevents the person from holding on to the ladder with both hands. Tools must always be properly secured. This can be achieved by attaching them to the wrist using lanyards or placing them in a tool belt around the waist. Tools and materials may also be carried in a bag over the shoulder or hoisted to the landing using a tool bag and rope.

Only one person at a time may use (i.e. be positioned on) a ladder.

No person may stand or step above the third rung from the top of a straight ladder or above the second highest step of a stepladder.

Overreaching from a ladder is prohibited. If the target is not within comfortable reach, the person must climb down and reposition the ladder.

No person may run up or down a ladder, or jump from the lower rungs or steps to the ground.

All ladders must be properly maintained and cared for.

Ladders must be stored under cover and should be hung in a horizontal position from several brackets.

No ladder may be left lying on the ground or be left exposed to the weather. A ladder left lying on the ground presents a tripping hazard and it may be damaged by vehicles running over it.

No ladder may be left in such a position where it may fall over, be accidentally knocked over, or be blown over by the wind.

Ladders may not be painted, as the paint may conceal damage, defects, labels or other markings.

Instead of paint, clear varnish or wood oil may be used to preserve wooden ladders.

Ladders must be kept clean, as dirt may conceal damage or defects. Oil or grease accumulation on the rungs of a ladder may cause a person to slip.

Before making use of a ladder, each person must make an effort to remove mud, oil, grease, etc. from his boots.

14.14 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;
- Working at height where there is an energy source;
- Hot work outside of designated workshops;
- Excavation; or
- A service (e.g. water supply, electricity, etc.).

Note: A Permit to Work may only be issued by an Authorised Person, and may only be received (or accepted) by an appointed Applicant (see Definitions).

Each Permit to Work that is issued must make reference to an approved Task-Based Risk Assessment for the work that is to be carried out.

The Permit to Work system that is employed must incorporate the following basic procedures:

- Prior to meeting with the Authorised Person, the Applicant must familiarise himself with all of the hazards associated with the system, plant, equipment, structure or area on or in which the work must be performed. He must also consider the risks that may arise as a result of the tasks that will be carried out. A Task-Based Risk Assessment must be in place;
- The Applicant must then request permission to carry out the work and must meet with the Authorised Person to discuss and document the scope of the work as well as the hazards, risks and associated control measures. Isolation and lockout requirements must be identified (if applicable). The isolation and lockout process must be initiated by the Authorised Person who must contact the necessary Isolation Officers.

Note: The Applicant must ensure his own safety and that of his team, and has the right to accompany the Isolation Officers to verify that all of the necessary locks have been fitted to all of the isolation and lockout points in accordance with the applicable plant or equipment-specific Isolation and Lockout Procedure.

- Once all of the necessary isolations have been completed and the necessary Clearance Certificates have been issued by the Isolation Officer(s) (if applicable), and the Authorised Person is satisfied that the system, plant, equipment, structure or area is safe to work on or in provided all identified precautions are observed by the Applicant, then he must issue (sign) the Permit to Work to the Applicant;
- The Applicant must accept (sign) the Permit to Work. If equipment has been isolated, the Applicant must attach his Personal Lock to the relevant Isolation Bar

(or Local Isolation Point) and must ensure that every other person working on the isolated equipment also attaches his or her Personal Lock to the Isolation Bar (or Local Isolation Point) before starting any work;

- Before commencing with any work, the Applicant must discuss the hazards, risks, control measures, precautions and limitations as stated in the Permit to Work (and associated Task-Based Risk Assessment) with all personnel who will be carrying out the work. A register must be kept and all persons must sign the register once they have been briefed by the Applicant;
- The work performed must be limited to what is described in the Permit to Work;
- When a particular employee has completed his work, he must sign the personnel register to this effect and (if applicable) must remove his Personal Lock from the Isolation Bar (or Local Isolation Point);
- Once all work is complete, the Applicant must:
 - Ensure that all machine guards have been replaced;
 - Ensure that all tools and materials have been removed from the work area;
 - Ensure that the work area is clean and tidy;
 - Ensure that all Personal Locks (including his) have been removed from the

Isolation Bar or Local Isolation Point (if applicable);

- Inform the Authorised Person that the work has been completed; and
- Sign off the Permit to Work.
- Once the work is complete and the Applicant has signed off the Permit to Work, the Authorised Person must:
 - Ensure that the relevant Isolation Officers perform all of the necessary de-isolations (if applicable);
 - On completion of the de-isolations, sign off the Permit to Work accepting the system, plant, equipment, structure or area back for service; and
 - Inform all relevant personnel that the system, plant, equipment, structure or area is ready to use.
 - Where the work must continue over more than one shift, the Permit to Work must be reviewed at every shift change by an Authorised Person. If the scope of work has changed, the permit must be cancelled and a new permit must be issued.

If any of the original conditions or precautions pertaining to the work is not being complied with, is no longer adequate or is no longer applicable, the Authorised Person must cancel the Permit to Work and must ensure that all work stops until full compliance with either the original or amended (as required) conditions and precautions is achieved and a new permit has been issued.

The Applicant must ensure that the Permit to Work (including the personnel register) is kept where the work is being carried out (i.e. posted on a portable Health and Safety Management Information Notice Board) and that the work is monitored against the permit conditions.

All Permit to Work records must be retained and must be made available for inspection when required.

The implementation of the Permit to Work system applicable to the project must be audited on a regular basis by a nominated project management representative. Furthermore, planned task observations must be carried out periodically.

Note: In addition to obtaining Permits to Work as and when required for specific hazardous activities (identified in this standard), each contractor must obtain a General

Work Authorisation from a nominated project management representative on a monthly basis. A General Work Authorisation is valid for one calendar month and authorises the contractor's planned work activities. In order to obtain a General Work Authorisation, the contractor must provide a documented work plan for the month together with the necessary Task-Based Risk Assessments.

14.15 Isolation and Lockout

Isolation and lockout procedures that make it impossible to inadvertently energise any system, plant or equipment so isolated, must be in place for all work where hazardous energy sources exist, including electricity, compressed fluids (e.g. hydraulics and pneumatics), chemical substances (e.g. toxic, corrosive, flammable or explosive gases and liquids), heat (e.g. steam), radiation, and machinery or materials with potential energy (gravitational and elastic). These procedures must be strictly enforced.

All personnel must comply with the isolation and lockout system and procedures applicable to the project.

All Isolation and Lockout Procedures must incorporate the following basic requirements:

- The issuing of a formal Permit to Work for any work that requires the isolation of any system, plant or equipment;
- The use of defined Equipment, Discipline and Personal Locks (see Definitions), and multiple lockout systems (i.e. Isolation Bars and lockout hasps);
- Clear identification of all isolation and lockout points ensuring there is no duplication;
- Isolation of the main energy source;
- The use of slip plates or the blanking off of pipelines or ducting, in addition to the chaining and locking of valves, as determined by a risk assessment;
- Suitable methods of preventing the movement of equipment; and
- Methods to test the effectiveness or completeness of the isolation.

Note: No work may commence on a system, plant or equipment until a Permit to Work has been issued by an Authorised Person.

Note: A Permit to Work may only be issued by an Authorised Person once all required Clearance Certificates have been issued by appointed Isolation Officers.

The isolation and lockout system that is employed must incorporate the following basic procedures:

- In accordance with a system, plant or equipment-specific Isolation and Lockout Procedure, an appointed Isolation Officer(s) must isolate all points that need to be isolated in order to render the system, plant or equipment safe to work on. An Equipment Lock (and a suitable, highly visible warning tag) must be attached to each isolation point;
- On completion of an isolation (and lockout), the Isolation Officer must clear the area of all persons and must then carry out tests to ensure that the isolation is effective. This may be done by pressing a start button or by asking a control room operator to try to start the equipment. Special care must be taken to ensure that the attempted starting of the equipment has not been deactivated by another interlock forming part of the system, or by a different up-stream isolation. Alternatively, appropriate equipment may be used to test for energy (e.g. voltage verification or continuity tests).

Note: In the case of electrical isolation, a test for voltage must be carried out, after the switching device, to ensure the absence of voltage.

- The Isolation Officer must place the key to the Equipment Locks on an Isolation Bar (at a Lockout Station) and must then attach a Discipline Lock (to prevent the key from being removed) before issuing a Clearance Certificate;
- The Discipline Lock must remain in place when handing over to subsequent shifts. All Discipline Locks for a particular discipline (e.g. low voltage electricity) must be keyed-alike so that any Isolation Officer appointed for that discipline (and issued with a key) can open any of the Discipline Locks used for that discipline.

This enables an Isolation Officer to de-isolate equipment that may have been isolated by another Isolation Officer during an earlier shift. Appointed Isolation Officers for a particular discipline are the only persons permitted to hold keys to the Discipline Locks used for that discipline.

Note: Local isolations do not require the use of Equipment Locks (a Discipline Lock may be attached to the Local Isolation Point by the Isolation Officer, followed by the necessary Personal Locks).

Note: For local isolations, if the Isolation Officer is the only person who will be working on the isolated equipment, then he must attach his Personal Lock to the Local Isolation Point.

- Once all required Discipline Locks are in place (i.e. attached to the Isolation Bar) and all Clearance Certificates have been issued, the Permit to Work may be issued by the Authorised Person;
- Each person who will be working on the isolated system, plant or equipment must then attach his or her Personal Lock to the Isolation Bar before starting any work (including the Isolation Officer, if he intends to work on the isolated unit);
- The attachment of a Personal Lock to the Isolation Bar prevents the removal of the key to the Equipment Locks even if the Discipline Lock is removed;
- When called (by an Authorised Person) to de-isolate the system, plant or equipment (on completion of the work under the Permit to Work), the Isolation Officer must ensure that all Personal Locks have been removed from the Isolation Bar before removing the Discipline Lock and the key to the Equipment Locks;
- Before removing the Equipment Locks and de-isolating the energy source, the Isolation Officer must inspect the system, plant or equipment that was worked on to ensure that it is safe to perform the de-isolation. This includes guard inspections, housekeeping, ensuring that all doors and covers are in place, and most importantly, ensuring that no persons are present;
- Once all Equipment Locks have been removed and the system, plant or equipment is safe for use, the Isolation Officer must cancel the Clearance Certificate and inform the Authorised Person that the unit has been de-isolated.

Where a system, plant or equipment is sequence interlocked and a hazard could be created through the inadvertent start up or shut down of a system, plant or equipment lying before or after the unit to be worked on, then that system, plant or equipment must also be isolated and locked out.

Redundant or out of service equipment must, in addition to being isolated and locked out using the relevant Discipline Lock, be fitted with a tag indicating why it is out of service, who performed the lockout, and the hazards associated with that equipment.

Where it is necessary to work on live equipment for the purposes of commissioning, testing, adjusting and sampling, such work must be carried out in accordance with a written Safe Work Procedure and controls must be in place to prevent unauthorised access into the work area.

The implementation of the isolation and lockout system and procedures applicable to the project must be audited on a regular basis by a nominated project management representative. Furthermore, planned task observations must be carried out periodically.

14.16 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.

14.16.1 Electrical Installations

Each electrical installation (temporary or permanent) installed or worked on by a contractor must be inspected by a nominated project management representative to ensure that the installation complies with all statutory requirements, codes, design criteria and safety standards applicable to the project.

A nominated project management representative must approve all electrical work before the installation is energised. Any installation deemed unsatisfactory by a nominated project management representative must be removed, repaired or modified by the contractor at his expense.

For every permanent or temporary electrical installation, a certificate of compliance must be issued by a competent and appropriately qualified electrician. These certificates must be available for inspection.

Single line diagrams (with supporting documentation) must be produced and maintained for all electrical installations. This information must include system fault calculations, equipment details, electrical protection discrimination curves, and cable ratings.

Work on electrical installations (new installations, and modifications or repairs to existing installations) may only be carried out by qualified and authorised personnel (i.e. electricians).

Electrical safety devices (specifically, earth leakage protection and overcurrent protection) must be installed on all distribution circuits and the settings must be established by suitably qualified personnel.

A suitable numbering and / or labelling system must be used so that each circuit breaker or earth leakage device can be clearly and readily matched with the outlet or equipment that it protects.

To ensure the safety of the user, each distribution panel must be completely enclosed, must be of the dead-front type, and must be properly constructed and earthed.

All electrical cabling must be covered (e.g. in cable trenches) or elevated (in cable trays) to protect it from damage and to eliminate tripping hazards.

All permanent and temporary electrical installations (cabling, sockets, distribution panels, transformers, switchgear, etc.) must be inspected and tested by a competent and suitably qualified electrician on a monthly basis. The testing must include a grounding (earthing) continuity test and testing of the electrical safety devices. Details of these inspections and tests must be recorded in a register which must be made available to the nominated project management representative for inspection.

A rigorous Isolation, Lockout and Permit to Work system must be applied to all electrical work (i.e. work on electrical installations, machinery or equipment). All personnel must comply with the system and procedures applicable to the project.

Before any work on an electrical installation or equipment is carried out, the installation or equipment must be de-energised.

No electrical work may be performed live, regardless of the voltage, unless written approval is obtained from the nominated project management representative (a justification as to why it is necessary for the work to be carried out with the equipment in an energised state must be provided).

For all energised electrical work, a Safe Work Procedure must be in place and, with the exception of voltage testing and where no tools are used, a Permit to Work (specifically authorising energised electrical work) must be issued.

When carrying out any energised electrical work, approved electrically insulated gloves, blankets, mats and other protective equipment must be used.

Control centres, switchgear rooms, substations, generators, transformers, capacitor banks, and other similar electrical plant and equipment must be appropriately guarded and labelled and, with the exception of emergency shut-off mechanisms, must be made inaccessible to unauthorised personnel (i.e. plant or equipment of this nature must be positioned within rooms or fenced enclosures which must be kept locked).

Appropriate warning signage must be prominently displayed within, and at all entrances to, these rooms or enclosures. The signage must indicate that unauthorised persons are prohibited from entering, that unauthorised persons are prohibited from handling or interfering with any electrical plant or equipment, the procedure to be followed in the event of a fire, and the first aid procedure to be followed should a person suffer electric shock. Suitable fire-fighting equipment must be provided in all such rooms or enclosures.

All electrical panels must be kept locked (using keyed-alike padlocks). Keys may only be issued to authorised personnel.

All un-insulated (bare) or partially insulated conductors must be enclosed and protected to prevent accidental contact therewith. Measures must be taken to prevent unauthorised access and appropriate warning signage must be conspicuously displayed.

Only authorised persons may enter rooms or enclosures housing electrical plant or equipment, and only authorised persons may access electrical panels or cabinets, and cable ducts or trenches. If any work must be carried out in such an area or on such equipment, a Permit to Work must first be obtained from the nominated project management representative.

No connection to any electrical system may be made without prior approval and a valid Permit to Work from the nominated project management representative.

No electrical equipment or apparatus may be modified without written authorisation from the nominated project management representative.

Conductive ladders may not be used in proximity to non-insulated electrically energised lines or equipment.

All permanent and temporary electrical cables, whether energised or not, must at all times be handled as if they are energised.

Only appropriately certified intrinsically safe electrical equipment may be used in flammable or potentially explosive atmospheres such as in confined spaces.

Any equipment or structure on which electric charges may accumulate (such as storage tanks) must be grounded (earthed).

Lightning protection must be provided on all tall structures and buildings.

Grounding (earthing) and lightning protection systems and devices must be designed, engineered, selected and installed based on site-specific requirements.

Before carrying out any excavation work, a Permit to Work (specifically authorising the excavation activities) must be obtained from the nominated project management representative. Such a permit must not be issued until it has been verified that no buried hazards or services exist where the excavation work is to be carried out (refer to the Excavation Standard).

14.16.2 Portable Electrical Equipment

Prior to site establishment, each contractor must provide a complete inventory of all portable electrical equipment that he and his sub-contractors intend to use on the site (including plant, machines, appliances, generators, hand tools, lighting, extension cords, etc.). The nameplate data for each item of equipment must be included.

All portable electrical equipment to be used on the site must be supplied and maintained in a serviceable condition.

Any electrical equipment that is in poor condition or is not in proper operating order may not be used. Any electrical equipment that a nominated project management representative deems to be unsafe or unsuitable must be removed from site.

Electrical repair work or diagnostic work on electrical equipment may only be performed by personnel who are competent and authorised to perform this work (i.e. qualified electricians).

With the exception of double-insulated equipment, all electrical equipment must have an equipment grounding (earthing) conductor that connects the frame of the equipment being utilised to the grounding (earthing) conductor of the electricity supply system.

All electrical equipment and all electricity supply systems used (including generators) must be inspected and tested by a registered and competent electrician to ensure that all equipment is properly grounded (earthed).

All electrical equipment used on site must be supplied electricity through (i.e. must be protected by) an approved and tested residual current device (or earth leakage device or unit). If a socket outlet does not have a residual current device in the circuit, a portable residual current device must be used. Outlets without residual current device protection must be labelled as such.

Any electrical equipment that causes an earth leakage device to trip or deactivate the circuit may not be used again until an electrician has inspected and tested the equipment and has recorded in a register that the equipment is safe to use.

Interlocks may never be removed or modified, and fuse terminals may never be bypassed to keep current flowing in any circuit.

All generators must be fitted with suitable overcurrent protective devices (i.e. circuit breakers or fuses).

All generators must be used in compliance with the manufacturer's requirements. Any proposed modification to a generator must be authorised in writing by the manufacturer prior to the modification being made.

Each welding machine used on site must be fitted with a Voltage Reduction Device (VRD). If this is not practical (i.e. for arc welding processes other than stick welding), a dead man's (isolation) switch in the electrode circuit (operated by a trained observer) may be used as an alternative. All welding machines must be properly grounded (earthed).

All portable electrical hand tools used on the site must be double-insulated.

Electrical equipment must be disconnected or unplugged when not in use.

Portable lights must be stable and each light bulb must be protected by a substantial guard.

Temporary festoon lighting must be double-insulated and must be supported at least 2.5 metres above the floor, if possible.

Handheld lights must be of the all-insulated type and must be extra low voltage (i.e. not exceeding 32V). 120V or 240V handheld lights are not permitted.

Any lighting used in hazardous locations (i.e. potentially explosive atmospheres, confined spaces, and damp or wet areas) must be operated at a maximum of 32 volts, unless earthed and protected by earth leakage devices.

No person may wear a watch or any jewellery, or carry any metal objects such as a lighter or keys, while working on any electrical system or equipment.

No person may work on or use electrical equipment if his clothing is wet or any part of his body is in contact with water.

No person may handle electrical equipment, equipment cords or extension cords with wet hands or if the floor or ground surface is wet.

Fire extinguishers filled with carbon dioxide must be used to fight electrical equipment fires (water may never be used). If possible, the electrical equipment should be de-energised before fire-fighting activities commence (refer to the Fire Protection and Prevention Standard).

When cleaning or performing maintenance work on an item of electrical equipment, the equipment must be unplugged.

Equipment may not be unplugged while that equipment is switched on. Nor may equipment be plugged into a receptacle (socket) with the equipment's switch turned on. Electrical equipment that has a defective plug or wiring may not be used. Repair work to defective or damaged electrical equipment may only be carried out by a qualified electrician.

Extension cords may be used for temporary applications only. Permanent cabling must be installed for long-term needs.

Extension cords may not be run through doors, windows, ceilings or holes in walls.

An extension cord must be uncoiled completely before it is used.

An extension cord must be of sufficient current-carrying capacity to power the equipment that it is supplying electricity to. Cords must not be overloaded.

Extension cords must be unbroken and continuous (i.e. no joins or splices in the cord are permitted).

Extension cords may not be daisy-chained (i.e. one extension cord plugged into another extension cord).

Extension cords and equipment cords may not be modified to fit a receptacle (socket).

Two-conductor extension cords may not be used. A three-conductor extension cord (i.e. a grounded or earthed cord) must be used even if the equipment that it is supplying electricity to uses a two-prong plug.

Extension cords that are frayed, have insulation tears, cracks or abrasions, have exposed conductors, or have bent, broken or "spread" plug prongs may not be used.

Extension cords that will be used outdoors must have heavy duty insulation and must be weather and UV resistant.

All electrical equipment cords and extension cords must be covered or elevated to protect them from damage and to eliminate tripping hazards.

Each contractor is responsible for protecting his electrical equipment from the weather and from possible mechanical damage.

All portable electrical equipment (including generators) must be inspected, tested and tagged by a competent and appropriately qualified electrician on a monthly basis. Details of these inspections and tests must be recorded in a register which must be made available to the nominated project management representative for inspection.

The inspection and testing must include a continuity test of the grounding (earthing) conductor (as applicable) and a complete examination of the equipment or system to assure safe use.

The following colour coding system must be used for the tagging of all electrical equipment:

Table 15-2 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.

Any item of electrical equipment without a tag or with an out-of-date inspection or test may not be used.

Any item of electrical equipment found without a tag or with an out-of-date inspection or test must be removed from service until it has been inspected and tested. If it is found that more than one item of equipment being used by a contractor has not been inspected and tested as required, all work with electrical equipment must be stopped until it can be demonstrated to the satisfaction of the nominated project management representative that the contractor's systems and controls are adequate and fully implemented.

In addition to the formal monthly inspections and testing carried out by an electrician, electrical equipment (particularly extension cords, portable hand tools, welding machines, compressors and pumps) must be visually inspected by the user on a daily basis prior to use. Users must be trained to look for cracks in casings, loose casings, outer cord sheathing that is not being held firmly in position at the equipment, cuts or cracks in cord or cable insulation, exposed conductors, damaged plugs or sockets, and missing covers. Damage and / or defects must be reported immediately.

Personnel must immediately stop using and report any electrical equipment or machinery that is shocking, sparking, overheating or smoking. Corroded outlets, switches and junction boxes must also be reported.

14.17 Arc Welding

All welding machines must be fitted with voltage reducers.

The supply cable to every welding machine must be correctly rated and fitted with an approved plug to be used only with an approved matching plug socket.

The electrical circuit to every plug socket must be protected by a correctly rated circuit breaker and a supply voltage rated earth leakage unit.

Welding cables must be properly insulated and correctly rated for the welding machines on which they are to be used.

Welding cable terminals must either be covered with a properly designed, constructed and installed cover so that inadvertent human contact with the terminals is impossible, whether the cables are connected or not, or the welding cables must be fitted with insulated plugs so that inadvertent human contact with any live part is impossible when the cables are plugged into the machine. Also the plug socket should be such that when the cables are not plugged in, inadvertent contact with a live part of the socket is impossible.

Earth cable clamps and electrode holders must be of an approved type. Earth clamps and electrode holders must be fixed to welding cables with eye terminals and bolts.

All welding machines and safety devices must be subjected to regular planned maintenance and a monthly electrical inspection. The inspection must include a test to ensure that the voltage reducer is functioning properly, by measuring and confirming that the open circuit output voltage is reduced.

Before using a welding machine, the welder must ensure that he is wearing all the required and approved protective clothing and equipment:

- Persons assisting the welder must also wear all of the required personal protective 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.

When working inside metal vessels or under other conditions where parts of his body may come into contact with conducting surfaces, the welder must take precautions to insulate himself from such surfaces.

When working in confined spaces, the welder must take steps to ventilate the area to prevent inhalation of fumes, which may endanger his health and the health of any assistants.

Engine powered welding machines must not be used in any place that is not very well ventilated since the welder and his helpers may be overcome by carbon monoxide fumes.

The welder should take the necessary precautions when welding objects that may catch alight, explode or release poisonous fumes or gases.

14.18 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.

14.19 Compressed Gas Cylinders

The contractor must establish a suitable storage area for oxygen, acetylene, LPG and argon cylinders in compliance with the following requirements:

- The storage area must be located at least 10 metres away from any building, and must be well ventilated;
- The storage area must have a concrete floor;
- The storage area must be enclosed using wire mesh fencing (as this will ensure adequate ventilation). This enclosure must be kept locked. Access into the storage area must be limited and controlled;
- A protective covering or roof must be fitted to the enclosure to provide shade;
- The enclosure may not be used for the storage of any other materials / equipment, and must be kept completely free of all combustible materials at all times;
- Appropriate warning signage (i.e. "No Smoking" and "No Naked Flames") must be prominently displayed on the enclosure;
- A 9kg dry chemical powder fire extinguisher must be mounted near the entrance to the enclosure
- If electrical lighting is required, it must be of an approved intrinsically safe type;
- Oxygen, acetylene, argon and LPG cylinders must be stored separately in the enclosure. Furthermore, full and empty cylinders must be separated. Separate storage sections must be clearly designated within the enclosure for the different gas types, and for full and empty cylinders, i.e. oxygen – full, oxygen – empty, acetylene – full, acetylene – empty, etc.;
- When a cylinder is empty, the cylinder cap must be replaced to protect the valve. Empty cylinders must be clearly marked (there must be no need to open valves to check if cylinders are full or empty);
- All cylinders must be stored in an upright position and must be secured in this position by chaining, strapping or clamping them individually to a wall, a cylinder trolley, rack or carrier, or some other rigid structure;

- Cylinders must be stored in rows (when necessary due to the number of cylinders) with aisles between the rows to facilitate easy and rapid removal in the event of a fire;
- Oxygen cylinders may never be stored near highly combustible materials, particularly oil and grease, or near fuel gas cylinders. When in storage, oxygen cylinders must be separated from fuel gas (LPG and acetylene) cylinders by a distance of 6 metres or by a 2 metre high wall made of fire-resistant material;
- The total quantity of gases stored on site must be limited to a 2 week supply.

Compressed gas cylinders must always stand upright (i.e. when being used, stored or transported) and must be properly and individually secured to prevent them from falling over.

Cylinders must be protected from flame, heat and from being struck by moving equipment and falling objects.

When handling gas cylinders (whether full or empty), care must be taken to prevent sudden impacts.

Whenever a cylinder is not in use, the protective cap must be in place to prevent the valve from being damaged.

Gas cylinders may not be carried, dragged, rolled or slid across a floor or surface.

When gas cylinders are to be moved / used, they must be placed in a proper cylinder trolley fitted with a 1.5kg dry chemical powder fire extinguisher.

Gas cylinders may not, under any circumstances, be used as rollers or work supports.

If transported by crane, hoist or derrick, compressed gas cylinders must be placed in a suitable cradle, net or skip box. Cylinders may NEVER be lifted using wire rope, fibre rope, a web sling or a chain sling. Before moving / transporting a gas cylinder, the regulator must be removed and the protective valve cap must be replaced.

Gas cylinders may not be taken into a confined space. Gas hoses that are run into a confined space must be removed during breaks.

Gas cylinders may not be placed on scaffolding.

Cylinder valve keys must be in place. If no suitable valve key is available then the cylinder may not be used. Nothing but the manufacturer-supplied key may be used to open the valve.

A flashback arrestor and a check valve (non-return valve) must be installed between the regulator and the hose and between the hose and the torch on the oxygen line and on the fuel (acetylene) line.

Connection fittings may not be forced and safety devices associated with cylinder valves or regulators may not be altered / tampered with.

Gas hoses may not be joined. Only approved hose connectors of the crimp type are permitted. Wire and jubilee clamps are prohibited.

Only high quality ancillary equipment may be used. This includes flashback arrestors, hoses, clamps, spindle keys, nozzles and torches.

Only trained and competent personnel may operate gas welding / cutting equipment and appliances.

When an employee opens the valve to a cylinder, he must stand to one side and open it slowly. Valves may never be left partly open – they must either be closed or be opened fully.

Leaking cylinders must immediately be removed from service and the workplace (if it is safe to do so).

Suitable firefighting equipment must be at hand wherever gas cylinders containing oxygen and / or fuel gas are being used.

Gas cylinders must be prevented from coming into contact with electrical circuits, e.g. welding leads. Never strike an arc on a cylinder.

Oxygen may only be used for the purpose for which it is provided. Do not use oxygen in pneumatic tools or tyres, as an explosion may occur.

Empty cylinders must immediately be marked as such and must be removed to the cylinder storage area at the end of each day / shift.

14.20 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.

14.20.1 Angle Grinders

The following personal protective equipment must be worn when using angle grinders:

- Safety helmet;
- Gloves;
- Safety glasses (or safety goggles) and a full face shield (i.e. double eye protection);
- Overalls with long sleeves and long pants, avoid any form of loose clothing;
- Safety boots with steel toe protection;
- Hearing protection;
- Breathing apparatus where dust or fumes may be generated;
- Where grinding machines are used, a face shield is to be worn as extra protection to the safety glasses; and
- Certain tasks may require the use of a leather apron as determined by a risk assessment.

A 230mm angle grinder may not be used for free cutting purposes. Exceptions may be approved only if alternative methods evaluated proved more hazardous or no alternative exists. The risk assessment for the task must then specifically include mitigating measures to ensure the safest possible way of performing the task.

The use of 230mm angle grinders for grinding purposes is acceptable, however should this form of grinding be required, the 115mm or 125mm grinders would be preferable. All angle grinders must have a dead man switch incorporated, with a pressure switch in the handle.

A 230mm electrical angle grinder unit must incorporate a soft start to reduce the starting strain and a braking system to reduce run on after the unit has been switched off.

All angle grinders must have a spindle lock to assist with changing the disc or grinding wheel.

Anti-vibration handles are recommended to further reduce the stress if used for extended periods.

Angle grinders must be equipped and operated with disc guarding at all times.

Angle grinder must not be stored with fitted discs, as this will lead to damaging of the discs.

Before use and mounting of discs it is essential to check the safety codes and specifications printed on the upper side of the disc. Such specifications include the following:

- Revolutions per minute (RPM). The allowable speed of the disc must be equal to or greater than the maximum achievable speed of the grinder;
- Physical dimensions of the disc must meet grinder specification; and
- The disc must be suitable for the material type to be cut / ground as indicated on the disk. Cutting discs must never be used for grinding and vice versa.

It is critical that the correct disc mounting procedure is followed:

- Check that the machine is plugged out;
- Check the machine spindle, backup washer and thread;
- Check the condition of spindle nut - ensure spanner drive holes are not elongated;
- Ensure spindle nut spanner is the tool recommended by machine manufacturers;
- Do not use a hammer, pipe or chisel to tighten the nut, or apply additional mechanical advantage to nut torque. A firm "nip" is sufficient to retain the disc;
- Ensure the spindle diameter is suited to disc bore. Excessive clearance will cause the machine to vibrate due to eccentricity;
- Check to see that the nut and backup washer do not "bottom out". This will result in the disc not being correctly clamped on the spindle;
- Ensure the spindle speed is marked on the grinder and that it is less than the allowable disc speed; and
- Fit the disc, with the metal ring or writing to the nut side.

14.21 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.

14.22 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.

14.23 Hand Tools

Employees required to use hand tools must receive training relevant to the tool and have their competency assessed in the operation, inspection and maintenance of the tool. Where necessary, additional applicable personal protective equipment must be worn when using hand tools.

Wrenches, including adjustable, pipe, end, and socket wrenches, must not be used when the jaws are sprung to a point where slippage occurs. Impact tools such as drift pins, wedges and chisels, must be kept free of mushroomed heads. The wooden handles of tools must be kept free of splinters or cracks.

Adjustable wrenches must not be used in lieu of ring or open-end type spanners, unless a risk assessment has been conducted and the use of the adjustable wrench is approved by the nominated project management representative. Wherever possible, ring spanners must be used in preference to open end spanners.

Correct hand tools for the job must be used, e.g. screwdrivers must not be used as chisels, and pliers must not be used as hammers.

All wedges and drifts that may spring, fly or fall to lower levels upon impact must be fitted with an attachment which attaches a safety "lanyard" to a solid structure to restrain the impact tool from becoming a projectile.

All hand tools used in elevated areas, that may be dropped or fall to lower levels must be fitted with safety lanyards and attached to solid structures or in the case of podges, scaffold keys etc., attached by wrist lanyard to the user.

Purpose built tools and equipment may not be used unless a risk assessment has been conducted and authorised by the nominated project management representative.

14.24 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.

14.25 Manual Handling and Vibration

Any handling or lifting task that can only be done manually must be planned and rehearsed before the task is done.

If more than one person is involved in a task a communication procedure must be agreed in advance. Lowering the load must be done in a controlled manner. Dropping a load is dangerous and must be avoided.

As a guideline 25 kg is considered to be the limit of what a person can safely handle. Where there are loads exceeding 25 kg the risk of handling the load must be mitigated to assure minimal potential for any injury.

When mechanical lifting aids are provided, they should be used.

Extra care should be taken when lifting awkwardly shaped objects.

Position the feet correctly. The feet should be placed hip-width apart to provide a large base. One foot should be put forward and to the side of the object, which gives better balance.

Bend or 'unlock' the knees and crouch to the load. The weight will then be safely taken down the spine and the strong leg muscles will do the work.

Get a firm grip. The roots of the fingers and the palm of the hand should grip the load. This keeps the load under control and permits it to be distributed more evenly.

The following should be considered with conducting the Risk Assessment with regards Manual Handling and also take into consideration the task factors, physical demands and tools involved in the task:

- Load weight/frequency;

- Hand distance from lower back;
- Asymmetrical trunk/load;
- Postural constraints;
- Grip on the load;
- Floor surface;
- Environmental factors;
- Carry distance; and
- Obstacles enroute.

Team Manual Handling:

- Load weight;
- Hand distance from lower back;
- Vertical lift region;
- Trunk twisting/sideways bending;
- Postural constraints;
- Grip on the load;
- Floor surface;
- Environmental factors; and
- Communication, co-ordination and control.

As far as possible, exposure to vibration must be eliminated.

However, if this is not possible, short-term solutions to decrease exposure include:

- Reducing the vibration levels;
- Removing the person from the vibrating equipment / tools;
- Reducing the period of time that the person works with the vibrating equipment / tools (at least 40 minutes break after 20 minutes working with a machine that vibrates excessively).

In order to reduce exposure to vibration:

- Consider buying equipment that operates effectively at lower speeds;
- Buy equipment with built-in damping materials;
- Buy lighter tools if they are available - they require less of a grip;
- Maintain the equipment;
- Make sure equipment is balanced and there are no worn parts;
- Use remote controls when they are available;
- Reduce your grip on the equipment when it is safe. The less time you actually have your hands on the equipment the better. Relax your hands during these brief breaks;
- Take scheduled breaks; and
- Do other tasks that allow you to move away from vibrating tools and equipment.

The workplace must be assessed by a competent person for compliance with good design, layout and practice, to avoid or minimise adverse health consequences due to manual handling and vibration issues.

Quantitative evaluations of vibration produced by specific equipment must include the following measurement parameters: direction of movement, frequency, intensity, and variation with time and duration, as per documented methods.

Employees and contractors must be informed of the results of assessments and instructed in appropriate manual handling techniques, where the risk assessment indicates a need. Workplace vibration sources that could contribute to the exceedance of an Occupational Exposure Limit (hence potential for impact on worker Musculo-skeletal fitness) must be identified and adequately characterised.

Manual handling tasks assessed as having the potential to cause a Lost Time Injury (i.e. with potential for impact on worker Musculo-skeletal fitness) must be identified and adequately characterised.

Workplace manual / materials handling tasks risk rated as "significant" must be assessed and recorded to include biomechanical factors (e.g. posture, bending, twisting, repetitive motions, working overhead, and exerting force away from the body).

14.26 Personal Protective Equipment

All applicable legislation concerning Personal Protective Equipment (PPE) must be complied with at all times.

As a minimum, the following PPE must be worn by all persons (including visitors) at all times whilst on a project site:

- Safety footwear with steel toe protection;
- Safety glasses (individuals who wear prescription spectacles must be provided with either over-spec safety glasses or prescription safety glasses);
- Safety helmet (hard hat); and
- High visibility protective clothing with reflective taping (long trousers and long-sleeved shirts with collars and cuffs).
- Additional PPE requirements must be determined through hazard identification and risk assessment. This hazard-specific PPE (such as hand protection, hearing protection and respiratory protection) must be worn as required (e.g. when in a certain area, when performing a certain task, or when working with a certain substance);
- The correct PPE must always be worn:
- In accordance with site requirements (as indicated at the entrances to a project site and at the entrances to buildings and / or designated areas on the premises);
- In zoned areas (e.g. noise zones and respirator zones); or
- As required by a Safe Work Procedure, a risk assessment, or a Safety Data Sheet (SDS).

Each contractor must provide each of his employees with all required PPE (at no cost to the employee). The specific PPE that is provided to a particular employee must be based on the nature of that employee's work and the location in which the work is performed (i.e. must be based on the hazards to which the employee is exposed). PPE requirements for a particular job or for a particular area must be determined through a risk assessment for that job or area.

Any employee who does not have all of the PPE that is required for him to perform his duties safely will not be permitted to work.

Each employee must care for his PPE, maintain it in good condition, and inspect it on a daily basis.

If an item of PPE has worn out, has become damaged, or is found to be defective in any way, it must be replaced by the contractor.

PPE must be stored in accordance with the manufacturer's requirements and / or recommendations.

Each employee must receive training in the use, maintenance and limitations of the PPE that is provided to him, and must be made aware of why the PPE is necessary as well as the consequences of not wearing it as instructed (i.e. the potential for injury and / or disciplinary action). Training records must be retained.

Any person who refuses to wear PPE as required must be removed from the site. Symbolic signs indicating mandatory PPE requirements must be prominently displayed at the entrances to a project site and at the entrances to buildings and / or designated areas on the premises where additional PPE is required. These signs must comply with the applicable national standard (if one exists).

Each contractor must appoint an employee to:

- Control the issuing and replacement of PPE;
- Keep an up-to-date register as proof that items of PPE have been issued to individuals (an employee must sign for the items that he receives);
- Ensure that there is an adequate supply of all required PPE (i.e. maintain PPE stock levels on site); and
- Carry out regular inspections to ensure that PPE is being used correctly, is being maintained in a good, serviceable and hygienic state, and is not being shared between employees. Head Protection

A safety helmet (or hard hat) worn correctly will help protect the head in the event of:

- An employee being struck on the head by a falling or flying object;
- An employee striking his head against a fixed or protruding object; or
- Accidental head contact being made with an electrical hazard.

A safety helmet must be worn at all times on a project site, with the following exceptions:

- Vehicle and equipment operators inside enclosed cabs;
- In offices and in office or administration buildings; and
- At designated lunch and break areas (provided that no work is in progress in the immediate break area).

A safety helmet must be worn in accordance with the manufacturer's requirements.

A safety helmet must be worn directly on the head. The wearing of a cap or other headgear beneath a safety helmet is prohibited unless the items have been specifically designed to be used in combination (i.e. the arrangement is approved by the safety helmet manufacturer).

The suspension system inside a safety helmet (that acts as a shock absorber) may not be removed.

The painting of safety helmets is prohibited.

Safety helmets may only be cleaned using a mild detergent and water. No solvents may be used.

14.26.1 Eye Protection

If an employee is carrying out, assisting with, or working adjacent to any activity where sparks or projectile particles are being generated, where chemical mists or fumes are being generated, where liquids may splash or spray, where harmful electromagnetic radiation (heat or light) is being generated, or where there is a risk of wind-blown particles entering the eyes, then suitable protective eyewear must be worn at all times (i.e. safety glasses, safety goggles, a face shield, a welding helmet, or a combination of these).

Such activities include:

- Working with rotating equipment (e.g. grinders, drills, mills, lathes, and saws);
- Welding and cutting;
- Chipping, chiselling or caulking;
- Using explosive powered tools;
- Abrasive blasting;
- Sanding; and
- Working with chemical substances (e.g. drilling fluids, acids, solvents, paints, pesticides, etc.).

For certain activities, special eye protection is required (e.g. a heat-resistant face shield is required when working near molten metal).

Double eye protection is required for activities such as:

- Grinding, cutting, chipping, chasing and reaming (employees must wear both a full face shield and safety glasses or goggles); and
- Arc welding (welders must wear both safety glasses and a welding helmet).

Screens must be erected to protect passers-by, where practical.

Safety glasses must be worn at all times on a project site, with the following exceptions:

- Vehicle and equipment operators inside enclosed cabs with the windows fully closed;
- In offices and in office or administration buildings;
- At designated lunch and break areas (provided that no work is in progress in the immediate break area); and
- When another form of eye protection is required (e.g. safety goggles).

All safety glasses used on site must have suitable permanent side protection.

In strong sunlight, dark safety glasses should be worn to reduce eyestrain and fatigue. However, caution must be exercised when employees are required to frequently move between outdoor and indoor environments. Dark safety glasses may not be worn indoors or in poor daylight conditions. Prescription spectacles with tinted lenses are prohibited inside buildings or other structures with limited illumination unless the lenses are light-sensing and adjust to changing illumination levels.

Employees who wear prescription spectacles (i.e. require corrective lenses) must make use of either:

- Prescription safety glasses (with permanent fixed side shields) that conform to the requirements of a recognised national or international standard (e.g. CSA, ANSI, or equivalent); or
- Over-spec safety glasses or goggles.

The use of contact lenses in certain areas may not be suitable because of increased risk to the eye due to dust or heat.

14.26.2 Hearing Protection

Local regulations concerning occupational exposure to noise and the use of hearing protection must be complied with as a minimum.

"Low noise" tools and machinery must be used wherever possible to reduce noise levels. Where noise cannot be reduced to an acceptable level through engineering and work practice controls, measures must be put in place to minimise the exposure of employees to the noise (i.e. administrative controls and personal hearing protection).

Areas where it is likely that the 95% upper confidence limit of an eight hour L_{eq} mean exceeds 85dB(A), or areas where impulse noise exceeds 140dB(C), must be designated as noise zones. These noise zones must be clearly demarcated and mapped, signs must be posted, and all employees must be made aware of the requirements for working in such an area.

Suitable hearing protection must be worn in all designated noise zones and when carrying out (or working in the vicinity of) any activity where the noise level exceeds 85dB(A).

Where hearing protection is required, a hearing conservation programme (applicable to all personnel and visitors) must be implemented. The programme must include training in the correct use and proper storage of hearing protection devices as well as replacement requirements. Training must be provided when hearing protection is first issued to an employee and refresher training must be carried out at least annually thereafter. Training records must be retained.

At least two types of personal hearing protection must be made available to employees. The hearing protection devices provided must have adequate noise reduction ratings (i.e. must be able to attenuate the noise level to below 85dB(A)).

Personal hearing protection must be issued on an individual basis and must not be shared. In addition to personally issued hearing protection, suitable disposable hearing protection must be made available at the entrances to all noise zones.

All Hearing Protection Devices (except for disposable hearing protection) must be properly inspected and cleaned on a regular basis.

14.26.3 Respiratory Protection

Designated areas (respirator zones) must be established where:

- It is likely that the 95% upper confidence limit of a Similar Exposure Group's mean exposure concentration exceeds the relevant Occupational Exposure Limit (OEL) for agents resulting in chronic effects, such as total inhalable dust, respirable dust, respirable crystalline silica, PAH, fluorides, lead, mercury, asbestos or non-asbestos fibrous materials; or
- The concentration of an agent (particulate, vapour or gas) with an acute effect exceeds 50% of the relevant OEL.

Note: For a particular hazardous agent, the OEL to be adopted must be either the client's OEL or the OEL specified in local legislation, whichever is the most stringent.

These areas must be clearly demarcated and mapped, signs must be posted, and all employees must be made aware of the requirements for working in such an area.

Suitable Respiratory Protection Devices (RPDs) must be worn in all designated respirator zones and when carrying out (or working in the vicinity of) any activity where the risk assessment has identified the need for respiratory protection.

RPD's must be selected based on:

- The type(s) of airborne contaminants that are present (gases, vapours, and particulates and aerosols including dusts, fumes, sprays, mists, and smoke);
- The potential particulate size distribution;
- Substance toxicity; and
- The likely concentrations.

Compatibility with the work tasks and other PPE, comfort (as it affects wear-time), and the ability to communicate adequately, must also be considered.

The risk assessment and method statement for the work to be performed, the information contained in the relevant Material Safety Data Sheets (MSDSs), and the results of any air monitoring associated with the substances to be worked with or activities to be carried out, must be used to ensure that the most suitable RPD is selected.

Only RPDs certified to a recognised standard and approved by the nominated project management representative may be used.

Where respiratory protection is required, a respiratory protection programme (applicable to all personnel and visitors) must be implemented.

The respiratory protection programme must include:

- Periodic inspection of RPDs, including before each use;
- Periodic evaluation (by competent persons) of cleaning, sanitising, maintenance and storage practices;
- Performance of positive pressure and negative pressure fit checks by RPD wearers before each use to ensure that the respirator is functioning properly; and
- Training at first issue of a RPD and regular refresher training thereafter in accordance with regulatory requirements or at least once every two years (the training must cover fit testing, use, cleaning, maintenance, filter cartridge replacement, and storage). Training records must be retained.

RPDs must be used, maintained, and stored in compliance with the manufacturer's requirements as well as the respiratory protection programme.

Suitable facilities must be provided for the cleaning and sanitary storage of RPD's.

As a minimum, qualitative and documented fit testing must be carried out (although quantitative fit testing is preferred) to ensure that the use of negative pressure RPDs (including disposable RPDs) is effective. Fit testing must be performed by a competent person when an RPD is first issued and must be repeated periodically in accordance with legal requirements or every two years as a minimum. A policy must be in place requiring a clean shaven face when using a negative or neutral pressure RPD for routine tasks (otherwise a positive pressure RPD must be used). A medical evaluation including a pulmonary function test may be required to determine whether or not an individual is medically fit to wear a respirator.

For air-supplied RPDs, breathing air must be effectively filtered and / or isolated from plant and instrument air, and isolated from sources of potential contaminants. The supplied air must be tested to determine if the air quality complies with the requirements of applicable standards for breathing air.

For nuisance dust, dust masks with a protection level of at least FFP2 must be worn.

14.26.4 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.

14.26.5 Foot Protection

Safety boots must be worn at all times 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, slippers, open-toed and high-heeled shoes are not permitted on any project premises.

Safety boots must provide the following protection:

- Steel toe cap to protect against crushing (impact and compression forces);
- Leather uppers that provide resistance against water penetration and water absorption;
- Slip resistant soles;

And where a risk assessment identifies the need:

- Puncture resistant soles (i.e. steel midsoles) for protection against sharp objects;
- Chemical resistant soles for protection against spilt chemical substances (such as solvents, hydrocarbons, acids, and alkalis);
- Heat resistant soles for protection against hot surfaces or molten metal; or
- Electrical shock resistant soles for protection (insulation) against live electrical conductors.
- Gumboots with steel toe caps must be worn when working in water or very wet conditions.

14.26.6 Clothing

All employees working on a project site must wear high visibility protective clothing with reflective taping. Trousers must be long and shirts must be long-sleeved. Shirts must be buttoned at the neck and wrists.

Protective clothing must preferably be made of natural fibres.

Short pants, short-sleeved shirts, sleeveless shirts, and vests are prohibited as outer garments (with the exception of a high visibility vest worn over a long-sleeved shirt).

Loose clothing may not be worn where it may become caught in moving machinery or equipment.

For hot work (e.g. welding, cutting, etc.), work in the vicinity of molten metal, and any work carried out in the vicinity of an open flame, the protective clothing worn (shirt and trousers) must be made of a suitable fire retardant fabric. Underwear and socks must be made of natural fibres (preferably wool) or fire retardant fabric.

No employee may tuck his trousers into his boots when working in the vicinity of molten metal.

14.26.7 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. hydrocarbons, etc.).

A wide variety of protective garments are available, such as firefighting suits, furnace suits, freezer jackets, leather aprons, leather spats, laboratory coats, chemical resistant aprons, chemical resistant (or hazmat) suits, and disposable coveralls. Suitable items must be selected to provide protection against the specific hazard(s) to which an employee is exposed. Hazards must be carefully identified and characterised to ensure that the correct protection is used.

Body protection must be sized properly to prevent tearing, the parting of seams, tripping, or restriction of movement.

14.26.8 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).

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).

14.26.9 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.

14.26.10 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).

14.26.11 Task-Specific PPE

In addition to the standard PPE required for a project site (including a safety helmet, safety glasses, safety boots, and high visibility protective clothing), the following task-specific PPE must be used as a minimum by any person carrying out or assisting with such a task:

- Arc Welding – safety glasses and welding helmet (i.e. double eye protection), respiratory protection against the specific airborne contaminants being generated (fumes, gases, dusts, etc.), leather welding gloves, leather apron, leather spats, leather yoke (for work above shoulder height), and knee pads for welders in kneeling positions;
- Gas Welding, Cutting or Brazing – gas cutting or welding goggles with shade 4 filter lenses and full face shield (i.e. double eye protection), respiratory protection against the specific airborne contaminants being generated (fumes, gases, dusts, etc.), leather gloves (long cuff for welding and cutting, short cuff may be used for brazing), leather apron, leather spats, and leather yoke (for work above shoulder height);
- Grinding – safety glasses or goggles and full face shield (i.e. double eye protection), hearing protection, respiratory protection where dust or fumes may be generated, leather gloves, leather apron, and leather spats;
- Abrasive Blasting – respiratory protection (air-supplied hood), hearing protection, leather gloves, and leather apron;
- Spray Painting – respiratory protection (air-supplied hood for confined spaces), safety goggles (if the respirator design does not provide this protection), hearing protection (where air compressors are used), chemical resistant gloves, and chemical resistant disposable coveralls.

14.27 Sun Protection

The contractor must ensure that all personnel are protected in sunlight through the use of 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).

14.28 Fuel / Flammable Liquid Storage and Refuelling

No fuel (diesel, petrol, paraffin, etc.) or any other flammable liquid (paints, solvents, etc.) may be stored on site unless approved in writing by the nominated project management representative.

If the on-site storage of a fuel or a flammable liquid is approved, the contractor must ensure the following:

- The quantity of fuel / flammable liquid to be stored on site must be kept to the minimum that is required;
- The storage area must be located in a well-ventilated area at least 10 metres away from any building, drain, boundary or any combustible material;
- If more than 200 litres of fuel / flammable liquid is to be stored, the tank must be installed / the containers must be positioned within a bund (see Definitions);
- If the fuel / flammable liquid are to be stored in bulk tanks / vessels, then the minimum capacity of the bund must be 110% of the volume of the largest tank / vessel. If many small containers (e.g. 210 litre drums) are to be stored, the bund must be able to contain 25% of the total volume of the stored products;
- The bund must be impermeable. It must have a solid concrete floor and the walls must be constructed out of brick and must be plastered on the inside;
- The bund must be fitted with a lockable drain valve (for draining away rainwater), which must remain locked in the closed position. The valve may only be opened under supervision and in accordance with a written procedure;
- The fuel / flammable liquid storage area may not be used for the storage of any other materials / equipment, and must be kept completely free of all combustible materials (including rubbish, brush and long grass) at all times;
- Access to the storage area must be controlled (wire mesh fencing and gate);
- Appropriate warning signage (i.e. "Flammable Liquid", "No Smoking" and "No Naked Flames") must be prominently displayed at the storage area. The contents and volume of each tank must be indicated;
- In order to contain spillages, the offloading / refuelling bay at the fuel / flammable liquid storage area must have a solid concrete base surrounded by bund walls, ramps or humps and / or spill trenches (covered with steel grating) that lead into a sump;
- Fuel dispensing pumps must be protected against impact damage;
- All fuel / flammable liquid storage tanks and dispensing equipment must be electrically bonded and properly earthed;
- All electrical installations and fittings must be of an approved intrinsically safe type;
- Two 9kg dry chemical powder fire extinguishers must be mounted in an easily accessible position near the entrance gate to the fuel / flammable liquid storage area. Depending on the size of the storage area, additional fire extinguishers may be required to ensure that an extinguisher is no further than 15 metres away from any point on the perimeter of the storage area;
- A fire extinguisher must be at hand wherever refuelling is carried out;
- Smoking or open flames within 10 metres of a fuel / flammable liquid storage / refuelling area is strictly prohibited;
- No petrol or diesel powered vehicle or equipment may be refuelled while the engine / motor is running;

- Cellular phones must be switched off in fuel / flammable liquid storage / refuelling areas;
- Spill clean-up kits (containing a suitable absorbent fibre product) must be provided;
- Any spillages must be cleaned up immediately and all contaminated cleaning materials must be disposed of in accordance with the applicable legislation;
- If a flammable liquid is spilt or is leaking from a container / vessel, the area must be cordoned off and appropriate warning signage must be displayed to keep unauthorised personnel away from the affected area. Every effort must be made to contain the spillage. All hot work in the vicinity must be stopped immediately. If the spilt product is volatile and the possibility exists that a vapour cloud may form, or if the leak or spillage cannot be contained or stopped, then appropriate emergency response procedures must be activated (refer to Section 14) including the evacuation of all persons in the vicinity. Suitable firefighting equipment must be positioned ready for use should the spilt product ignite;
- The manual decanting of fuel or a flammable liquid from a large container should only be done using a stirrup pump (or similar) or a purpose-made frame which allows the container / drum to tilt for decanting and then return to the upright position;
- Drip trays must be used wherever required;
- All tanks, drums, cans, etc. containing flammable liquids must be tightly closed and properly sealed except for when a container is being filled or when a product is being decanted;
- The transport or storage of corrosive or flammable liquids in open containers is strictly prohibited
- Daily-use quantities of fuel (up to a maximum of 20 litres) must be handled in an approved safety can with a flash arresting screen, spring closing lid and spout cover that will safely relieve internal pressure if the can is exposed to fire;
- Where safety cans may be impracticable, only approved metal containers with screw caps may be used. Each container must be clearly labelled to indicate its contents;
- Only small quantities of flammable liquids (paints, solvents, etc.) may be stored within a building. Each product must be kept either in its original container or in an approved container which must be properly sealed. Each container must be clearly labelled to indicate its contents. When not in use, all such containers must be stored in a well-ventilated steel cabinet which must be kept locked to prevent unauthorised access;
- Not even small quantities of flammable liquids may be stored or dispensed in buildings or places of public assembly, in general warehouses, or in buildings containing sources of ignition such as space heaters, cooking devices, open electric motors, motor vehicles, or where welding, cutting, or grinding activities are being carried out;
- Safe Work Procedures must be compiled for the transportation (including delivery), offloading, storage, handling and use of any fuel / flammable liquid on site;
- All personnel that will be required to work with or may come into contact with a flammable liquid must be made aware of the hazards associated with the product and must be thoroughly trained in the safe transportation, use, handling and storage thereof.

14.29 Fire Protection and Prevention (SANS 10400, Part T)

The contractor must compile a Fire Protection and Prevention Plan for the work that will be carried out on site.

The contractor must assess / survey his area of responsibility and identify locations where the risk of fire is high. Cognisance must be taken of the fact that certain locations may need to be designated as high risk due to the presence of large quantities of flammable or combustible materials / substances. For all high risk areas, the contractor must ensure that additional precautions are taken to prevent fires and strict control is exercised over any hot work (i.e. welding, cutting, grinding, etc.) that is carried out.

The contractor must supply and maintain all required firefighting equipment. The type, capacity, positioning, and number of firefighting appliances must be to the satisfaction of the nominated project management representative and must meet the requirements of the applicable legislation. Fire mains, hydrants and hose reels will rarely be available on site, so use must primarily be made of portable fire extinguishers.

Firefighting equipment, fixed and portable, must be strategically located with a view to being able to rapidly deploy the equipment in order to bring potentially dangerous and destructive fires under control while still in their infancy.

All fire extinguishers (and any other firefighting equipment) placed on site must be:

- Conspicuously numbered;
- Recorded in a register;
- Visually inspected by a competent person on a monthly basis (the results of each inspection must be recorded in the register and the competent person must sign off on the entries made); and
- Inspected and serviced by an accredited service provider every six months (the nominated project management representative may require that this frequency be increased depending on the environmental conditions (e.g. high dust levels, water, heat, etc.) to which the fire extinguishers are exposed).

Any fire extinguisher that has a broken seal, has depressurised, or shows any sign of damage must be sent to an accredited service provider for repair and / or recharging. Details must be recorded in the register.

Firefighting equipment may not be used for any purpose other than fighting fires. Disciplinary action must be taken against any person who misuses or wilfully damages any firefighting equipment.

Access to firefighting equipment, fixed or portable, must be kept unobstructed at all times. Approved signage must be in place to clearly indicate the location of each permanently mounted fire extinguisher, fire hose reel, etc.

The contractor must ensure that all persons working in / entering his area of responsibility are made aware of where all firefighting appliances and alarm points are located.

The contractor must ensure that his employees (and those of any appointed 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 determines that it is necessary, a fire watch must be stationed.

Supervisors must carry out workplace inspections regularly to ensure adherence to fire prevention measures and procedures.

At the end of every working period (i.e. before each tea / lunch break and at the end of every shift / day), the workplace must be thoroughly inspected to ensure that no material is left smouldering and no condition / situation exists that could give rise to a fire.

The contractor must ensure that all supervisors and all employees carrying out or assisting with any hot work or any other activity that could give rise to a fire have been trained in firefighting procedures and the use of firefighting equipment. The training must be conducted by an accredited training provider.

When using electrical equipment, all cables must be in good condition and the nearest convenient socket must be used.

No power socket may be loaded beyond its rated capacity through the use of adaptors, etc.

Makeshift electrical connections are not permitted under any circumstances.

Water-based firefighting equipment must not be used on electrical equipment or burning liquids.

Refer to Section 13.16 – Electrical Safety.

Each vehicle used on site for work purposes and each item of mobile equipment with a diesel or petrol engine must be fitted with a permanently mounted fire extinguisher.

Smoking is only permitted in designated smoking areas. Cigarette ends / butts must be properly stubbed out in the ashtrays provided and never thrown into waste bins.

The contractor must ensure that good housekeeping practices are enforced, as this is crucial to the prevention of fires.

All combustible waste materials must be removed from the workplace on a daily basis (at the end of each shift) and placed in waste receptacles located at least 5 metres away from any structure.

The accumulation of waste materials in out-of-the-way places is prohibited.

Offices, desks, cabinets, etc. must always be kept tidy and uncluttered. Waste paper bins must be emptied regularly.

The storage of combustible materials under stairways or in attics is prohibited.

The storage of any materials against the exterior of a building or any other structure is prohibited.

All walkways, passages and stairways must be kept clear (i.e. must be unobstructed) at all times, as they may need to be used as a means of escape.

The areas around and the routes to all exits, fire escape doors, fire hydrants, fire hose reels and fire extinguishers must be kept clear (i.e. must be unobstructed) at all times. "No Smoking" signs must be conspicuously displayed in and around all storage areas / rooms.

Waste may not be burned under any circumstances.

No flammable liquid (such as petrol, acetone, alcohol, benzene, etc.) may be used for starting fires or as a solvent for cleaning clothes, tools, equipment, etc. Only solvents approved by the nominated project management representative may be used for cleaning purposes.

Whenever any work is carried out involving the use of a flammable substance / material, the area must be cordoned off and appropriate warning signage (i.e. "No Unauthorised Entry", "No Smoking" and "No Naked Flames") must be displayed.

Refer to Section 14.32 – Fuel / Flammable Liquid Storage and Refuelling.

14.30 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.

14.31 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.

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.

14.32 Waste Management

Waste may not be disposed of unless the disposal of that waste is authorised by law. The contractor must therefore ensure that all waste that is generated is handled, stored, transported and disposed of in accordance with the requirements of the applicable legislation / local authority.

No waste may be removed from the project site to a waste storage or disposal facility unless that facility has been approved for use by the nominated project management representative.

An adequate number of waste bins and skips must be provided by the contractor and suitable arrangements must be made to ensure that these bins and skips are emptied regularly.

Hazardous wastes must be kept separate from general wastes.

Waste disposal service providers must be approved by the nominated project management representative before any waste is removed from site. These service providers must be audited on a two-yearly basis (or more frequently if deemed necessary based on risk) in order to ensure compliance with legislation and to help ensure that no liabilities accrue to the project.

14.33 Stacking and Storage

All irregular shaped items will be stacked at floor / ground level in designated stacking areas on a level, firm base capable of withstanding the weight of the commodities being stacked and stacked in such a manner that the items do not topple over or change position due to subsidence or weight transfer when being moved.

Where these commodities are stacked on shelves or racks, the shelves or racks must be designed to carry the weight of the commodity being stacked.

All racks or shelves where heavy material or commodities are stacked will have a weight carrying limitation clearly marked on the structure and have a safety factor of at least +10% of maximum total carrying capacity.

All materials, commodities or articles, which could be damaged due to inclement weather, must be stored under cover.

Waste material that is combustible must not be allowed to accumulate in sufficient quantities to create a hazard.

No commodities or equipment may be stacked or stored within 500mm of rolling stock tracks or where mobile equipment travels.

The storage of material, small equipment, tools, files and general items in cupboards and on shelves must be neat and controlled at all times. Incompatible substances must not be stored in or on the same cupboard or shelf.

No equipment, tools, files or documents may be stored or stacked on top of cupboards which are higher than 1.5 metres in height.

14.34 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.

14.35 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 10 workers, separate male and female changing facilities and sheltered eating areas. (Check SANS 10400 Part F).

Where chemical toilets are provided, one toilet for every twenty five employees must be allocated.

All toilets must be cleaned daily, disinfected and provided with toilet paper.

All employees making use of these facilities have the responsibility to help keep the facilities neat, clean and hygienic.

Washing facilities, including soap and towels, must be made available for use by the contractor's employees.

Drainage from all washing / toilet facilities must be properly designed and constructed to prevent employee exposure to waste water (and the associated biological hazards). Waste water may not accumulate or stand in pools at any location on the project site.

Change rooms must be provided and must be kept clean and free from odours at all times. No chemicals, except those normally used for domestic cleaning of these facilities, may be stored in the facilities.

No equipment or items (other than those normally associated with hygiene facilities) may be stored in the facilities.

All entrances must be constructed in a way to afford privacy to users.

Drinking water must be provided.

A sheltered (covered) area must be set aside on site to be used as a dining facility (eating area). Adequate seating must be provided for the maximum number of employees. The facility must be kept clean and tidy.

A suitably sized, impervious receptacle (bin) must be provided for the disposal of waste food and other refuse generated at the dining facility. This bin must be emptied and cleaned regularly (i.e. promptly after meal times).

Food may only be consumed in authorised sheltered areas.

Adequate refrigerated storage must be provided to the contractor's employees for the storage of food and drinks. Fridges must not be overstocked and must maintain sufficiently low temperatures.

14.36 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

- Thermal stress (heat and cold);

- Noise;
- Particulates (dust);
- Silica (free crystalline silica);
- Chemicals;
- 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).

14.37 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.

14.38 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 Safety Data Sheet (SDS) issued by the manufacturer / supplier of the substance;
- The reason for wanting to bring the substance onto site (i.e. the intended use of the substance);
- The proposed method of transportation;
- The proposed arrangements for the safe storage of the substance;
- The quantity to be stored on site;
- The proposed methods for handling / using the substance (including PPE);
- The proposed method of disposal of the waste;
- Proof that the contractor is able to readily provide the necessary first aid measures as specified in the SDS; and
- A risk assessment covering the transportation, use, handling, storage and disposal of the substance with specific reference to the substance's compatibility with other chemicals.

This information must be provided at least five (5) working days prior to the date on which the contractor intends to bring the substance onto site for use.

Any chemical substance brought onto site without adherence to the requirements stipulated above shall be removed from site immediately.

If the nominated project management representative approves the substance for use, the contractor must ensure that all necessary precautions are taken concerning the transportation, use, handling, storage and disposal of the substance, and that all required PPE and first aid materials / equipment (as stipulated in the SDS) are readily available on site.

The contractor must ensure that a Safety Data Sheet (SDS) is obtained for each chemical substance brought onto site. A file, or files, containing all of the SDS'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 SDS'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 SDS's);

- Determining precautions and safe practices for transportation, use, handling, storage and disposal (including PPE requirements) (using the SDS's);
- Determining first aid and emergency response requirements / procedures (using the SDS's);
- Maintaining the SDS 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 7.

Whenever a task-based risk assessment is carried out, consideration must be given to the use of chemical substances (e.g. greases, solvents, etc.).

The contractor must provide Safe Work Procedures for the transportation, use, handling, storage and disposal of all hazardous chemical substances to be used on site.

The contractor must provide his employees with all of the Personal Protective Equipment that is necessary to prevent exposure / injury while handling / using the hazardous chemical substances that they will be required to work with. Appropriate PPE must be selected with consideration given to the potential hazards, permeability, penetration, resistance to damage and compatibility with the work tasks.

The contractor's employees must be trained in the safe transportation, use, handling, storage and disposal of the hazardous chemical substances that they will be required to work with or may come into contact with. The training must specifically address PPE requirements (including the correct selection, fitment and use thereof).

All personnel must be trained to understand the potential health effects associated with exposure to hazardous chemical substances and therefore the importance of Safe Work Procedures and PPE. All personnel must be trained on emergency response procedures and first aid measures.

Behaviour-based observations and coaching must include the use / handling of hazardous chemical substances.

An appropriate occupational exposure monitoring and medical surveillance programme must be in place for all personnel potentially exposed to hazardous chemical substances which have the potential to cause immediate or long-term harm.

Emergency showers and eyewash stations must be provided where required by law, or where a risk assessment indicates a need. The emergency showers and eyewash stations must be appropriately located, signposted, and regularly tested and maintained. Employees must receive training on the location and use of the showers / eyewash stations.

An emergency response plan for incidents involving hazardous chemical substances must be in place. Regular and appropriately staged emergency drills (possibly involving external spill response and ambulance support services) must be held and lessons learnt must be incorporated into the emergency response plan.

The contractor must provide appropriate storage facilities for all hazardous chemical substances to be used on site. The storage facilities must be secure and protected from damage. They must also be designed for easy access for firefighting purposes. Where

applicable, the storage facility must protect chemical containers from physical damage due to temperature extremes, moisture, corrosive mists or vapours, and vehicles.

The inventory of hazardous chemical substances stored on site must be kept to a minimum. The quantity of each chemical stored must be justifiable.

Storage and segregation requirements for all hazardous chemical substances to be used on site must be based on:

- The quantities of the substances stored;
- The physical state of the substances (solid, liquid or gas);
- The degree of incompatibility; and
- The known behaviour of the substances.

Access to areas where hazardous chemical substances are stored and handled must be limited and controlled.

Every chemical substance container must be adequately and clearly labelled to identify its contents, to indicate precautionary requirements for the substance, and to indicate the date of expiry (if applicable). Pipes used to transfer / convey / distribute chemical substances must be clearly identified (e.g. colour coding). Directional flow must be indicated where practical.

Before any item, equipment or empty container containing a chemical residue is disposed of as general waste, it must be properly decontaminated (where applicable). Before being disposed of, empty chemical containers must also be rendered unusable for carrying water (by puncturing, cutting or crushing them).

Hazardous chemical substance waste (i.e. redundant / expired hazardous chemical substances, containers containing residues, contaminated items / materials, etc.) must be disposed of in accordance with the applicable legislation.

Maintenance, inspection and testing schedules and procedures must be in place for critical equipment associated with hazardous chemical substances.

A system must be in place to ensure that the risks are assessed before any changes are made to equipment and / or processes for the transportation, storage, handling, use or disposal of a hazardous chemical substance.

A programme must be in place to continually investigate possibilities / opportunities for replacing hazardous substances with safer alternatives.

14.39 Thermal Stress

Hot areas or activities where employees have experienced or could experience excessive fatigue, muscle cramp, dehydration, dizziness and other symptoms of heat stress must be identified and described.

Where a risk of thermal stress is determined, a competent person must conduct monitoring surveys on site, in consultation with workers.

For defined extreme thermal conditions and job activities, medical examinations must include information about the operator's physiological and biomedical aspects, and an assessment of fitness for the working conditions.

Cold areas or activities where employees have experienced or could experience pain or loss of feeling in extremities, frostbite, severe shivering, excessive fatigue and other symptoms of cold stress must be identified and described.

Workplace thermal stress levels (temperature, air movement, humidity, etc.), activities (work level, etc.) and conditions (clothing, health, etc.) that have the potential to exacerbate thermal stress effects must be adequately characterised and described. Workplace exposure assessment must be repeated according to regulatory requirements or whenever there is a change in production, work organisation, process or equipment which may impact thermal stress levels.

Detailed heat stress assessment of identified tasks or jobs must be tiered to:

- Commence with the use of a simple heat stress index as a screening tool; then, if necessary;
- Use rational heat stress indices in an iterative manner to determine the 'best' control methods for alleviating potential heat stress; and
- Undertake physiological monitoring when exposure times are calculated to be less than 30 minutes, or where high level PPE that limits heat loss must be worn.

Detailed cold stress assessment of identified tasks or jobs must be conducted according to current appropriate guidelines that incorporate a cold stress index, to determine the 'best' control methods for alleviating potential cold stress.

When a risk of thermal stress is identified, the following exposure controls must be implemented:

- An acclimatisation period for new workers and those returning from extended leave or sickness;
- Training in the recognition of signs and symptoms of heat or cold stress, emergency procedures and preventative measures;
- Protective observation (buddy system or supervision); and
- A requirement for self-paced working.

The following exposure controls must be considered by a competent person:

- Work / rest regimes and job rotation based on measurements conducted;
- Suitable rest areas with a provision of cool drinking water and cool conditions for high temperatures, or provision of warm drinks and warm conditions for cold temperatures;
- Selection of appropriate clothing or other PPE for extreme temperature conditions;
- The use of engineering controls; and
- Undertake hot / cold tasks during a cooler / warmer time of the day.

Where thermal stress is assessed to be a risk, the operation must develop a suitable emergency response plan.

14.40 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 may result in the offending employee's access to the project premises being temporarily or permanently withdrawn.

Alcohol and drug testing on the project premises will be carried out randomly (as employees report for duty and during the course of the day / shift), following significant incidents (all persons involved), and whenever there is reasonable suspicion. Alcohol and drug testing may also be carried out as part of a Pre-Employment Medical Examination.

Sleep deprivation during shift work or from excessive working hours is a known cause of fatigue. Fatigued employees are at increased risk of accidents. Shift system design must consider:

- The effect on worker fatigue;
- The effects of activities carried out during scheduled and overtime hours;
- The impact on sleep cycles of activities such as commuting to and from site; and
- The monitoring and control of working hours.

The contractor is responsible for the administration of the working hours of his employees as well as the employees of any appointed sub-contractors. The maximum working hours per day and the minimum rest times between shifts must be specified in the contractor's Health and Safety Management Plan and must comply with all applicable legislation.

All employees engaged in safety critical jobs must undergo fitness assessments (medical examinations) which must be carried out prior to the commencement of employment on the project, prior to a change in role, periodically based on an employee's individual risk profile, and on termination of employment on the project:

- Pre-Employment Medical Examination – to assess the physical suitability of the person for the role and environment in which he will work (carried out prior to the commencement of employment on the project and prior to induction);
- Periodic (Surveillance) Medical Examination – to assess the ongoing physical condition of an employee to determine if his role is impacting on his health and whether the employee's fitness level is still adequate for the role he holds (these medical examinations are "risk driven" – the specific protocol followed and the frequency of the examinations will depend on the applicable legal requirements and the employee's individual risk profile as determined by his personal fitness, the nature of his role / duties, and the environment in which he works / occupational health hazards to which he is exposed). The periodic medical assessment programme must include:
 - The identification of modifiable risk factors that may impact fitness for work;
 - Education and support to maintain health or address identified risk factors; and
 - Education and support to help employees regain their fitness for work.

- Role Change Medical Examination – to assess an employee’s physical suitability for a different role and work environment (carried out prior to a change in role / duties);
- Exit (Post-Employment) Medical Examination – to determine the total physical impact of the work the employee performed (carried out on termination of employment on the project if the employee worked on the project site for more than six months).

Note: The results of an Exit Medical Examination from previous employment will not be accepted as a Pre-Employment Medical Examination.

Note: The medical examinations described above may only be carried out by an occupational medical practitioner (i.e. a medical doctor who holds a qualification in occupational medicine).

A detailed job (role) description and an exposure profile (noise, dust, heat, fumes, vapours, etc.) must be provided for each employee or group of employees. The medical examinations that an employee undergoes must be based on (i.e. the employee’s fitness must be assessed against) the information contained in these documents as well as the baseline risk assessment for the work. This information must be made available to the occupational medical practitioner performing the medical examination.

For each role, the medical criteria for fitness must be documented and these must be based on an evaluation of the physical and medical requirements for the role.

Depending on the circumstances, certain vaccinations may need to be provided to employees.

The medical examinations carried out for all drivers and operators must include testing / assessment for medical conditions that could affect the safe operation of vehicles or equipment.

Specific testing / questioning must be carried out to determine if an individual:

- Suffers from epilepsy or any other medical condition deemed to be a risk by the occupational medical practitioner;
- Makes use of chronic medication that could affect performance;
- Is colour-blind; or
- Has poor day or night vision.

The medical examinations carried out for employees that are required to work at height must include testing / questioning to determine if an individual suffers from epilepsy, hypertension (high blood pressure) or any other medical condition deemed to be a risk (with regard to working at height) by the occupational medical practitioner.

Electricians must be tested for colour-blindness.

With regard to the placement of new employees:

- Prospective employees must be referred to a suitable occupational medical practitioner (doctor) for a “Pre-Employment Medical Examination”;
- If an individual is found to be medically “unfit for placement”, the doctor will indicate which work activities cannot be performed by the person;
- The individual may still be employed on the project if his medical restrictions can be accommodated and provided that no legislation is transgressed.

A process must be established to manage medical restrictions that may be placed on an employee. For every employee with a medical restriction, regular follow up visits with the

occupational medical practitioner must be arranged to ensure that each case is proactively managed.

An employee in a safety critical job must report (to his supervisor) any condition that might impair his ability to safely perform the duties associated with his role. A mechanism must be in place for such reports to be referred to an occupational medical practitioner to determine if the employee is fit to continue with his work.

Proof of all medical examinations (i.e. certificates of fitness signed by an occupational medical practitioner) must be kept on site and these records must be readily available for inspection by the nominated project management representative.

An employee's certificates of fitness must be included in his Personal Profile (dossier). If an Employee Personal Profile (dossier) hasn't already been compiled for a particular employee, then this must be done without delay following the employee's Pre-Employment Medical Examination.

No employee in a safety critical role may commence work on site without proof that he has undergone a Pre-Employment Medical Examination.

Occupational medical examinations and data interpretation may only be carried out by medical practitioners that are appropriately qualified and certified to do so.

Occupational medical data contained in reports to management must be grouped and summarised to ensure that the confidentiality rights of each individual employee are maintained.

All occupational medical data and records must be retained for at least 40 years.

14.41 HIV / AIDS

The contractor must assess the risks posed by HIV. Appropriate mitigation strategies must be implemented as required.

Discrimination towards employees on the basis of actual or perceived HIV status is forbidden.

All information on the HIV status and condition of employees and community members, including that relating to counselling, care and treatment and receipt of benefits, must be maintained in medical confidence.

HIV / AIDS screening may not be a requirement for recruitment or a condition of employment.

15. Occupational Hygiene

AIA- Approved Inspection Authority

- 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

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.

15.1 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

15.2 Thermal Stress

Hot areas or activities where employees have experienced or could experience excessive fatigue, muscle cramp, dehydration, dizziness and other symptoms of heat stress must be identified and described.

Where a risk of thermal stress is determined, a competent person must conduct monitoring surveys on site, in consultation with workers.

For defined extreme thermal conditions and job activities, medical examinations must include information about the operator's physiological and biomedical aspects, and an assessment of fitness for the working conditions.

Cold areas or activities where employees have experienced or could experience pain or loss of feeling in extremities, frostbite, severe shivering, excessive fatigue and other symptoms of cold stress must be identified and described.

Workplace thermal stress levels (temperature, air movement, humidity, etc.), activities (work level, etc.) and conditions (clothing, health, etc.) that have the potential to exacerbate thermal stress effects must be adequately characterised and described. Workplace exposure assessment must be repeated according to regulatory requirements or whenever there is a change in production, work organisation, process or equipment which may impact thermal stress levels.

Detailed heat stress assessment of identified tasks or jobs must be tiered to:

- Commence with the use of a simple heat stress index as a screening tool; then, if necessary;
- Use rational heat stress indices in an iterative manner to determine the 'best' control methods for alleviating potential heat stress; and
- Undertake physiological monitoring when exposure times are calculated to be less than 30 minutes, or where high level PPE that limits heat loss must be worn.

Detailed cold stress assessment of identified tasks or jobs must be conducted according to current appropriate guidelines that incorporate a cold stress index, to determine the 'best' control methods for alleviating potential cold stress.

When a risk of thermal stress is identified, the following exposure controls must be implemented:

- An 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.

15.3 Measuring and Monitoring

The workplace exposure (or potential exposure) of persons to occupational health stressors must be measured and monitored to determine the effectiveness of control measures as well as compliance with legal and other requirements, particularly Occupational Exposure Limits.

All such measuring and monitoring must be carried out by an Approved Inspection Authority (i.e. a specialist service provider that is appropriately registered with a governing authority).

A plan for measuring and monitoring occupational exposure must be developed and it must include:

- Detail of what must be measured and monitored, based on a risk assessment and / or identified legal or other requirements;
- The frequency of measurement and monitoring;
- A description of the necessary equipment;
- Data quality requirements and controls (including details on the sample size for statistical validation and any rejection criteria);
- The sampling and analysis method(s) including any laboratory certification requirements; and
- The competency requirements for persons carrying out workplace monitoring.

Each instrument and item of equipment used for occupational exposure measurement and / or monitoring must be:

- Properly maintained to ensure compliance with legislative requirements;
- Controlled and safeguarded from unintentional adjustments;
- Suitably stored and protected from damage; and
- Calibrated or verified against a traceable standard at specific intervals (calibration records must be retained).

Each analytical laboratory service that is used must have implemented a credible quality assurance or quality control programme.

All monitoring results obtained must be analysed on a regular basis to:

- Identify trends and potential exceedances of legal or other requirements (such as Occupational Exposure Limits);
- Identify inconsistent or unusual results;
- Evaluate the effectiveness of existing control measures;
- Measure performance against stated objectives; and Identify continual improvement opportunities.

Each exceedance of a specified requirement or limit must be recorded, investigated and reported. Appropriate corrective actions must be identified and implemented.

16. Structure

A contractor must ensure that, all reasonably practicable steps are taken to prevent the uncontrolled collapse of any new or existing structure or any part thereof, which may become unstable or is in a temporary state of weakness or instability due to the carrying out of construction work;

No structure or part of a structure is loaded in a manner which would render it unsafe; and all drawings pertaining to the design of the relevant structure are kept on site and are available on request to an inspector, other contractors, the client and the client's agent or employee.

An owner of a structure must ensure that;

Inspections of that structure are carried out periodically by competent persons in order to render the structure safe for continued use;

That the inspections contemplated in paragraph (a) are carried out at least once every six months for the first two years and thereafter yearly;

The structure is maintained in such a manner that it remains safe for continued use;

The records of inspections and maintenance are kept and made available on request to an inspector.

17. Emergency Preparedness and Response

The contractor must develop, implement, test and maintain an Emergency Response Plan (incorporating emergency evacuation procedures) that focuses specifically on the contractor's team and work activities. The plan must be risk-based and must detail the procedures that must be followed when responding to all potential emergency scenarios such as a medical emergency (including first aid response), a fire, an explosion, a hazardous substance spill, flooding, rescue from height, rescue from a confined space, etc.

The contractor's Emergency Response Plan must be aligned with the Emergency Response Plan developed for the project.

Potential off-site emergency scenarios must be included (e.g. emergency scenarios related to the transport of personnel, the transport of hazardous materials, and personnel performing work in remote locations).

Consideration must be given to neighbours, and to the availability and capability of local emergency services. Details of any arrangements with external emergency response service providers must be included.

The Emergency Response Plan must satisfy and comply with all applicable legal requirements.

The plan must be adequately resourced to ensure effective implementation. These resources must include appropriate personnel, external emergency response service providers, emergency response equipment, and warning devices. All equipment and

warning devices must be identified, maintained and tested to ensure availability at all times.

Accountability for the Emergency Response Plan must be clearly defined. An Emergency Response Team (ERT) responsible for the implementation, management and execution of the Emergency Response Plan must be established. The roles and responsibilities of each team member must be clearly defined in the plan. Each team member must receive appropriate training to ensure that each role is performed competently.

The process for managing incident communication, notification, and reporting must be incorporated into the Emergency Response Plan. The responsible person(s) must be clearly identified, and the protocols for communicating with internal and external stakeholders must be defined.

Emergency evacuation procedures must be developed and included in the Emergency Response Plan.

A copy of the plan must be provided to the nominated project management representative for approval prior to site establishment.

The Emergency Response Plan must be formally reviewed (and amended if necessary) on at least an annual basis, and following any emergency situation, to ensure that it remains appropriate and effective.

At each project work site:

- A suitable evacuation alarm (siren) must be provided. If work is to be carried out in proximity to an existing operational plant, the alarm provided by the contractor must be distinctly different (in terms of the sound that it generates) to any alarm installed in the operational plant. All persons working in an area where an evacuation alarm is sounded must respond to it immediately.
- Suitable fire-fighting equipment must be provided and maintained, and personnel must be trained in fire-fighting procedures and the use of fire-fighting equipment.
- Suitable first aid equipment and supplies must be provided and maintained, and an adequate number of appropriately trained First Aiders must be in place (refer to Section 14.2).
- Emergency assembly points positioned in safe locations away from buildings, plant and equipment must be designated (and conspicuously signposted). In the event of an evacuation, all persons (i.e. personnel and visitors) must assemble and be accounted for at these emergency assembly points.
- All personnel must receive awareness training on the applicable emergency response procedures, and all visitors entering the site must be properly instructed in these procedures.
- The emergency response procedures must be displayed on each notice board.
- A diagram (site plan) indicating evacuation routes, emergency assembly point locations, and the positioning of emergency equipment (fire extinguishers, first aid boxes, etc.) must be prominently displayed in all buildings and plants, in all offices, on all notice boards, and in other locations on the site as may be required.
- An up-to-date list of emergency telephone numbers must be compiled and maintained. A copy of this list must be posted at each site entrance, in each office, near each telephone, and on every notice board.
- Emergency response drills must be conducted to test the effectiveness of the emergency procedures and equipment, as well as the knowledge and proficiency of the response personnel. Where appropriate, drills must include liaison with and the involvement of external emergency response service providers. A variety of emergency scenarios must be tested including, but

not limited to, medical emergencies, fires, rescues, and hazardous substance spills. A drill must be carried out one month after site establishment and six-monthly thereafter.

Each drill must be monitored and the outcomes (highlights and shortcomings) must be documented. Corrective actions must be identified and implemented to address the shortcomings, and the Emergency Response Plan and associated procedures must be amended as required.

17.1 Fire Fighting

The contractor must ensure that Fire Fighting requirements are met

17.2 First Aid

The contractor must ensure that First Aiders are trained and appointed as described in (Section 10.5)

17.2.1 First Aid Kits

A suitable first aid kit (i.e. appropriate to the level of training) must be readily available to each First Aider. All kits must be provided and maintained by the contractor.

Taking into account the type of injuries that are likely to occur in the workplace, each first aid kit must contain suitable equipment and supplies. First aid equipment and supplies required by applicable legislation must be provided as a minimum.

The contents of each first aid kit must be kept clean and dry. Each kit must be contained in either a portable weatherproof case / bag or a steel box mounted to a fixed structure. Access to first aid equipment / supplies must be limited to train First Aiders only. Access to portable kit bags must be controlled and steel first aid boxes mounted in the workplace must be kept locked.

Approved signage must be in place to indicate the locations of the first aid boxes / bags. A record of each treatment administered must be kept in a suitable register.

The first aid kits must, as a minimum, contain the following equipment and supplies:

Table 19.2.1-1 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.

18. 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**

19. Management of Change

To ensure that proposed changes do not give rise to unacceptable health or safety risk, the contractor must develop and implement a process for identifying and managing change in the workplace (e.g. changes to scope, schedule, procedures, work methods, site conditions, designs, plans, plant and equipment, materials, processes, etc.) that may impact on health or safety performance.

The management of change process must take into consideration that changes may be planned or unplanned, sudden or gradual, temporary or permanent.

The process must aim to ensure that:

- Changes are identified and assessed before they are implemented;
- Careful consideration is given to managing the risks associated with any change;
- Due diligence can be shown to have taken place;
- The number of unsatisfactory or unnecessary changes is minimised;
- The right people are involved in the change process; and
- All statutory requirements are met.

All risks associated with a proposed change must be evaluated and ranked. The risks that are ranked as moderate or higher must be managed to prevent serious injury or illness.

It must not simply be assumed that a change will not result in significant risks. All proposed changes must be formally evaluated. The evaluation or review must include:

- An appropriate level of technical expertise;
- The involvement of the workforce potentially affected by the proposed change; and
- Approval of the change by a person with at least the same level of authority as those who control the existing process or item being changed.

20. 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.

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.

21. 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 principal contractor and contractor employee that suffers an occupational injury or illness. These arrangements must be described in the contractor's Health and Safety Management Plan.

An incident may have multiple impacts. For each impact, the Actual Consequence and the Maximum Reasonable Outcome must be evaluated. Each impact must be evaluated independently, with the most significant classification forming the primary rating of the incident.

A Near Hit is an incident. All Near Hits must be reported.

An incident must be reported on the same work day or shift on which it occurs and preliminary details must be recorded

Depending on the Actual Consequence and Maximum Reasonable Potential Outcome of the impact(s), the relevant internal and external parties must be notified in accordance with specified protocols and timeframes, and legislative requirements.

In the event of a significant incident (i.e. an incident with an Actual Consequence of Moderate, Major or Catastrophic, or a Maximum Reasonable Potential Outcome of High or Extreme, work must cease and must only resume once the necessary actions (including the re-evaluation of any relevant risk assessments) have been taken to eliminate or reduce the risk of recurrence. Work must only be permitted to recommence once formal authorisation has been granted by the Project Construction Manager. In the case of incidents with an Actual Consequence of Major or Catastrophic, work must not be permitted to recommence until authorisation has been granted by the relevant government authorities (i.e. the South African Police, the Department of Employment & Labour or the Department of Mineral Resources).

The Contract Manager must ensure that an investigation is completed for each incident that occurs, and that appropriately senior personnel participate in, and authorise the outcomes of, each investigation. Incident investigations must be facilitated by competent and experienced persons who have been trained in the appropriate methodology.

All significant incidents (i.e. incidents with an Actual Consequence of Moderate, Major or Catastrophic, or a Maximum Reasonable Outcome of High or Extreme must be investigated using the approved Transnet investigation methodology. Such an investigation must be facilitated by a trained project representative within 7 calendar days.

For all other incidents (i.e. incidents with an Actual Consequence of Insignificant or Minor, or a Maximum Reasonable Outcome of Low or Moderate other methodologies approved by the Project Health and Safety Manager must be used.

Each incident (including Near Hits) must be investigated to a level of detail that is appropriate for the Maximum Reasonable Potential Outcome of the incident.

Each incident must be analysed to determine the root cause, and corrective actions must be identified and prioritised for implementation to eliminate or reduce the risk(s) in order to prevent recurrence of the incident.

For each corrective action, a responsible person must be designated and an appropriate timeframe (target date) for completion of the corrective action must be specified. Progress on implementing corrective actions (i.e. closing incidents) must be monitored and reported on. The implementation of corrective actions must be verified during monthly audits by the Professional Construction Health & Safety Agent (PrCHSA) 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.

22. 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.

23. 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.

23.1 Reporting on Performance

Reports summarising the contractor's health and safety performance on the project must be compiled on a weekly and/or 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: cross check with weekly reports

- Number of contractor and sub-contractor employees on site;
- Total hours worked on site by contractor and sub-contractor employees (by company);
- Number of incidents by category (i.e. Near Hit, FAI, MTI and LTI);
- Lost Time Injury Frequency Rate (LTIFR) (project to date and 12-month rolling);
- Details of all new incidents for the reporting period and the corrective actions taken or to be taken;
- Feedback (progress updates) on all open incidents and outstanding corrective actions;
- Status and feedback on any employee that may have been injured and has not yet returned to work;
- Details of all health and safety training carried out during the reporting period;
- Number of SOC's (Safety Observations and Coaching) carried out during the reporting period;
- SOC trends identified and proposed action for the coming week or month to maintain positive trends and / or address negative trends;
- Details of all audits, inspections and site visits carried out during the reporting period, and the corrective actions taken (or to be taken) to address all non-conformances;
- Feedback (progress updates) on all open non-conformances and outstanding corrective actions;
- Number of Toolbox Talks conducted during the reporting period (monthly);
- Number of Planned Task Observations (PTO's) carried out during the reporting period (monthly);
- Details of all active risk assessments and Safe Work Procedures highlighting those that are due for review in the coming month (monthly);
- A look ahead (to the coming week, month or quarter) to ensure that appropriate health and safety planning and preparation is done for upcoming work;
- Challenges faced with regard to health and safety; and
- Any other health and safety related information specific to the project that may be required.

Leading indicators (e.g. audit findings, observations, etc.) must be analysed, and any negative trends identified with regard to unsafe behaviour or conditions must be appropriately addressed to prevent incidents.

Lagging indicators (e.g. injuries, illnesses, near hits, etc.) must be investigated in detail to determine the root causes. Corrective actions must be identified, implemented and integrated into Safe Work Procedures to prevent recurrences.

23.2 Audits and Inspections

On a monthly basis, the health and safety management system and workplace activities of the contractor will be audited by a Clients Health & Safety Officer 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 Clients Health & Safety Officer, the contractor must carry out an internal audit on a monthly basis to assess compliance with the project health and safety requirements (including the requirements of this specification and the contractor's Health and Safety Management Plan). Furthermore, the contractor must ensure that each appointed sub-contractor is audited and measured to the same standard. Copies of these audit reports must be submitted to the Clients Health & Safety Officer on a monthly basis.

The contractor must carry out internal health and safety inspections as follows:

- General site health and safety inspections on a daily basis; and
- Inspections of plant, tools and equipment prior to establishment or use on site, and at least monthly thereafter.

All audits and inspections must be carried out by competent persons who have been appointed in writing.

A schedule of planned audits and inspections must be compiled and maintained ensuring that:

- All work areas and all activities are covered at regular intervals;
- All applicable legal requirements are complied with; and
- Areas or activities with significant associated hazards or risks receive greater attention.

BASELINE RISK ASSESSMENT: REPLACEMENT OF STURROCK DRY DOCK OUTER CAISSON GATE

PROJECT NAME: REPLACEMENT OF STURROCK DRY DOCK OUTER CAISSON GATE

Project Number: XCT.E.0042

Author: Terrence Vilakazi

Owner: Transnet National Port Authority

Client: Transnet National Port Authority

Project Sponsor: Ophelia Shabane

Project Manager: Katleho Lepati

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SIGNATORIES

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Project Manager Signed Date

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Rev. No	Date	Revision Details

Risk Assessment Title	Baseline Risk Assessment for Replacement of SDD Outer Caisson Gate

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Activities Covered

This baseline risk assessment focusses on the high-level Health and Safety risks anticipated during construction taking into consideration all construction methods.

The works overall includes but not limited to the following:

- Review and approval of fabricator's Quality manual, including Quality control plans (QCPs) and procedures.
- Review and approval of fabricator's welding procedures, specifications and personnel.
- Review and approval of fabricator's paint specifications, surface preparation, application procedure.
- Review and approval of deviations or modifications from the approved designs.
- Reviewal and approval of any scopes of works finalised within the execution phase, such as concrete remedial repair methodology, etc.
- Responding of technical queries during the period of the execution works.
- Compiling and reviewing all quality related documents, including material certificates, weld test reports, NDT reports, and paint thickness testing, etc.
- Allow for Quality monitoring and inspections during fabrication, installation, testing and commissioning.
- Provide third party, by means of a class approved / certified Authorised independent authority to conduct inspections to ensure class adherence.
- Provide H&S oversight during on site construction works, and where else applicable.
- Preparation and compilation of Operation and maintenance (O&M) manuals and provide the necessary training for the new equipment.
- Prepare and produce monthly compliance reports on progress of works for submission and approval, inclusive of cost control, project schedules and SHE report.

Geographic Location

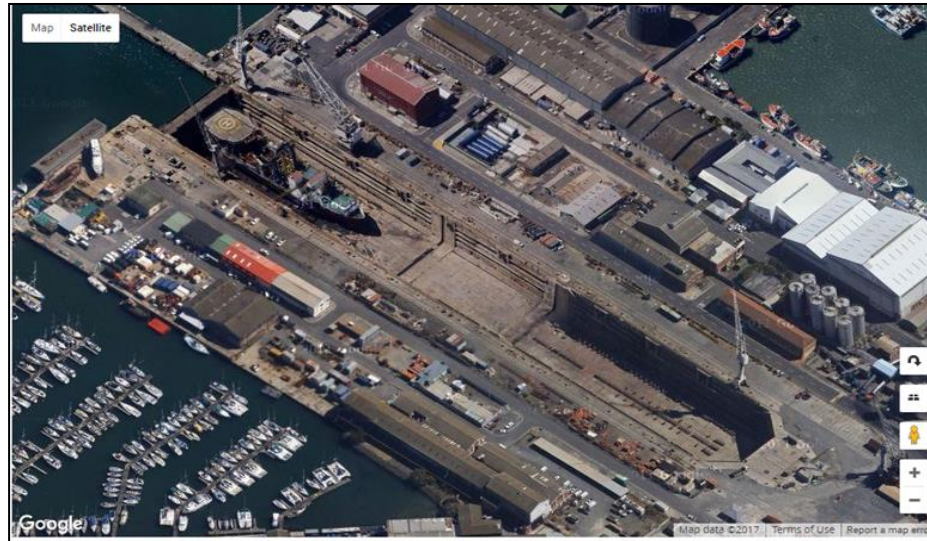


Figure 1. Overview of one of the graving docks, Sturrock Dry Dock

Activity, step or action step	Hazards	Associated risk event	Risk controls	Risk Rating
Access to Port	Principle Contractor not duly inducted prior to entry into the various Ports/ Non verification of fitness to work	Employees entering site not being inducted. Absence of relevant hazards prevalent in different Ports not communicated to Principal contractors' employees, delivery drivers and visitors may result in incidents/accidents. Injuries to persons and property damage Non verification of medical certificates may result in contractors' personnel being exposed to conditions which may be hazardous to their health.	- Site induction can only be done with an employee if the required up to date medical is presented at the induction, and safety file has been approved. - Medical fitness certificates must be validated by the principal contractor to ensure adherence to the minimum requirements and validity of the document. Each person's ID or valid work permit must be inspected before induction can be allowed on site for the individual. Induction arrangements to be done through TNPA PM	HIGH
Access to Port	Unauthorised access to port	Non-compliance with port rules and national key point Act. Port entry denied.	All Contractor employees including visitors, suppliers and deliveries must undergo port induction before entering the Port. TNPA Project managers to arrange for access permits.	MEDIUM
Access to site	Entering site and driving under the influence of alcohol and drugs	Injury to persons and property damage.	- All employees entering the site shall undergo an alcohol Breathalyzer or drug test if requested to do so. - The contractor's drivers shall abide by all general road traffic rules found in the National Road Traffic Act (Act 93 of 1996) and Regulations thereto or otherwise.	MEDIUM

	Speeding (reckless and negligent driving)	Injuries to persons and property damage	All drivers shall abide by speed limit	MEDIUM
	Parking in areas not designated for parking	Obstruction of the roads and possible injuries and damage to property	Contractor must ensure that an approved Traffic Management Plan is implemented.	MEDIUM
	Incompetent drivers Vehicles not in good and serviceable condition Uneven road conditions Speed Fatigue Poor visibility due to dust/sunlight	Injuries resulting in permanent disabilities Fatalities	- The contractor's drivers shall abide by all general road traffic rules found in the National Road Traffic Act (Act 93 of 1996). - Adherence to TNPA Vehicle and Transportation Management procedure and the Road Traffic Act. - Ensure drivers are competent, including random verification. - Strict speed control with use of 24-hour active satellite tracking. - Inspections by competent inspector. - Ensure selection of correct vehicle type for conditions, including tyre selection - Fatigue management plan to be developed and approved.	MEDIUM
	Congestion caused by contractor trucks and construction	Vehicle incidents which may lead to injuries, fatalities and/or property damage.	Contractor to develop a Traffic Management Plan. It must be communicated and implemented accordingly.	HIGH

Site establishment	Poor ground stability Substandard rigging and lifting practices Possible mechanical failure of lifting equipment Miscommunication between rigger and driver	Crane tipping over causing property damage and possible injuries Falling of container(s) which may lead to injuries and property damage	- Contractor to conduct ground survey before offloading process. - Operator competency, load test certifies and pre-operative checks - Competent rigger to be appointed - Adherence to Traffic Management Plan - Clients site induction	MEDIUM
	Incompetent drivers offloading containers/offices. Mobile cranes not in safe and serviceable	Falling of container(s) which may lead to injuries and property damage	- Rigger to use approved rigging signals and rigging safe work procedure - Contractor to conduct rigging study - Valid crane, hook, load, and calibration test to be completed.	
	No ablution facilities	Infectious diseases due to poor hygiene practices	Contractor to adhere to Facilities and Construction Regulations under Occupational Health and Safety Act No.85 of 1993 and TNPA Health and Safety Project Specification.	
	Using water from un-identified sources/connections	Ill-health resulting from drinking water from unsafe sources.	Drinking water must only be sourced from connections identified safe for human consumption.	
	No canteen / dining / sheltered eating areas available for employees on site.	Ill-health resulting from eating at hazardous/untidy areas.	Eating areas to be established at a safe and secure location on site as per Facilities Regulations.	
	Insufficient Signs and Notices.	Insufficient information and warning signs on construction site.	Construction safety warning signs to be placed at the entrance and should contain the following minimum information:	MEDIUM

			• Construction Activities ahead. • No authorised entry. • Speed limit 20 km/h. • Personal Protective Equipment signs which include safety boots, reflective vest, hard hat signs etc. • Visitors to report to site office. Notice board indicating man-hours worked and incidents/ accidents statistics to displayed at the site entrance. First Aid kits, Name of first aiders and fire extinguishers signs to be displayed where they are located. Assembly point sign and all other required warning signs as per hazards on site to be erected appropriately where the hazards exist. Signs indicating offices, safe drinking water, ablution facilities and eating area to be displayed.	
Emergency Preparedness				
Emergency Preparedness and Evacuation	Inability to attend to emergencies on site	Emergency services taking long to reach site may cause fatalities and/or property damage.	Detailed emergency plan to be provided as per emergency situations that can be encountered which included: • Fire • Community unrests • Structural collapse • Venomous Animal’s such as snakes, bees and scorpions etc. The following emergency equipment to be provided:	MEDIUM

			- Warning alarms - First Aid kits - Fire Extinguishers - Spill Kits etc Competent team which includes emergency coordinator, first aiders and fire fighters to be appointed. Emergency drills to be conducted every six months.	
Clearing and grubbing	Use of unsafe Heavy Mobile Equipment (HME). Damage of site fence due to site clearing operations. Employees being struck by moving plant working in the area. Construction vehicle and mobile plants reverse hooters not working. Presence of venomous insects and snakes.	Biological conditions Extreme weather conditions (Cold and Heat) Incompetent person operating Heavy Mobile Equipment (HME) HME not in safe and serviceable condition Injury Person bitten by a venomous spider or snake whilst carrying out site clearing. Possible fatality	- All services on site must be pointed out by the client to the principal contractor. - Safe distance from site fence and services must be established by contractor and must be maintained and marked. - Dust control measures must be implemented by the principal contractor as determined by the environmental requirements. - All construction vehicles on site must be inspected when delivered to site to ensure adherence to the legal requirements before any usage of the plant. - Mobile plants to be in good working condition and maintained as per maintenance plan. - Safety boots to be worn, gloves, eye protection. - Snake removal service arrangements to be in place and snake and insect awareness to be carried out. Snake identification chart and snake bite	MEDIUM

			emergency response procedure to be displayed on notice boards. Emergency Response Plan to be implemented (including procedures for responding to a medical emergency). An adequate number of trained First Aiders to be in place.	
Interface with adjacent construction activities of other contractors	No communication with other contractors on premises in close vicinity of work area. Prevalence of dust	Injuries resulting in permanent disabilities Fatalities Inhalation exposure to solid dust results in Respiratory infection (potentially permanent health impact). Lung Irritation / damage to eyes/ red eyes.	- Contractor must communicate daily regarding items that may affect 3rd party or site access. - Principle contractor to monitor activities to limit potential dust exposure in line with wind speed and direction. Provision of dust masks to personnel to prevent inhalation. Occupational health assessments	MEDIUM
Working at Hazardous Site				

Operating portable electrical equipment and cell phones on a hazardous zone	Potential ignition sources	Fatalities Serious injuries Property damage	Only intrinsically safe appliances approved by TNPA may be switched on or used in the berths. Owners of such devices will carry with them the approval certificate for use at all times	EXTREME
	Vapour Emission	Poor air quality Air pollution	- Air quality monitoring by contractor - Compliance project health and safety specification requirements.	
Manual handling of materials	Awkward postures whilst working Repetitive movements Prolonged standing Constant kneeling Sharp edges Heavy lifting of materials e.g., wall cabinets and ceramic tiles	Musculoskeletal disorders e.g., back injuries Blood pooling which may lead to fainting Cuts/Abrasions and pinch points	- Safe lifting procedures - Contractor to ensure long sleeved clothing and appropriate gloves are worn by all employees handling roof trusses and sheets. - Appropriate PPE including gloves. - Contractor to ensure sufficient labour available for manual lifting	HIGH
Electrical Work				
Removal of existing electrical equipment.	Exposure to live electricity	Electrocution	- Electrical source to be isolated when conducting removal and installation work - Competent and registered electrician to conduct the electrical installation work who is registered with DoEI and proof thereof to be submitted to TNPA	HIGH

			- Occupational medicals to be available. - SWP, Task Observation, DSTI and training - Site access to be obtained for entry into TNPA substations.	
Installation of Electrical Cables	Exposure to live electricity	Electrocution	- Electrical source to be isolated when conducting installation work. - Competent and registered electrician to conduct the electrical installation work who is registered with DoEI and proof thereof to be submitted to TNPA. - Occupational medicals to be available. - SWP, Task Observation, DSTI and training.	HIGH
Connecting of electricity to existing systems	Exposure to live electricity	Electrocution	- Electrical source to be isolated when conducting installation work - Competent and registered electrician to conduct the electrical installation work who is registered with DoEI and proof thereof to be submitted to TNPA - Occupational medicals to be available - SWP, Task Observation, DSTI and training.	HIGH
	Incompetent person conducting electrical connection	Project interruption		
Commissioning of Electrical System	Using electrical equipment in wet areas or outside in wet conditions	Electrocution	- Electrical equipment may not be used in wet areas or wet conditions - Task specific training. - Testing and commissioning to be carried out by competent authorised personnel with appropriate safety precautions in place.	HIGH

Reinforcement and Concrete Work				
Concrete Work (Pouring)	Improper handling or working with concrete (i.e., contact with eyes or skin).	Contact with concrete may lead to Skin and or eye irritation.	- Compliance to Project health and safety specification and Safety Data Sheets. - Use of correct PPE (i.e., footwear, eye and hand protection etc). - Induction of Concrete Truck Operators.	MEDIUM
	Holding of concrete weighted equipment.	Lifting heavy equipment may lead to Back pain.	- Supervision. - Induction of Concrete Truck Operators.	MEDIUM
	Incompetent concrete mix operator.	Incidents (collision) resulting fatality injuries.	- Spotter for concrete truck mixer. - Induction of Concrete Truck Operators. - Competent Concrete Truck Operator. - Competent Flagman's to control traffic.	MEDIUM
	Slipping and tripping.	Falling that will cause injuries.	- Supervision. - DSTI and Toolbox Talk. - Medical Surveillance (Certificate of Fitness).	MEDIUM
	Pinch point at concrete chute.	Contact with concrete chute may lead to Injuries to limb.	- Concrete mix equipment inspection. - Concrete chute to be operated by the handle.	MEDIUM
Steel Reinforcements	Sharp edges.	Contact with sharp edges of steel may cause injuries.	- Leather gloves to be used when handling steel. - Employees to wear full body covering overalls.	MEDIUM

	Struck by piece of steel.	Struck by the piece of steel may cause injuries.	- Leather gloves to be used when handling steel. - Employees to wear full body covering overalls. - Hard Hat must be provided.	
	Manual handling.	Constant bending may lead to muscle strains and sprains.	- Employees to carry bars that can manage, team lifting to be implemented where necessary. - Good coordination when carrying and placing steel. - Job rotation to be implemented to allow rest periods from ergonomics. - Suitable pliers that minimise adding pressure to be selected for the job.	MEDIUM
Painting Work				
Painting Work	Fumes from paint.	Inhalation of paint fumes may lead to dizziness.	- Disposable suits and masks must be worn as prescribed by the Safety Data Sheets (SDS). - Induct employees with regard to the potential dangers associated with not wearing the required PPE.	LOW
	Paint spillage.	Contact with paint may cause skin rashes.	- Induct employees with regard to the potential dangers associated with not wearing the required PPE. - Plastic sheeting must be placed on the ground to prevent spillage on the ground.	LOW

	Improper disposal of paint containers.	Environmental Pollution	- Induct employees with regard to the potential dangers associated with not wearing the required PPE. - Waste paint containers and brushes or trays must be disposed at a registered hazardous landfill and disposal certificate must be produced as proof of disposal.	LOW
Hot Works				
Welding	Incompetent Welder Operator.	Contact with welding sparks may lead to injuries.	- Compliance to Project health and safety specification. - Verified competency training for any person operating electrically driven tools and equipment. - Welding Screens to be use during this activity.	HIGH
	Substandard Electrical Tools (e.g., Portable Electrical Grinders, Drills, Welding Machines, Generators) being Used.	Defective electrical tools may lead to injuries or fatalities.	- Compliance to Project health and safety specification. - Daily electrical equipment/tools inspection by a competent person. - All electrical equipment run from portable generators to be double insulated. - Proper earthing for all welding activities. - Welding Screens to be use during this activity. - Correct PPE to be worn during this activity. - Area must be well-ventilated.	HIGH

	Performing hot work activities in wet weather conditions.	Electric contact with wet ground may lead to Electrocution.	• Compliance to Project health and safety specification. • Proper earthing for all welding activities. • Correct PPE to be worn during this activity. • Contractor to obtain hot-work permit from TNPA Fire Department. • Area must be well-ventilated.	HIGH
	Oil/Fuel leaking generators.	Environmental Pollution	• Compliance to Project health and safety specification. • Daily electrical equipment/tools inspection by a competent person. • Generators to be inspected daily. • Fire Extinguishers to be provided.	HIGH
Grinding	Incompetent Grinder Operator.	Contact with grinding disc may lead to amputation.	• Compliance to Project health and safety specification. • Verified competency training for any person operating electrically driven tools and equipment. • Guarded Grinding Machine must use. • Grinders may only be used on solid surface. • All electrically driven tools must be double insulated and must have a dead man switch fitted, it must not be possible to lock the equipment in the on position.	HIGH
	Substandard Electrical Tools (e.g., Portable Electrical Grinders, Drills, Welding Machines, Generators) being Used.	Defective electrical tools may lead to injuries or fatalities.	• Compliance to Project health and safety specification. • Daily electrical equipment/tools inspection by a competent person.	HIGH

			- All electrical equipment run from portable generators to be double insulated. - Correct PPE to be worn during this activity. - All tools to be inspected and checked before use including use of correct cutting disk and backing plates.	
	Performing hot work activities in wet weather conditions.	Electric contact with wet ground may lead to Electrocutation.	- Correct PPE to be worn during this activity. - Contractor to obtain hot-work permit from TNPA Fire Department. - Compliance to Project health and safety specification.	HIGH
	Oil/Fuel leaking generators.	Environmental Pollution	- Compliance to Project health and safety specification. - Daily electrical equipment/tools inspection by a competent person. - Generators to be inspected daily. - Fire Extinguishers to be provided.	HIGH
Man/ Machine Interface				
Working on or/and near the operational sites.	Man/ machine interface.	Machinery run out of control may cause injuries, fatalities, and property damage incidents.	- Operated by a competent person. - All people coming to site must be inducted and accompanied by a person who is aware of the risks in the area. - Training of plant and machinery operators on the Safe Operating Procedure. - Competent spotters or flagman's to be appointed to control the movement of Machinery.	HIGH

	Incompetent operators.	Reckless driving may cause injuries and property damage.	- Competent person must be appointed as the machinery operator. - Vehicles and plant should be used for the design and intended purpose. - All people coming to site must be inducted and accompanied by a person who is aware of the risks in the area. - Training of plant and machinery operators on the Safe Operating Procedure.	HIGH
	Defective Heavy Machinery Equipment's.	Machinery run out of control may cause injuries, fatalities, and property damage incidents.	- Mobile plant must be in a possession of maintenance/service records. - Pre-start checklist to be completed before the shift starts, report abnormalities or defects if any. - All people coming to site must be inducted and accompanied by a person who is aware of the risks in the area. - Training of plant and machinery operators on the Safe Operating Procedure.	HIGH
	Noise from Plant Machinery.	Exposure to noise may lead to Noise Induced Hearing Loss (NIHL).	- All people coming to site must be inducted and accompanied by a person who is aware of the risks in the area. - Mobile plant must be in a possession of maintenance/service records. - Earplugs must be used in a noisy area.	HIGH

Working in close proximity to the water	Water	Falling into water Drowning	• Always work with a partner or preferably a team when working around or near water • Supervision • Working Near Water Procedure • Appropriate personal protective equipment (PPE) • Rescue plan to be in place.	HIGH
Working in confined spaces / tunnel.	Limited supply of oxygen	Breathing difficulties. Asphyxiation	• A rigorous Permit to Work system to be implemented for confined space entry. • Task-Based Risk Assessment to be conducted and Safe Work Procedures to be in place. • Safe means of access into and egress from the confined space to be provided. • All hazardous systems or energy sources linked to the confined space to be isolated and locked out prior to entry. • Pre-entry atmospheric testing to be carried out by a competent and appointed person who must certify in writing that the atmosphere in the confined space is safe for entry. • A safe atmosphere to be maintained within the confined space for the duration of the work by providing adequate forced-air ventilation. • Confined space atmosphere to be monitored continuously while work is carried out in the space.	HIGH

			• Suitable monitoring devices that emit both audible and visual alarms to be used. • An effective communication system (e.g. two-way radios) to be in place and to be tested to ensure clear communication between personnel inside the confined space and designated persons positioned outside the space. • A standby person to be stationed immediately outside the entrance to the confined space whenever any person is inside the space. • Suitable emergency response (including evacuation and rescue) procedures to be in place. • Emergency response personnel with suitable rescue, resuscitation, first aid, firefighting, communication, and personal protective equipment to be present (i.e. be on standby outside the entrance) during any confined space entry where the risk assessment has determined that this is necessary. • Each person required to enter a confined space (including emergency response personnel), or to act as a standby person, to receive suitable training and to be assessed and found competent in the particular role that he is required to fulfil.	

Isolation of water valves or pumps	Pressurised pipes Limited	Injury, Damage to property	• Mechanical isolation and lockout procedures to be in place. • Task-Based Risk Assessments to be conducted and Safe Work Procedures to be in place. • Suitable PPE to be provided and worn. Pressure testing to be conducted on water valves and pumps.	High
Waste Management				
Waste Management	Excessive accumulation of waste	Excessive waste accumulation may cause fire and/ or explosion.	• Waste separation and segregation will be implemented. • Waste must not accumulate on site, waste to be continuously removed from site and be disposed of in approved landfill site as per waste category. • Fire emergency plan to be readily available on site.	LOW
	Littering on construction site.	Rodents can infest the area and ill-health.	• Waste separation and segregation will be implemented. • Fire emergency plan to be readily available on site.	LOW

	Poor Housekeeping.	Trip and fall caused injuries to employees.	- Waste separation and segregation will be implemented. - Proper housekeeping to be done on construction site. - Fire emergency plan to be readily available on site.	LOW
	Improper storage of waste	Rodents can infest the area and ill-health.	- Waste separation and segregation will be implemented. - Fire emergency plan to be readily available on site.	LOW
	Unapproved landfill disposal	Unapproved landfill disposal may result to fines and litigations.	Waste must not accumulate on site, waste to be continuously removed from site and be disposed of in approved landfill site as per waste category.	LOW
Occupational Health and Hygiene				
Occupational Health and Hygiene	Noise from Construction Plant Machinery/ Equipment.	Exposure to high noise levels may lead to permanent hearing loss or Noise Induced Hearing Loss (NIHL).	- Medical surveillance (Certificate of Fitness). - Earplugs must worn in a noisy area. - Maintenance/ Services Records must be provided for Machinery and Equipment's.	EXTREME
	Extreme Temperatures (Heat/Cold).	Exposure to extreme temperatures (heat) may result in dehydration and/ or heat exhaustion. Exposure to extreme temperatures (cold) may result in hypothermia.	- Medical surveillance (Certificate of Fitness). - Installation of Air conditioner. - Keep warm and drink warm water. - Drink plenty of water and keep hydrated,	EXTREME

	Ergonomics (Manual Handling)	Bending, twisting and muscle strains may cause musculoskeletal injuries and fatigue.	- Manual Handling Procedure must be communicated to employees. - Job rotation system to be implemented.	EXTREME
	Dust particles from grinding and drilling.	Inhalation of dust particles may cause respiratory infections such as lung cancer, etc.	- FFP2 dust masks and safety goggles. - Face Shield to be worn during tasks.	EXTREME
	Communicable and other infectious diseases such HIV/AIDS, etc.	Contact with infected person or area may result to infections. Unhygienic practices may cause employees vulnerable to communicable and infectious diseases.	- Hygiene monitoring. - Training on communicable and infectious diseases during DSTI and Toolbox talks. - Washing of hands regularly. - Use of face masks. - Employees reporting to management when sick.	EXTREME
Site Demobilization				
Disconnection of services	Incompetent person disconnecting temporary electrical distribution boards	Electrocution	Competent / registered electrician to conduct the disconnection of temporary electrical installations	HIGH
Loading of material, equipment and offices	Employees standing underneath lifting operations	Load falling on employees causing injuries	- Employees to stand clear of lifting operations and no employees allowed underneath suspended loads. - Operators to be competent.	HIGH

Loading of Machinery on Trucks	Improper loading of plant and machinery	Plant / machinery falling off trucks causing property damage	• Lifting equipment to be load tested. • Load test certificates to be available. • Lifting equipment to be placed on register and inspected on a monthly basis. • Employees to stand clear of lifting operations and no employees allowed underneath suspended loads. • Operators to be competent.	HIGH
		Load falling on employees		

Annexure 1 – Risk Matrix and Descriptions

Likelihood	Consequence				
	Insignificant	Minor	Moderate	Major	Critical
Almost Certain	Medium	Medium	High	Extreme	Extreme
Likely	Low	Medium	High	High	Extreme
Possible	Low	Medium	High	High	High
Unlikely	Low	Low	Medium	Medium	High
Rare	Low	Low	Low	Low	Medium

Assessed Risk Level	Description of Risk Level	Action Required
Low	If an incident were to occur, there would be little likelihood that an injury would result	Undertake the activity with the existing controls in place
Medium	If an incident were to occur, there would be some chance that an injury requiring First Aid would result	Additional controls may be needed
High	If an incident were to occur, it will be likely that an injury requiring medical treatment would result	Controls will need to be in place before the activity is undertaken

Extreme	If an incident were to occur it, it would be likely that a permanent or death would result	Consider alternatives to doing the activity. Significant control measures will need to be implemented to ensure safety

Likelihood	Description of Likelihood		Consequence	Description of Consequence
1. Rare	Will only occur in exceptional circumstances		1. Insignificant	No treatment required
2. Unlikely	Not likely to occur within the foreseeable future, or within the project lifecycle		2. Minor	Minor injury requiring First Aid treatment (e.g. minor cuts, bruises, bumps)
3. Possible	May occur within the foreseeable future, or within the project lifecycle		3. Moderate	Injury requiring medical treatment or lost time
4. Likely	Likely to occur within the foreseeable future, or within the project lifecycle		4. Major	Serious injury (injuries) requiring specialist medical treatment or hospitalisation
5. Almost Certain	Almost certain to occur within the foreseeable future or within the project lifecycle		5. Critical	Loss of life, permanent disability or multiple serious injuries

LEGAL REGISTER

For: TRANSNET NATIONAL PORTS AUTHORITY

Project Name : Replacement of SDD Outer Caisson Gate

Project Number : XCT.E.0042

Author : Terrence Vilakazi

Owner : Transnet National Ports Authority

Client : Transnet National Ports Authority

Sponsor : Ophelia Shabane

Project Manager : Kettleho Lepati

Revision Number : 00

Accepted by : Kettleho Lepati

Release Date :

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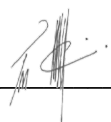
Document No : XCT.E.0042-HAS-REG-0001

SIGNATORIES

Prepared By:

Terrence Vilakazi

TNPA H&S Practitioner



Signature

03/10/2024

Date

Accepted By:

Ketleho Lepati

Project Manager



Signature

04/10/2024

Date

REVISION NUMBER	DATE	DISTRIBUTION/ REVISION	PREPARED BY	REVIEWED BY	RECOMMENDED BY	ACCEPTED BY
00		For approval	TV		KL	KL
01						
02						
03						

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1. Abbreviations

Table 1: List of Abbreviations

ACRONYM / ABBREVIATION	DESCRIPTION
BOQ	Bill of Quantities
ECC	Engineering and Construction Contract
ECSA	Engineering Council of "South Africa
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
H&S	Health and Safety
HCS	Hazardous Chemical Substance
HSEC	Health, Safety, Environment and Community
HSS	Health, Safety and Security
HSS MP	Health and Safety Management Plan
ICAM	Incident Cause Analysis Method
IDP	Integrated development plan
OHSA	Occupational Safety and Health Act
OSH	Occupational Safety and Health
PFMA	Public Finance Management Act
PLP	Project Lifecycle Process
PSC	Professional Services Contract
QS	Quantity Surveyor
SC	Supply Contract
SDF	Spatial development framework
WCC	Workers' Compensation Commissioner

2. Introduction

Project Information	
Project Name:	Replacement of SDD Outer Caisson Gate for PoCT
Project Number:	
Client:	Transnet National Port Authority (TNPA)
Project Address:	Port of Cape Town
Scope of services:	Health and Safety Legal Register
Project Office Address:	01 Adderley Street, Paul Sauer Building, Transnet

Key Contacts		
Role	Name	Details
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Health and Safety Practitioner	Terrence Vilakazi	terrence.vilakazi@transnet.net

3. Project Scope And Description

The extent of the works planned entails replacement of SDD Outer Caisson Gate.

The *Consultant's* scope shall include, but is not limited to:

- Review and approval of fabricator's Quality manual, including Quality control plans (QCPs) and procedures.
- Review and approval of fabricator's welding procedures, specifications and personnel.
- Review and approval of fabricator's paint specifications, surface preparation, application procedure.
- Review and approval of deviations or modifications from the approved designs.
- Review and approval of any scopes of works finalised within the execution phase, such as concrete remedial repair methodology, etc.
- Responding of technical queries during the period of the execution works.
- Compiling and reviewing all quality related documents, including material certificates, weld test reports, NDT reports, and paint thickness testing, etc.
- Allow for Quality monitoring and inspections during fabrication, installation, testing and commissioning.
- Provide third party, by means of a class approved / certified Authorised independent authority to conduct inspections to ensure class adherence.
- Provide H&S oversight during on site construction works, and where else applicable.
- Preparation and compilation of Operation and maintenance (O&M) manuals and provide the necessary training for the new equipment.
- Prepare and produce monthly compliance reports on progress of works for submission and approval, inclusive of cost control, project schedules and SHE report.

4. Health And Safety Scope

The Health and Safety (H&S) scope of the project is delivered within the framework of references given below. The H&S deliverables for the project includes H&S management component, a legal register and a baseline risk assessment.

This legal register consists of several groups of legislation namely for Health & Safety, Environmental, Security and Other.

Table 4-1: References documents

Ref No.	Document Title	Revision
[1]	Scope of Services	01
[2]	TNPA Health and Safety Specification	00

5. Legal Requirements

5.1 Legal Register

The legal register is a summary of all legislation that can potentially impact on the project and identifies only the high-level mitigations that forms part of the management system(s) to ensure the requirements are managed. The maintenance of this register will allow Transnet National Port Authority (TNPA) and its contractors to focus their management systems on appropriate and relevant issues and allow for adequate resources.

The upkeep of this register also provides evidence that Transnet National Port Authority (TNPA) is committed in the provision and maintenance of management systems on its projects.

5.2 Legal Register – Health & Safety

Act, Regulation, CoP, etc.	General compliance requirements	Requirement in relation to the Project	Risk if not compliant	Mitigation Measures	Mitigation s catered for
Compensation for Occupational Injuries and Diseases Act 130 of 1993	The Act applies to all employers and all casual and full-time employees who: • Become ill, or • Is injured, disabled or killed as a result of a workplace accident or workplace-related disease	The Act applies to all employers and all casual and full-time employees	High - Industrial action; negative publicity	Valid Letter of Good Standing with WCC or similar licensed insurer. Prohibit any entity involved in the project from working without valid Letter of Good Standing. Monitor reportable injuries & diseases. Approval of contractors H&S Management system and related documents to prevent injuries and illness.	Yes: Part of tender evaluation criteria; Non-approval of H&S Plans if not included

Act, Regulation, CoP, etc.	General compliance requirements	Requirement in relation to the Project	Risk if not compliant	Mitigation Measures	Mitigation s catered for
Disaster Management Act 57 of 2002	The establishment of national, provincial and municipal disaster management centres.	Contractors during construction - in the event of a provincial or municipal emergency in vicinity of the project adhere to municipal emergency requirements. COVID-19 Management and compliance officer	High – loss of life, property damage.	Information regarding fire stations, hospitals etc. known and included in emergency contact list. Project's emergency response plan.	Yes
Hazardous Substances Act 15 of 1973	It provides for the control of substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature and for the control of certain electronic products	Where equipment might be used or installed that contains a source of ionizing radiation / radio-active isotopes (e.g. Troxler)	High: Contravention is liable to conviction of a fine or imprisonment; exposure or contact with unknown radio-active source.	All contractors method statements, safe work procedures and risk assessments to be approved before work starts. Compliance checks in relation to adherence to approved documentation.	Yes
National Health Act 61 of 2003	The Act applies to all stakeholders as users of Health Care Services under the definition of user in the Act	Stakeholders should be conversant with the content of the Act with regards to eligibility for free health care services and the user rights when receiving treatment	Low – would apply to primary health only	Contractors to make use of registered Occupational Health / Medicine Practitioners for work related medicals and injury management	Yes
International Health Regulations Act 28 of 1974	All stakeholders to comply with requirements to prevent an epidemic and/or the restriction thereof should an epidemic occur.	All stakeholders to comply with requirements to prevent and epidemic and/or the restriction thereof should an epidemic occur.	High – increase in number of cases and/or fatalities	Close contact with health facilities in the area who will notify the public of any breakout / epidemic.	Yes
Occupational Health and Safety Act 85 of 1993	This Act governs all H&S related aspects at workplaces other than mines. It provides for the H&S of persons at work and for the H&S of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to H&S arising out of or in connection with the activities of persons at work	All aspects of this Act and relevant Regulations apply to this Project during construction. Also refer SANS standards incorporated into this Act.	High: Contravention and offences are liable to conviction of a penalty or imprisonment; work stoppages.	Transnet HSMS, policies and procedures. Contractor tender documentation to include all H&S requirements and H&S BOQ. Approval of contractors HSS MP. HSS MP for FEL4 construction to be implemented. Constructing monitoring & audits.	Yes
OHS - Construction Regulations 2014	All stakeholders (client, agent & contractors) involved in the construction and demolition works shall comply with the provisions of the regulations.	All stakeholders (client, agent & contractors) involved in the construction works shall comply with the provisions of the regulations. Construction permit required for this project.	Medium: Fines & penalties; site stoppages; negative publicity	Contractor evaluation criteria included in the tender documentation. Construction work permit application requirements known and adhered to, H&S specifications, H&S management plans, construction monitoring & audits.	Yes

Act, Regulation, CoP, etc.	General compliance requirements	Requirement in relation to the Project	Risk if not compliant	Mitigation Measures	Mitigation s catered for
OHS - Driven Machinery Regulations 2015	All stakeholders involved with the design, manufacture, operation, repair, modification, maintenance, inspection, testing and commissioning of driven machinery shall comply with the provisions of the Regulations.	This regulation will apply to the construction phase to each contractor that will use driven machinery on or off site for the purpose of executing the construction work. It applies potentially to hoists, block & tackle, lifting machines, lift trucks and revolving machinery.	Medium – High - potential serious injuries and fatalities	Inspection and approval of equipment / machinery before construction commences. Compliance monitoring during construction of the contractors H&S Management System. Planned maintenance programs.	Yes
National code of practice for the training providers of lifting machine operators 2015	The code of practice makes provision for the accreditation of training service providers by an accredited authorised body tasked by SAQA Act to do so.	All lifting machine operators to be trained and declared competent by such an accredited service provider only.	Medium – High - potential serious injuries and fatalities	Verification and approval of contractor's H&S documentation in this regard.	Yes
OHS - Electrical Installation Regulations 2005	The Regulations shall be complied with where any existing or new electrical installations as defined in the regulations are present.	The Regulations shall be complied with where any existing or new electrical installations as defined in the regulations are present. It applies to the temporary electrical installations during construction as well. Contractors to be registered with the DOL as electrical contractors	Medium – High – potential serious injuries and fatalities	Suitably qualified contractors and registered with DOL to be used. Compliance monitoring & audits during construction. Certificate of compliance of premises with electrical reticulation	Yes
OHS - Environmental Regulations for Workplaces 1987	The Regulations shall be complied with at all areas, places and premises defined as workplace in the OHS. It addresses thermal requirements, lighting, ventilation, housekeeping, precautions against flooding, fire precautions & means of egress.	All of the requirements mentioned will be applicable during construction.	Medium – High – potentially serious injuries and fatalities.	Approval of contractors' method statements, risk assessments and safe work procedures before work can commence. Compliance monitoring & audits during construction.	Yes
OHS - Facilities Regulations 1988	All workplace facilities shall comply with the relevant requirement in relation to sanitation, drinking water, change rooms & eating areas.	All construction site facilities shall comply with the relevant requirement in relation to sanitation, drinking water, change rooms & eating areas.	Low – Medium – spread of illnesses & diseases.	Approval of contractors site layout plan and site establishment procedures.	Yes
OHS - General Administrative Regulations 2003	It provides for all the administrative arrangements regarding H&S representatives, incidents reporting and recording and witness at inquiries.	All the requirements of these regulations are potentially applicable to the project during construction.	Low - administrative fines can be issued.	Compliance monitoring and audits during construction.	Yes
OHS - General Machinery Regulations 1988	The regulations make provision for the supervision, safeguarding and safe operation of machinery.	All the requirements of this regulation will potentially be applicable to machinery used during construction.	Medium – High – potentially serious injuries and fatalities.	Compliance monitoring and audits during construction. Training & competencies of operators.	Yes

Act, Regulation, CoP, etc.	General compliance requirements	Requirement in relation to the Project	Risk if not compliant	Mitigation Measures	Mitigation s catered for
OHSA - General Safety Regulations 1986	The regulations make provision for general safety requirements at workplaces such as intoxication, unauthorized entry, first aid & emergency requirements, flammable liquids, confined spaces, stacking, welding and ladders.	All the requirements of this regulation will potentially be applicable to the project during construction.	Medium – High – potentially serious injuries and fatalities.	Compliance monitoring and audits during construction. Approval of contractors H&S documentation.	Yes
OHSA - Hazardous Chemical Substances Regulations 1995	The regulations address all the requirements with regards to the handling, storage, transportation, use and exposure to Hazardous Chemical Substances (HCS) and addresses labelling, the control of HCS, medical surveillance and exposure monitoring and PPE amongst others.	The regulations will apply during construction should any HCS be kept, stores or used on site. Fuels, cement, diesel emissions and nuisance dust are listed as HCS.	Medium – potentially adverse health effects.	Compliance monitoring and audits during construction. Contractors to determine potential exposure through monitoring – conducted by an approved inspection authority.	Yes
OHSA – Noise-induced Hearing Loss Regulations 2003	All stakeholders shall comply with the provisions of the regulations where the exposure to noise is at or above the 85dBA noise-rating limit. It addresses noise control, exposure monitoring, medical surveillance and PPE amongst others.	This regulation will apply during the construction phase.	Medium – potentially adverse health effects.	Compliance monitoring and audits during construction.	Yes
OHSA – Pressure equipment Regulations 2009	These regulations apply to the design, manufacture, operation, repair, modification, maintenance, inspection and testing of pressure equipment.	These regulations shall apply during construction phase when any pressure equipment will be required on site.	High – serious injuries to multiple fatalities	Compliance monitoring and audits during construction.	Yes
OHSA – Regulations Concerning the Certificate of Competency 1990	The Regulations shall be complied with by mechanical and electrical engineers wishing to obtain a certificate of competency, persons accepted as candidates for the qualifying examination and persons issued with a certificate of competency	The Regulation shall be complied with by the engineer responsible for electrical installations during commissioning & operations.	High – serious injuries to fatalities	Transnet employees the necessary engineers suitable certificated.	Yes

5.3 Legal register – Environmental

Act, Regulation, CoP, etc.	General compliance requirements	Requirement in relation to the Project	Risk if not compliant	Mitigation Measures	Mitigations catered for
National Environmental Management Act 107 of 1998	The Act and regulations apply to all stakeholders and activities that may significantly affect the environment. Sets the framework for EIA's and subsequent environmental authorisations and introduces the principle of duty of care of the environment and the remediation of environmental damage	Transnet is required to conduct a basic assessment (BA) in order to obtain the environmental authorisation (including an Environmental Management Programme - EMP) which must be implemented by Transnet and the contractors.	High - Contravention and offences are liable to conviction of a penalty or imprisonment. Project cannot be implemented unless environmental authorisation provided.	Undertaking of a comprehensive BA process to obtain environment authorisation. Compliance monitoring on implementation of environmental authorisation and EMP.	Yes
National Environmental Management: Air Quality Act, Act 39 of 2004	This Act regulates air quality in order to protect the environment, prevention of pollution and ecological degradation. Ambient air quality and emission standards.	An Atmospheric Emissions Licence (AEL) is required due to the increase in dust generation from coal handling associated with the Tippler. The contractor & Transnet need to adhere to established air quality standards promulgated in the Government Notice, as well as the conditions stated in the AEL once awarded	High – Contravention and offences are liable to conviction of a penalty or imprisonment. Project cannot be implemented unless environmental authorisation provided.	Conditions of the AEL and EMP need to be adhered to. Dust extraction system shall be regularly maintained. Dust generation shall be monitored as required by the competent authority. Contractor is required to draft a traffic management plan that includes dust suppression. If batching plant dust suppression provision should be made.	Yes
National Environmental Management: Waste Act 59 of 2008	It provides for the regulation of waste management in order to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable developments.	License required for storage of general waste and hazardous waste where applicable. Waste transportation off-site should be done by accredited waste handling company.	Low - Contravention and offences are liable to conviction of a penalty	Reduce, re-use, recycle and recover, treat and then dispose waste. Hazardous waste must be disposed of at a registered landfill site. General waste must be disposed of at a registered landfill site. Mitigation measures and requirements contained in the license to be adhered to.	Yes

Act, Regulation, CoP, etc.	General compliance requirements	Requirement in relation to the Project	Risk if not compliant	Mitigation Measures	Mitigations catered for
National Heritage Resources Act 25 of 1999	It provides the general principles for governing heritage resources management and the protection of heritage resources of national significance.	Take cognizance of places or objects of cultural significance and identify any that can be regarded as areas or items regarded as a culturally significant. Risk of discovery of paleontological resources exist on site (refer to <i>Environmental and Community Interface Report</i>). South African Heritage Resources Agency (SAHRA) may require that a Paleontological Desktop Study be conducted. Chance finds procedure to be included in EMP.	Medium – community action, strike & vandalism	Palaeontology (fossils) chance finds procedure to be included in EMP	Yes
National Water Act 36 of 1998	The purpose is to provide for the protection, use, development, conservation, management and control of South Africa's water.	All stakeholders shall comply with the Act with regards to water uses by means of the water use license (WUL) for the project.	High - Contravention and offences are liable to conviction of a penalty or imprisonment. Project cannot be implemented unless a WUL in hand.	Complying with the requirements of the water use license. Groundwater removed should be treated or transported to a treatment facility prior to being discharged.	Yes

5.4 Legal Register – Security

Act, Regulation, CoP, etc.	General compliance requirements	Requirement in relation to the Project	Risk if not compliant	Mitigation Measures	Mitigations catered for
Criminal Procedure Act 51 of 1977	Applies to prosecuting authorities. It makes provision for procedures and related matters in criminal proceedings	Any stakeholders where a crime has been committed.	High - Offences are punishable by law	Policies, management systems and procedures where legal compliance is regarded as minimum. Pre-approval of contractors and tender evaluation process.	Yes
Firearm Control Act 60 of 2000	It regulates the use and handling of firearms and assists in controlling the registration and administration of firearms.	Security service providers that deploy guards at the site during construction must comply with the Act.	Medium to High – uncontrolled and illegal use of firearms.	Use reputable security service providers and approve their procedures beforehand.	Yes
Private Security Industry Regulatory Authority Act 56 of 2001	The Act applies to the private security industry and the security service providers.	The appointed security service(s) shall comply with the relevant provisions of the Act.	Medium – insufficient security.	Suitable qualified / registered service provider. Non-compliant service provider will be removed from site.	Yes

Act, Regulation, CoP, etc.	General compliance requirements	Requirement in relation to the Project	Risk if not compliant	Mitigation Measures	Mitigation s catered for
Protected Disclosures Act 26 of 2000	The Act makes provision for the protection of an employee being subjected to an occupational detriment on account of having made a protected disclosure, to provide remedies in connection with occupational detriments and to provide procedures in terms of which an <i>employee</i> can disclose information regarding <i>improprieties</i> by his or her <i>employer</i> .	The Act is potentially applicable during construction phase and shall be complied with when the circumstance arises and the Act is applicable.	Low – Medium – potential reprisals towards the employee who discloses information	This supports conditions in the OHS Act and should be covered during H&S induction training	Yes

5.5 Legal Register – Other Disciplines

Act, Regulation, CoP, etc.	General compliance requirements	Requirement in relation to the Project	Risk if not compliant	Mitigation Measures	Mitigation s catered for
Basic Conditions of Employment Act 75 of 1997	Applies to any employer. It gives effect to and regulates the right to fair labour practices.	All stakeholders but especially contractors who will be employing persons from the local communities.	High – Industrial action	Monitoring of contractors / addressing deviations to avoid industrial action. Monitor complaints. Employee representatives / committees.	Yes
Constitution of the Republic of South Africa Act 108 of 1996	Chapter 2 – Bill of Rights	Chapter 2 – Bill of Rights; Section 24 [Work] Environment	High	Other legislation including H&S and environmental related legislation is written to give effect to Section 24.	Yes
Construction Industry Development Board Act 38 of 2000	The Act is applicable to all construction projects. The purpose is to provide the basis for a best practice project assessment scheme to promote the performance of public and private sector clients in the development of the construction industry	Every client who engages in the best practice project assessment scheme must pay to the Board a prescribed percentage of the contract sum as determined at the time of the awarding of the contract	Low - Contravention of the code of conduct may lead to the board having an inquiry	None	None
Employment Equity Act 55 of 1998	Applies to any employer. It provides for equity in the workplace, equal opportunities and fair treatment.	All contractors.	Medium to High – community action & labour unrest	Transnet policies & procedures regarding community liaison.	Yes

Act, Regulation, CoP, etc.	General compliance requirements	Requirement in relation to the Project	Risk if not compliant	Mitigation Measures	Mitigations catered for
Engineering Profession Act 46 of 2000	The Act applies to the Engineering Council of South Africa (ECSA) and the registration of professionals, candidates and specified categories in the engineering profession.	All engineers may only practice in the categories they are registered in. Construction drawings signed off by registered professionals only.	Low - guilty of improper conduct – person may be fined or imprisoned and their registration cancelled.	Name of professional name and ECSA registration number shown on title block of construction drawings. Document control set up to not release any construction drawings signed accordingly.	Yes
Income Tax Act 58 of 1962 as amended	All stakeholders are included in the application of this Act and shall comply with the provisions of the Act and regulations accordingly	All stakeholders shall comply to the relevant provisions of the Act	Low – risk is to the employer or individual directly	Tax clearance certificate required from contractors during tender evaluation process.	Yes
Labour Relations Act 66 of 1995	All stakeholders are included in the application of this Act and shall comply with the provisions of the Act accordingly	The Act applies to all stakeholders on the project such as to fair labour practices, employee participation, labour disputes etc.	Medium to High - industrial actions	Contractors are required to comply with the legislation as a minimum.	Yes
National Road Traffic Act 93 of 1996	The registration and licensing system of motor vehicles, testing facilities, drivers' licenses, registration and testing of vehicles, traffic enforcement etc.	Each stakeholder's employees and vehicles to comply with the requirements in relation to driver and operator licenses / competencies, registration of vehicles, adhering to traffic rules and transportation of dangerous goods.	Low- Medium – individual fines issued; potential negative publicity	H&S requirements in this regard are included in the contractor evaluation and the approval process of the HSS MP as well as monitoring during construction.	Yes
New Engineering Contract Version 3, Engineering and Construction Contract (ECC), Supply Contract (SC), Professional Services Contract (PSC), Term Service Contract (TSC) which may include specific conditions of contract.	As specified in the respective contracts placed with contractors, consultants, suppliers and/or other service providers.	As specified in the respective contracts placed with contractors, consultants, suppliers and/or other service providers	Medium	Contract management and administration	Yes
Promotion of Access to Information Act 2 of 2000	The Act and Regulations apply to records of a public body or records of private body as defined in the Act.	The Act shall be complied with when the need arises for any relevant records	Low – Intent to deny right of access and destroys, damages or alters a record; conceals, falsifies or makes a false record commits an offence; negative publicity	All record keeping to be in accordance with the relevant legislation which requires it to be kept.	Yes

Act, Regulation, CoP, etc.	General compliance requirements	Requirement in relation to the Project	Risk if not compliant	Mitigation Measures	Mitigations catered for
Public Finance Management Act (PFMA)	The Act is to secure transparency, accountability, and sound management of the revenue, expenditure, assets and liabilities of the institutions to which this Act applies.	Transnet is listed as such an institution in Schedule 2 of the Act and has to comply with the relevant provisions of the Act.	Medium	Good governance practices.	Yes
Quantity Surveying Profession Act, Act No 49 of 2000	The Act applies to all Quantity Surveyors (QS) to provide for the registration of professionals, candidates and specified categories in the quantity surveying profession.	All quantity surveyors may only practice in the categories they are registered in.	Low – Medium – overrun of costs if calculations not accurate	QS Principal to be a registered professional with South African Council for Quantity Surveyors. The QS to have a certified quality management system that applies to all projects. QS's to be registered with the Association of South African Quantity Surveyors.	Yes
Standards Act 8 of 2008	The purpose of the Act is to provide a legal framework for the development, promotion and maintenance of South African National Standards in the Republic and the rendering of conformity assessment services and related activities	All applicable standards related to the design has been identified and listed in this register	Medium	The design took all the necessary national standards into consideration and has been included in the individual design criteria reports.	Yes

CONTRACTOR ENVIRONMENTAL AND SUSTAINABILITY SPECIFICATION GUIDELINES

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SUMMARY VERSION CONTROL

VERSION NO.	NATURE OF AMENDMENT	PAGE NO.	DATE REVISED
3.0	- Addition of reference documents (section 3) - Inclusion of additional definitions - Removal of DEA and replacing it with DFFE - Removal of Transnet EO and replacing with Transnet Environmental Resource (PER) - Inclusion of additional abbreviations - Inclusion of minimum environmental requirements for construction (section 5) - Inclusion of details of site inspections/audits (table 1) - Inclusion of Records Management	6-7 7-10 11 12 12-23 23 45	June 2023

Note: Only latest amendments and/or additions are reflected in italics in the body of the document.

DOCUMENTATION SIGN-OFF SHEET

I, the undersigned hereby approve this procedure.

ROLE	CAPACITY/ FUNCTION	SIGNATURE	DATE
Process Owner:	Senior Specialist: Environmental Risk and Compliance		01/10/2023
Accepts document for adequacy and practicability. Comments:			
Approval Committee:	GM: Corporate Sustainability		01/10/2023
Approves document for use. Comments:			

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1. PURPOSE

This document describes the minimum requirements for environmental management to which Contractors must comply. This document must be read in conjunction with the Transnet Construction Environmental Management Standard Operating Procedure (CEM SOP).

In this document, unless the context clearly indicates otherwise:

- Words importing any one gender shall include the other gender;
- The singular shall include the plural and vice versa; and
- Any reference in this document to legislation or subordinate legislation is to such legislation or subordinate legislation at the date of promulgation thereof and as amended and/or re-enacted from time to time.

2. APPLICABILITY

This standard applies to Contractors that work on site under the authority of Transnet SOC Ltd.

3. REFERENCE DOCUMENTS

Name	Applicable Section
Constitution of South Africa, Act 108 of 1996	Section 24
National Environmental Management Act, 107 of 1998	Section 2 National Environmental Management Principles
National Water Act, 36 of 1998	Section 164, Permissible Water Use
National Environmental Management: Waste Act, 58 of 2008	Part 1 15 (1) (i) and (2) Part 6 26 (10) (a) and (b) Schedule 3, Defined Wastes Category A: Hazardous Wastes Part 8: Contaminated Land
Environment Conservation Act, 73 of 1989	Section 20
Occupational Health and Safety Act, 85 of 1993	Asbestos Regulations, 2001

Name	Applicable Section
	Government Notice R155 in Government Gazette 23108 of February 2002 General Safety Regulations-Reg. 2 (2) PPE
GNR 326, 7 April 2017 as amended, EIA Regulations	Chapter 15, Appendix 4
Transnet Environmental Risk Management strategy and Framework	2015:42
Environmental Management Systems ISO 14001: 2015	Clause 5, 6, 7, 8, 9 and 10

4. DEFINITIONS AND ABBREVIATIONS

4.1 Definitions

Compliance	Meeting of all the organization's regulatory requirements
Conformance	The action or fact of conforming to this standard and other internal Transnet policies, procedures, guidelines and best practice.
Construction Environmental Management Standard Operating Procedure	Is a document which is used to define how environmental management will be practiced on any construction site under the management of Transnet to ensure that the environment is considered, negative impacts avoided or minimized, and positive impacts are enhanced.
Contractor	The Principal Contractor as engaged by Transnet for infrastructure construction operations, including all sub-contractors appointed by the main contractor of his own volition for the execution of parts of the construction operations; and any other contractor from time to time engaged by Transnet directly in connection with any part of the construction operations which is not a nominated sub-contractor to the Principal Contractor.

Contractor Environmental and Sustainability Specification Guidelines	A set of minimum environmental standards for all Transnet SOC Ltd-managed construction sites.
Environmental Aspect	Element of an organization's activities or products or services that interacts or can interact with the environment.
Environmental Impact	Change to the environment whether adverse or beneficial, wholly or partially resulting from an organization's environmental aspects.
Environmental Risk	The product of the likelihood and severity of an unforeseen occurrence/incident/aspect and the impact it would have, if realised, on the environment.
Fauna	A group of animals specific to a certain region or time period.
Flora	A group of plants specific to a certain region or time period.
General waste	Waste that does not pose an immediate hazard or threat to health or to the environment; and includes:- (a) domestic waste; (b) building and demolition waste; (c) business waste; (d) inert waste;
Indigenous vegetation	Plants that naturally occur in an area.
Liquid waste	Waste that appear in liquid form such as used oil, grease and/or contaminated water or waste water.

Method statement	A document that describes how the Contractor will apply environmental management measures associated with a particular activity during construction.
Monitoring	Determining the status of a system, a process or an activity
Natural Vegetation	All existing species, indigenous or otherwise, of trees, shrubs, groundcover, grasses and all other plants found growing on the site.
Responsible Authority	A Responsible Authority, according to the National Water Act 36 of 1998, relates to specific power or authority in respect of water uses that is assigned by the Minister to a Catchment Management Agency or to a Regional Office.
Rehabilitation	Refers to measures that must be put in place to restore the site to its pre-construction or enhanced state, subsequent to construction taking place.
Scope of Work	The construction work for which the Contractor has been appointed in terms of the Contract with Transnet.
Sensitive area	Any area that is denoted as sensitive by this Specification due to its particular attributes, which could include the presence of rare or endangered vegetation, the presence of heritage resources (e.g. archaeological artefact or graves), the presence of a unique natural feature, the presence of a watercourse or water body, the presence of sensitive social receptors etc. As a minimum, habitats that fall under this definition include: mountain catchments, Ramsar wetland sites, coastal shores, estuaries and endangered ecosystems.
Solid waste	All solid waste, including construction debris, chemical waste, excess cement/ concrete, wrapping materials, timber, tins and cans, drums, wire, nails, food and domestic waste (e.g. plastic packets and wrappers).

Spoil	Excavated material which is unsuitable for re-use as material in the Works or any other use; or is material which is surplus to the requirements of the Works.
Sub -Contractor	is a person or organisation who has a contract with the contractor to: Construct or install part of the contractor's work. Provide a service necessary to provide the works; or Supply plant and materials which the person or organisation has wholly or partly designed specifically for the works.
Temporary Storage	A once-off storage of waste for a period not exceeding 90 days.
Topsoil	Means a varying depth (up to 300 mm) of the soil profile irrespective of the fertility appearance, structure, agricultural potential, fertility and composition of the soil.
Waste	Any substance, material or object, that is unwanted, rejected, abandoned, discarded or disposed of, or that is intended or required to be discarded or disposed of, by the holder of that substance, material or object, whether or not such substance, material or object can be re-used, recycled or recovered and includes all wastes. Waste or a portion of waste ceases to be a waste only once the waste is, or has been re-used, recycled or recovered.
Wastewater	means water containing waste, or water that has been in contact with waste material
Watercourse	Refers to - a river or spring; a natural channel in which water flows regularly or intermittently;

a wetland, lake or dam into which, or from which, water flows;
and

any collection of water gazetted by the National Water Act, 36 of 1998 as a watercourse, and a reference to a watercourse includes, where relevant, its bed and banks.

Wetland

Land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.

4.2 Abbreviations

Acronym	Meaning In Full
CEM SOP	Construction Environmental Management Standard Operating Procedure
CM	Construction Manager
CV	Curriculum Vitae
DEFF	Department of Environment, Forestry and Fisheries
EA	Environmental Authorisation
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
CESSG	Contractor Environmental and Sustainability Specification Guidelines
EO	Environmental Officer

Acronym	Meaning In Full
EMP	Environmental Management Plan
EMPr	Environmental Management Programme
EGF	Environmental Governance Framework
NEMA	National Environmental Management Act 107 of 1998
NEM:BA	National Environmental Management: Biodiversity Act 10 of 2004
NWA	National Water Act 36 of 1998
PER	Project Environmental Resource
PES	Project Environmental Specification
PM	Project Manager
SAHRA	South African Heritage Resource Agency
SDS	Safety Data Sheet
SHEQ	Safety, Health, Environment and Quality
TRANSNET	Transnet SOC Ltd

5. MINIMUM ENVIRONMENTAL REQUIREMENTS FOR CONSTRUCTION

5.1 Tender Documents

Any construction-related tender issued to the market must include:

- Transnet Integrated Management System Policy Statement;
- The Transnet Construction Environmental Management Standard Operating Procedure (CEM SOP);
- The Contractor Environmental & Sustainability Specification Guideline; and
- The Project Environmental Specification (PES).

Any construction-related tender must be recommended for issue by the Transnet Project Environmental Resource/s before it is released to the market.

5.2 Project Environmental Specification (PES)

Must incorporate all relevant recommendations of the Environmental Impact Assessment (EIA) and other environmental studies for the project and the relevant conditions of the EA and/or other applicable environmental permit(s) and licence(s), and the Transnet Operating Division's Environmental Management requirements (where applicable) into an environmental performance specification for implementation during the construction phase of the project.

The PES need not be a separate document; however it can be in a format of an appendix/addendum making reference to environmental authorisation(s), permit(s) or licence(s) applicable to the project. In cases where the project does not trigger any of the NEMA listed activities or any permit(s)/licence(s); the PES may be compiled to prescribe additional environmental management measures over and above the measures stipulated in the MERC.

5.3 Contractor's Environmental Policy

The Contractor's Environmental Policy must be signed and dated by Top Management.

The content of the Contractor's Environmental Policy must:

- be appropriate to the purpose and context of the Contractor's organization, including the nature, scale and environmental impacts of its activities, products and services;
- provide a framework for setting environmental objectives;
- include a commitment to the protection of the environment, including prevention of pollution and other specific commitment(s) relevant to the context of the Contractor's organization;
- include a commitment to fulfil compliance obligations; and
- include a commitment to continual improvement of the Contractor's environmental management system to enhance environmental performance

5.4 Contractor's Environmental Management Plan (EMP)

The Contractor's EMP must include:

- the name of the person who compiled the EMP;
- the expertise of the person who compiled the EMP, including a CV;
- a description of the Contractor's scope of work;
- a detailed description of the environmental aspects related to the Contractor's scope of work;
- a map at an appropriate scale which depicts all construction activities including associated structures, and infrastructure and environmental sensitivities affected by the construction footprint , as well as no go-areas and associated buffers;
 - The map must include the following:
 - an accurate indication of the project site position as well as the positions of the alternative sites, if any;
 - road names or numbers of all the major roads as well as the roads that provide access to the site(s)
 - a north arrow;
 - a legend;
 - the prevailing wind direction;
 - site sensitivities, including but not limited to vegetation, wetlands, watercourses, heritage sites, critical biodiversity area/s, World Heritage Site, etc. and it must be overlaid by the study area; and

- GPS co-ordinates (Indicate the position of the proposed activity with the latitude and longitude at the centre point for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should be to at least three decimal places. The projection that must be used in all cases is the WGS-84 spheroid in a national or local projection).
- a description of the impacts and risks that need to be avoided, managed and mitigated during the execution of the Contractor's scope of work including (as relevant);
 - planning and design;
 - pre-construction activities;
 - construction activities;
 - rehabilitation; and
 - operation of Transnet assets.
- a description and identification of impact management outcomes required for the identified aspects;
- a description of proposed impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated above will be achieved, and must, where applicable, include actions to:
 - avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;
 - comply with any prescribed environmental management standards or practices; and
 - comply with any applicable local, provincial and national legislation.
- the method of monitoring the implementation of the impact management actions contemplated above;
- the frequency of monitoring the implementation of the impact management actions contemplated above;
- an indication of the persons who will be responsible for the implementation of the impact management actions;
- the timeframe within which the impact management actions contemplated above must be implemented;
- the mechanism for monitoring compliance with the impact management actions contemplated above;

- a program for reporting on compliance, taking into account the requirements of this document;
- an environmental awareness plan describing the manner in which:
 - the Contractor intends to inform his employees of any environmental risk which may result from his scope of work; and
 - risks must be dealt with in order to avoid pollution or the degradation of the environment.
- any specific information that may be required by Transnet.

5.5 Contractor's Environmental Officer (EO)

The Contractor's EO should have relevant environmental qualifications and experience required for the project. The level of qualifications and experience must be in line with the complexity of the Contractor's scope of work coupled with the sensitivity of the site. The level of competency will be determined by Transnet during tender.

5.6 Management of Sub-Contractors

The Contractor must ensure that all his sub-contractors comply with this document in so far as it relates to their specific scope of work or services.

5.7 Pre-Site Access Environmental Governance

The Contractor must appoint the EO recommended in his tender proposal. Should the EO no longer be available, the Contractor must submit a CV of an alternative EO with similar or better qualifications and experience for approval by the Transnet PM and PER. The same principle will apply if the Contractor's EO is replaced for whatever reason at any stage. No construction may take place without a duly appointed Contractor's EO.

The Contractor must provide his EO with all environmental documents provided by Transnet during tender and submitted as a part of the Contractor's proposal.

The Contractor must obtain the contact details of the responsible Transnet PER and Transnet PER and provide these details to his EO.

The Contractor's EO must develop an appropriate environmental file for approval by the Transnet PER, including but not necessarily limited to (the environmental file must always be available and up to date on the construction site):

- Documents from the tender as described above.
- His CV.
- An organogram indicating reporting lines of all Contractor's staff (with names included).
- Contact Information for: the overall responsible person acting on behalf of the Contractor to execute the construction works; Contractor's Construction Manager (CM); Contractor's EO; and all relevant emergency personnel.
- A list of the Contractor's plant and equipment indicating a description of the plant/equipment, its fuel capacity, any hazardous components (oils, greases etc.), individual service/maintenance cycles and noise levels.
- A list of hazardous substances to be used during construction indicating: official substance name from Material Safety Data Sheets (MSDS)/ Safety Data Sheet (SDS); quantity on site; storage method; transport method to site; and period to be used on site. All substances listed must have MSDS/ SDS on site in the environmental file.

The MSDS/ SDS should contain the following minimum requirements:

- Section 1: Product and company name
- Section 2: Hazard identification
- Section 3: Composition/information on ingredients
- Section 4: First aid measures
- Section 5: Fire fighting measures
- Section 6: Accidental release measure
- Section 7: Handling storage
- Section 8: Exposure controls/personal protection
- Section 9: Physical and chemical properties
- Section 10: Stability and reactivity
- Section 11: Toxicological Information
- Section 12: Ecological Information
- Section 13: Disposal Consideration

- Section 14: Transportation
- Section 15: Regulatory Information
- Section 16: Other Information
- Photographic pre-construction report that details the site before any activities commence.
- Site Layout Plan indicating but not necessarily limited to,: access roads, site offices, material laydown areas, stockpile areas and parking areas, waste and effluent storage and handling facilities, entire construction footprint, no-go-areas, sewage and sanitary facilities. The plan must be appropriately drawn on a computer and must be clearly visible and properly scaled.
- A site establishment method statement (minimum requirements for method statements are described below in this document).
- Environmental Induction Material to be used to educate site staff and visitors (minimum requirements for environmental induction are described below in this document).
- An activity-based environmental risk assessment.

The Contractor's EO must submit the environmental file for acceptance to the Transnet PER.

The Contractor must obtain a Site Access Certificate from the Transnet PM before accessing the site.

5.8 Safety Data Sheets

Each hazardous substance used on site must have a valid SDS. The SDS must comply with the requirements of the Occupational Health and Safety Act, 85 of 1993.

5.9 Environmental Induction

The Contractor will ensure that all management, foremen and the general workforce, as well as all sub-contractors, suppliers and visitors to site have attended the Transnet Environmental Induction Programme prior to commencing any work on site. Where new personnel commence work on site during the construction period, the Contractor will ensure that these personnel also undergo the Transnet Environmental Induction Programme and are made aware of the environmental specifications on site.

The Contractor must ensure that all of his personnel understand the requirements of the CEM SOP; MERC; EA, EMPr, relevant permits and licences and PES as relevant to their scope of work.

5.10 Environmental Method Statements

- Environmental Method Statements as identified by the Transnet PER based on the Contractor's activity-based environmental risk assessment will be written submissions by the Contractor to the Transnet CM and PER describing:
- The proposed activity, setting out the plant, equipment, materials, labour and method the Contractor proposes using to carry out an activity;
- The environmental management of site conditions – waste management, housekeeping, site establishment etc;
- Transportation of the equipment to and from site;
- How the equipment/ material will be moved while on site;
- How and where material will be stored;
- The containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur;
- Timing and location of activities;
- Description of potential positive and negative environmental impacts and how they will be managed;
- Conformance/ non-conformance with this document and any other statutory and best practice standards;
- Monitoring and reporting requirements;
- Records Management; and
- Any other information deemed necessary by the Transnet CM and Transnet PER as well as ECO where applicable.

The Environmental Method Statements will enable the potential positive and negative environmental impacts associated with the proposed construction activity to be identified and mitigation measures put in place. All method statements must be signed by the Contractor, Transnet CM and PER, with the addition of the ECO on authorized projects, thereby indicating that the works will be carried out according to the methodology described therein.

Activities may only commence once the Environmental Method Statements have been approved by the Transnet CM, Transnet PER and ECO (where relevant). In some instances, local authorities may also need to approve the method statements. This will be highlighted in the Project Environmental Specification, where applicable.

All changes to the original Environmental Method Statements must be approved by the Transnet PER and Transnet CM prior to implementation.

To enable timely approvals, the environmental method statements will be submitted to the Transnet CM and Transnet PER for review two (2) weeks prior to the intended date of commencement of the activity, or as directed by the Transnet Project Manager/CM.

Emergency construction activity Environmental Method Statements may also be required. The activities requiring Environmental Method Statements cannot commence if they have not been approved by the CM and PER or ECO.

NOTE: No advice, approval of method statements or any other form of communication from Transnet will be construed as an acceptance by Transnet of any obligation that indemnifies the Contractor from achieving any required level of performance. Further, there is no acceptance of liability by Transnet which may result from the Contractor failing to comply with the specifications, i.e. the Contractor remains responsible for achieving the required performance levels.

5.11 Environmental Occurrences (Incidents)

The Transnet PER shall provide the Contractor with the procedure to follow in managing environmental occurrences during pre-site access governance.

The Contractor shall follow the procedure provided to him by the Transnet PER and maintain required records thereof.

In the event of an environmental occurrence, the Contractor must, as soon as is reasonably practicable:

- classify an environmental occurrence in line with the Transnet Environmental Management Occurrence process flow;

- take all reasonable measures to contain and minimise the effects of the occurrence, including its effects on the environment and any risks posed by the occurrence to the health, safety and property of persons;
- undertake cleanup procedures;
- remedy the effects of the occurrence; and
- assess the immediate and long-term effects of the occurrence on the environment and public health

5.12 Environmental Non-Conformances (Defects)

Environmental Non-Conformances shall be handled as per the terms and conditions of the Contract.

The Transnet PER shall provide the Contractor with the procedure to follow in managing environmental non-conformances during pre-site access governance.

The Contractor shall follow the procedure provided to him by the Transnet PER and maintain required records thereof.

The Transnet Project Manager shall ensure that all Non-conformances are appropriately closed out within the timeframe specified in the Non-Conformance Report.

Any environmental non-conformance will be dealt with similarly to a Defect as defined in the Contract. A defect is due to non-compliance with the Works Information and it is the responsibility of the Contractor to correct the defect in order to ensure that the work takes place in accordance with the Works Information. Similarly, non-conformance/non-compliance with any other permit or licence will be regarded as a non-conformance with the Works Information. The Contractor is responsible for rectifying any defect (non-conformance) as defined above promptly.

The Contractor's EO shall be responsible to search for and identify non-conformances with the environmental specifications at inspection intervals agreed to with the Transnet PER. The Transnet PER shall also undertake such inspections on a monthly basis. If such monthly inspections indicate that any part of the Contractor's work is non-conformant with the environmental requirements, the Transnet PER shall advise the Transnet PM to issue a Defects Notification to the Contractor accordingly. The Contractor shall correct the non-

conformance (defect) within the timeframes specified in the report and notification and submit proof of such correction to the Transnet PER.

The Transnet PER shall not recommend that a Site Closure Certificate be issued to the Contractor if any non-conformances have not been properly closed out. In such an event, the Transnet Project Manager may also make use of any reasonable contractual means to rectify the non-conformance(s) as allowed by the Contract (retention moneys etc.).

5.13 Community Grievances (Public Complaints)

The Transnet PER shall provide the Contractor with the procedure to follow in managing community grievances during pre-site access governance.

The Contractor shall follow the procedure provided to him by the Transnet PER and maintain required records thereof.

5.14 Environmental Inspections and Audits

Environmental inspections and audits may be conducted using five basic techniques:

- Interviews with Contractor's staff including Sub-contractors and suppliers;
- Document review;
- Observations;
- Monitoring; and
- Measurement and verification.

Table 1 sets out the areas and aspects of the construction site that will be inspected or audited, the frequency of such inspections/audits, the inspector/auditor and the inspected party/auditee. It should be noted that the list is not exhaustive and that each site will have specific issues that will need to be inspected/audited.

Table 1: Details on Environmental Inspections/Audits (where Transnet is the Inspected Party/Auditee, respective Contractors must give full cooperation).

Place	Inspector/Auditor	Inspected Party/ Auditee	Inspection/audit frequency
Construction Site	Contractor's Environmental Officer	Contractor	Daily/Weekly Inspection
Project (including all construction sites).	Transnet Project Environmental Resource/Project Environmental Manager	Contractor	Monthly Inspection
Project (including all construction sites)	Transnet Environmental Specialist: Assurance	Transnet Project Environmental Resource	As stipulated on the annual audit plan
Project (as defined in Environmental Authorisation)	Environmental Control Officer	Transnet (represented by Transnet Environmental Resource)	As stipulated in the Environmental Authorisation
Project (as defined in Water Use Authorisation)	Independent Auditor	Transnet (represented by Transnet Environmental Resource)	As stipulated in the Water Use Authorisation

The Contractor's EO will be required to conduct inspections of all work areas for which the Contractor is responsible, at intervals agreed to with the Transnet PER. Monitoring shall

be conducted as per the Contractor's approved EMP and all required records shall be maintained by the Contractor.

The Transnet PER will be required to conduct inspections of all work areas for which the Contractor is responsible on a monthly basis or at intervals agreed to with the Transnet Project Environmental Manager. Monitoring shall be conducted as per the Project Environmental Specification. The Inspection Checklist to be used shall be approved by the Transnet PER prior to each inspection.

5.15 Contractor's Environmental Performance

The Transnet PER will explain how the Contractor's performance will be scored during pre-site access governance to the Contractor's EO. The standard/minimum requirement for all environmental inspections will be 90%.

5.16 Site Planning and Establishment

The Contractor shall establish his construction camps, offices, workshops, eating areas and any other facilities on the site in a manner that does not adversely affect the environment. These facilities must not be sited in close proximity to sensitive areas; the buffer to be determined by the ecological requirements of the fauna/flora found on-site.

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 be located as far away as possible from any watercourse.

5.16.1 Site Layout Plan

The Site Layout Plan must as a minimum include but not limited to:

- Detailed layout of the construction works areas including access roads, site offices, material laydown areas, temporary stockpile areas and parking areas;
- Detailed locality and layout of all waste storage and handling facilities for litter, kitchen refuse and workshop-derived effluent;
- Proposed areas for the stockpiling of topsoil and excavated spoil material;
- Demarcation of the construction footprint including areas not to be disturbed by the development;

- Location of sewage and sanitary facilities at the site offices and staff accommodation at all localities where there will be a concentration of labour.

Any changes to the location of the facilities and site activities as per the approved site layout plan shall be re-submitted to the Transnet CM and Transnet PER for approval prior to implementation.

The Contractor may be required to submit a separate layout plan dealing only with his site camp. If so this will be specified in the PES.

5.16.2 Identification and Establishment of Suitable Access Routes/Roads

Existing access routes to the construction/works areas must be used as far as possible. The building of access roads must be restricted to prevent unnecessary disturbance of the surrounding environment. Access tracks must be maintained in a good condition at all times during construction to minimize erosion and dust generation.

5.16.3 Demarcation of Site Limits

Prior to the commencement of construction, the site must be clearly demarcated by means of visible barriers. Vegetation within the demarcated zone may be cleared only upon obtaining approval from the Transnet PER. No activities are allowed outside of the approved footprint on the Site Layout Plan.

5.16.4 Eating Areas

The Contractor is responsible for providing adequate eating facilities within the works area to ensure that workers do not leave the site to eat during working hours. Refuse bags/bins must be provided at all established eating areas and when full it should be disposed of appropriately.

5.16.5 Liquid Waste Management

Liquid waste water from site shall be stored on-site in a properly designed and constructed system, situated so as not to adversely affect water courses. Only domestic type wastewater, i.e. toilet, shower, basin, kitchen water shall be allowed to enter the designated system.

5.17 Sewage and Sanitation

The Contractor is responsible for providing adequate sanitary facilities including toilets, toilet paper, wash basins etc. to all workers on site and for enforcing the proper use of these facilities.

Toilet facilities shall be serviced regularly and the waste material generated from these facilities shall be disposed of at a registered waste water treatment works/macerator and relevant permits for transportation of waste and proof of servicing and disposal shall be maintained.

Toilets and latrines shall be easily accessible and shall be positioned within walking distance from wherever employees are employed on site, and away from sensitive areas. Use of open areas (i.e. the veld) is not allowed. For projects of high mobility a mobile toilet facility shall be made available by the Contractor.

Outside toilets shall be provided with locks and doors and shall be secured to prevent them from blowing over. Toilets must not be placed in areas susceptible to flooding and high winds. 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 Transnet CM.

5.18 Waste Management

Waste shall be grouped into “**general**” or “**hazardous**”, depending on its characteristics. The classification shall determine handling methods and the ultimate disposal of material.

General waste which is likely to be generated on site during construction include but not limited to 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; and
- Uncontaminated soil and non-hazardous rubble from excavation or demolition.

The Contractor shall classify all waste expected to be generated during the construction period. Examples of typical construction waste which could be expected on the site and how they should be classified are indicated in the following table:

TABLE 2: EXAMPLE OF CONSTRUCTION WASTE CLASSIFICATION

Waste	Classification	
	Hazardous	General
Aerosol containers	X	
Batteries, light bulbs, circuit boards, etc.	X	X
Clean soil		X
Construction debris contaminated by oil or organic compounds	X	
Domestic waste		X
Empty drums (depends on prior use)	X	X
Empty paint and coating containers		X
Explosive waste	X	
PCB waste	X	
Rubble (not contaminated by oil or organic compounds)		X
Waste Cable		X
Waste plastic		X
Waste paint and/or solvent	X	
Waste oil	X	
Waste concrete		X
Waste cement powder	x	
Waste empty cement bags (must be thoroughly decanted)		x
Waste containing fibrous asbestos	X	
Waste timber		X
Sewerage sludge	X	
Scrap metal		X

Waste	Classification	
	Hazardous	General
Chemically-derived sanitary waste	X	

Waste will be managed in accordance with the Waste Management Hierarchy depicted in Figure 1 below:

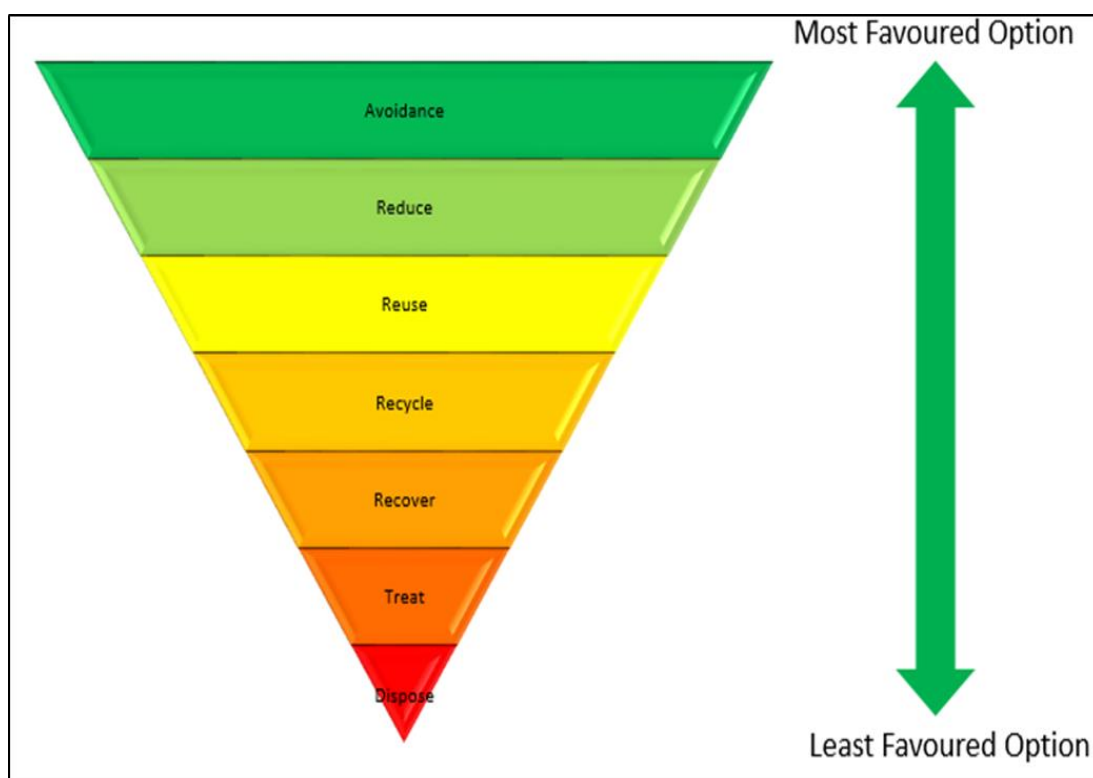


FIGURE 1: THE WASTE MANAGEMENT HIERARCHY

(Transnet Environmental Risk Management strategy and Framework, 2015:42)

- 1. Avoidance/Prevention:** using goods in a manner that minimises their waste components
- 2. Reduction/Minimisation:** reduction of the quantity and toxicity of waste generated during construction
- 3. Re-use:** removing an article from a waste stream for use in a similar or different purpose without changing its form or properties

4. Recycling:	separating articles from a waste stream and processing them as products or raw materials
5. Recovery:	reclaiming particular components or materials, or using the waste as a fuel
6. Treatment:	processing of waste by changing its form or properties in order to reduce toxicity and quantity
7. Disposal:	burial, deposit, discharge, abandoning or release of waste

The Contractor is responsible for the removal of all waste generated from site. The Contractor shall ensure that all waste is removed to appropriate licensed waste management facilities. (For the identification of an appropriate facility, the following source may be utilized: <http://sawic.environment.gov.za/>).

The Contractor shall manage **GENERAL WASTE** that is anticipated to be generated by operations as follows:

- Notify waste hauler when container is full so that it can be removed and replaced with an empty container/skip;
- No littering is allowed on site. In the event where staff mobility is high, refuse bags will be made available by the Contractor;
- Provide documented evidence of proper disposal of waste (Waste Disposal Certificate)

The Contractor shall recycle **GENERAL WASTE** (as far as practically possible) that is anticipated to be generated by its operations as follows:

- Obtain and label recycling containers for the following (whichever relevant) and locate them at secure designated locations on site:
 - Office Waste;
 - Aluminium;
 - Steel;
 - Glass;
 - Ferrous Metals;

- Non Ferrous Metals; and
- Waste Timber
- Establish recycled material collection schedule;
- Arrange for full bins to be hauled away;
- Spent batteries, circuit boards, and bulbs, while non-hazardous, require separate storage, special collection and handling; and
- No burning, burying or dumping of waste of any kind will be permitted.

The Contractor shall manage **HAZARDOUS WASTE** anticipated to be generated by his operations as follows:

- Obtain and provide an acceptable container with correct and visible classification label;
- Place hazardous waste material in allocated container;
- Inspect the container on a regular basis as per the Contractor's EMP;
- Track the accumulation time for the waste, haul the full container to the registered hazardous disposal site;
- Notify the waste hauler when container is full so that it can be removed and replaced with an empty container/skip; and
- Provide documented evidence of proper waste disposal of the waste (Waste Disposal Certificate).

The Contractor shall maintain the following waste records for submission to the Transnet PER on request:

- Date of waste management activity;
- Activity Type (reuse, recycle, recover, treat, dispose);
- Description (e.g. contaminated soil, medical waste, tyres, plastic, domestic waste etc.)
- Classification (General/Hazardous);
- Estimated Quantity in kilograms
- Disposal Site Name and Reference Number (where relevant);
- Method of Transport; and
- Signed Collection or Disposal Records

5.19 Workshops, equipment maintenance and storage

All vehicles and equipment must be kept in good working order to maximise efficiency and minimise pollution. Maintenance, including washing and refueling of plant on site must be done at designated locations approved on the Site Layout Plan. The Contractor must ensure that no contamination of soil or vegetation occurs around workshops and plant maintenance facilities.

All machinery servicing areas must be bunded. Stationary plant that leak harmful substances shall not be permitted on site. Washing of equipment should be restricted to urgent maintenance requirements only. Adequate wastewater collection facilities must be provided and the wastewater should be disposed of appropriately in accordance with its waste classification.

5.20 Vehicle and Equipment Refueling

5.20.1 Stationary/Designated Refuelling

No vehicles or machines shall be serviced or refueled on site except at designated servicing or refueling locations included on the approved Site Layout Plan.

The Contractor shall provide details of his refueling activities in his EMP or Refueling Method Statement. Facility design shall comply with the regulations of the National Water Act, (Act 36 of 1998), the Hazardous Substances Act, (Act 15 of 1973), the Environmental Conservation Act, (Act 73 of 1989), National Environmental Management Act, (Act 107 of 1998), and the Occupational Health and Safety Act, (Act 85 of 1993), mainly the Construction - and Hazardous Chemical Substances Regulations.

5.20.2 Mobile Refuelling

In certain circumstances, the refueling of vehicles or equipment in a designated area is not a viable/practicable option and refueling has to be done from a tank, truck, bowser or container moved around on site. In such circumstances, the Contractor may request approval from the Transnet CM to conduct mobile refueling subject to the following control measures:

- Secondary containment equipment shall be in place. This equipment shall be sized to contain the most likely volume of fuel that could be spilt during transfer.

- Absorbent pads or drip trays are to be placed around the fuel inlet prior to dispensing.
- Mobile refueling units are to be operated by a designated competent person.
- The transfer of fuel must be stopped prior to overflowing. Fuel tanks or refueling equipment on vehicles may only be filled to 90% carrying capacity.
- Mobile fuelling equipment must be stored in areas where they are not susceptible to collisions.
- Mobile refueling operations shall not take place within 30 meters of any watercourses or 7.5 meter from other structures, property lines, public ways or combustible storage.

All mobile refueling tanks are to be properly labelled and fire extinguishers with valid service dates shall be located near the fuel storage areas. These extinguishers must be of a suitable type and size.

5.21 Spill Response

The Contractor shall have adequate spill response materials/equipment on site which must be aligned with the volumes of hazardous substances used on site and the risk of pollution to sensitive environmental features.

The Contractor shall have an approved Spill Response Plan, either in his EMP or in the form of a method statement approved by the Transnet CM and Transnet PER.

The Contractor shall instruct construction personnel on the following spill prevention and containment responsibilities:

- All plants to be inspected daily to ensure that they are in good condition;
- Immediately repair all leaks of hydrocarbons or chemicals;
- Take all reasonable measures 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; and
- Do not discharge oil or contaminants into storm water or sewer systems.

If a spill occurs on land, the Contractor must:

- Immediately stop or reduce the spill;

- 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; and
- Manage the contaminated material in accordance with Waste Management requirements in this document.

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;
- Notify the appropriate on-site authorities;
- Implement actions necessary to prevent the spread of the contamination by deploying appropriate absorbent material;
- Recover the spilled product; and
- Manage the contaminated material in accordance with Waste Management requirements in this document. Water samples to be taken downstream from where the spill took place to trace the extent of pollution.

All spills must be recorded as occurrences and managed in accordance with the requirements for Occurrences in this document.

5.22 Spray Painting and Sandblasting

Spray painting and sandblasting must be kept to a minimum. All painting must, 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 as per the approved EMP or Method Statement.

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

Sand may only be acquired from approved commercial sources and in instances where sand is collected from the natural surrounds, such collection must be approved by the Transnet PER.

If the area is in confined or high (elevated) areas, a protection plan must be issued for approval by the Transnet PER.

5.23 Dust Management

The usage of water for dust management will be minimized as far as practically possible. Discretion must be applied in this regard especially relating to drought conditions. Only water from approved sources may be used. Dust control measures must be approved by the Transnet PER prior to commencement of the Works.

The following minimum dust management practices must be implemented on site:

- Vehicles must be operated within speed limits, where no speed limit has been specified, the limit shall be 40km/h;
- Haulage distances must be minimized as far as reasonable practicable;
- Where water suppression is insufficient or impractical, environmentally friendly soil stabilizers must be used;
- Stockpiles and open areas that may cause dust must be stabilized and vegetated where required;
- Dust suppression measures must be implemented on inactive construction areas. (An inactive construction site is one on which construction will not occur for a month or more);
- Disturbance of natural vegetation must be minimized to reduce potential erosion, runoff, and air-borne dust;
- Material in transit must be loaded and contained within the load bin of the vehicle in such a way as to prevent any spillage or creation of dust clouds. If necessary, the load bin of the vehicle shall be covered with a tarpaulin;

5.24 Storm Water and Dewatering Management

Apart from runoff from overburden emplacements and stock piles, storm water can also be contaminated from batch plants, workshops, vehicle wash-down pads, etc., and contaminants during construction may include hydrocarbons from fuels and lubricants, sewerage from employee ablutions and excess fertilizer from rehabilitated areas, etc.

Discharges to controlled waters such as the sea, rivers, and groundwater or to sewerage systems are controlled under South African Water Legislation. The following specific measures are required:

- Temporary drainage must be established and maintained on site during the construction period until permanent drainage is in place. Secondary drainage that prevents erosion must be provided, where necessary.
- Contractors must employ good housekeeping in their areas to prevent contamination of drainage water.
- Stagnant water shall be cleared at a frequency approved by the Transnet PER.
- Any surface water flows off-site must be approved by the Transnet PER. Where necessary, silt traps shall be constructed to ensure retention of silt on site and cut-off ditches shall be constructed to ensure no runoff from the site except at points where silt traps are provided. The Contractor shall be responsible for checking and maintaining all silt traps for the duration of the project.
- The removal from groundwater is defined as a water-use under the National Water Act 36 of 1998. Therefore, it must be ensured that the project has been authorised by the Responsible Authority to remove and discharge groundwater prior to dewatering taking place. If applicable, the Contractor shall be responsible for collection, management, and containment within the site boundaries of all dewatering from all general site preparation activities.
- On-site drainage shall be accomplished in accordance with a plan approved by a suitably qualified civil engineer.

5.25 Erosion Control

Erosion control measures will be designed, implemented, and properly maintained in accordance with best management practices which will include, but not limited to the following:

- Activities must be scheduled to minimise the extent of disturbance of an area at any one time;
- Re-vegetation must be implemented as early as feasible;
- Construction traffic must be properly managed and controlled;
- Areas must be graded to the extent feasible at drainage ditches;
- Loose soil will be compacted as soon as possible after excavation, grading, or filling;
- Silt fences, geo-textiles, temporary rip-rap, soil stabilisation with gravel, diversionary berms or swales, small sedimentation basins must be used;
- The transport of sediment must be minimised;
- An erosion and sedimentation control plan must be developed, approved by the Transnet PER and communicated to staff; and
- The Contractor shall be responsible for checking and maintaining all erosion and sedimentation controls.

5.26 Noise Management

- The following specific measures are required:
- Keep all equipment in good working order;
- Operate equipment within its specification and capacity and don't overload machines;
- Apply regular maintenance, particularly with regards to lubrication;
- Operate equipment with appropriate noise abatement accessories, such as sound hoods;
- Relevant stakeholders shall be notified of any excessive noise-generating activities that could affect them;
- Ensure that the potential noise source will conform to the South African Bureau of Standards recommended code of practice, SANS 10103:2004 or the latest at the time, so that it will not produce excessive or undesirable noise when released;

- All the 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 or the latest at the time, for construction plant noise generation
- Contractor's vehicles 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 by ensuring that all noise-related occupational health provisions are met. (Occupational Health and Safety Act, (Act 85 of 1993).

5.27 Protection of Heritage Resources

5.27.1 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 Transnet CM and Transnet PER of such a discovery. The South African Heritage Resources Agency (SAHRA) or relevant Authority is to be contacted and will appoint an Archaeologist to investigate the find. Work may only resume once clearance is given in writing by the Archaeologist.

5.27.2 Graves

If a grave is uncovered on site, or discovered before the commencement of work, all work in the immediate vicinity of the grave shall be stopped and the Transnet CM and PER informed of the discovery. The South African Heritage Resources Agency (SAHRA) or relevant Authority should be contacted and in the case of graves, arrangements made for an undertaker to carry out exhumation and reburial. The undertaker will, together with the SAHRA, be responsible for attempts to contact family of the deceased and for the site where the exhumed remains can be re-interred.

5.28 Fire Prevention

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 where and when necessary. In cases where construction is taking place in a Critical Biodiversity Area as listed under NEM:BA; it must be ensured that the requirement of a firebreak is screened against the NEMA Listing Notice 3 to confirm legislative requirements.

All conditions incorporated in the requirements of the Occupational Health and Safety Act shall be implemented.

5.29 Water Protection and Management

No water shall be abstracted from any water course (stream, river, or dam) without the expressed permission of the Transnet CM and Transnet PER. 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 been obtained from the Department of Water and Sanitation in accordance with the requirements of the National Water Act (Act 36 of 1998).

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.

Method Statement(s) must be prepared by the Contractor for the various water uses. The Contractor shall keep a record of the quantities of water used on-site during construction (including use by sub-contractors), irrespective of the purpose of use.

5.30 Protection of Fauna and the collection of firewood

On no account shall any hunting or fishing activity of any kind be allowed. This includes the setting of traps, or the killing of any animal caught in construction works.

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 a person prior to site establishment. If no-one is available, training should be provided to at least two site staff members.

The Contractor shall provide adequate facilities for all his 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 and supervision personnel for heating and cooking purposes.

5.31 Environmental Awareness Training

An Environmental Awareness Program is considered a necessary part of the Construction Environmental Management Plan for the Project. Training of the appropriate construction personnel will help ensure that all environmental regulations and requirements are followed which must be defined in the relevant Method Statement to be prepared by the Contractor.

Objectives of environmental awareness training are:

- 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 regional and local regulations.
- Problem recognition and communication – training personnel to recognise potential environmental problems, i.e. spills, and communicate the problem to the Contractor's EO for a solution.
- Liability control - non-compliance with regulatory requirements can lead to personal and corporate liability.

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 the same 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 present environmental awareness programmes on a weekly/bi-monthly basis (depending on project requirements) and keep record of all the environmental related training of the personnel.

5.32 Handling and Batching of Concrete and Cement

Concrete batching shall only be conducted in demarcated areas which have been approved by the Transnet CM and Transnet PER.

Such areas shall be fitted with a containment 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. Hand mixing of cement and concrete shall be done on mortarboards and/or within the bunded area with impermeable surface or concrete slab. Bulk and bagged cement and concrete additives will be stored in an appropriate facility at least 10m 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. It is acknowledged that all waste water will evaporate; it must be ensured that the remaining water can be pumped into sealed drums for temporary storage and must be disposed of as liquid hazardous waste at an authorised hazardous waste management facility.

All concrete washing equipment, such as shovels, mixer drums, concrete chutes, etc. shall be done within the approved washout facility. Water used for washing shall be restricted as far as practically possible.

Ready-mix concrete trucks are not allowed to wash out anywhere other than in an area designated and approved by the Transnet CM and PER for this purpose.

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 procedures.

Empty cement and bags, if temporarily stored on site, must be collected and stored in weatherproof containers. Used cement bags may not be used for any other purpose and

must be disposed of on a regular basis in accordance with the Contractor's solid waste management system.

Sand and aggregates containing cement will be kept damp to prevent the generation of dust.

Concrete and cement or any solid waste materials containing concrete and cement will be disposed of at a relevant registered disposal facility and SDCs kept on the file. Where disposal facilities for general waste are utilised, written consent from the relevant municipality must be obtained by the Contractor and filed in the Green file.

5.33 Stockpiling, Soil Management and Protection of Flora

The Contractor shall measure the extent of all areas cleared for construction purposes and keep this figure updated. Sensitive areas shall be cordoned off and avoided in this regard.

Stockpiling may only take place in designated areas indicated on the approved site layout plan. Any area to be used for stockpiling or material laydown shall be stripped of all topsoil.

Clearance of vegetation shall be restricted to that which is required to facilitate the execution of the works. Vegetation clearance shall occur in a planned manner, and cleared areas shall be stabilised as soon as possible when and where necessary. The detail of vegetation clearing shall be subject to the Transnet CM's approval and shall occur in consultation with the Transnet PER.

Stockpiles must be positioned in areas sheltered from the wind and rain to prevent erosion and dispersion of loose materials. Stockpiled soil shall be protected by adequate erosion-control measures. Soil stockpiles shall be located away from drainage lines, watercourses and areas of temporary inundation. Stockpiles containing topsoil shall not exceed 2m in height unless otherwise permitted by Transnet.

Topsoil shall be stockpiled separately from other materials and prevented from movement. Excavated subsoil, where not contaminated, must be used for backfilling, if possible, and topsoil for landscaping and rehabilitation of disturbed areas. Where topsoil

has become mixed with subsoil or is not up to the original standard, fertiliser or new topsoil shall be provided by the Contractor.

No vegetation located outside the construction site shall be destroyed or damaged. As far as is reasonably practicable, existing roads must be used for access to the site. Before site clearance takes place, vegetation surveys must be conducted and protected species identified.

No protected plant species shall be removed without written consent from the relevant authorities. The development of new embankments or fill areas must be undertaken in consultation with the Transnet PER.

No dumping of solid waste or refuse shall be allowed within or adjacent to areas of natural vegetation.

The Contractor shall identify and eradicate all declared alien and invasive plant species occurring on site.

5.34 Traffic Management

Vehicles usage is permitted only on access roads. Vehicles should only be parked within designated parking areas as demarcated on the site layout plan.

Turning of vehicles should only take place within a clearly demarcated "turn area" located within the approved construction footprint.

The Contractor must co-ordinate the loading and offloading of material during the construction phase so as to ensure that vehicular movement is in one direction only at any one time and that side-tracks are not created on the site.

5.35 Transportation of Materials

The Contractor is responsible for ensuring that all suppliers and delivery drivers are aware of procedures and restrictions (e.g. no-go areas) in terms of the SOP CM and this Specification. Material must be appropriately secured to ensure safe passage between destinations during transportation. Loads must have appropriate cover, where ADTs are not utilised, to prevent spillage from the vehicles. The Contractor will be held responsible for any clean-up resulting from the failure to properly secure transported materials.

5.36 Borrow Pits and Quarries

The Contractor shall ensure that suppliers of rock and sand raw materials are in possession of the required permit/license and keep record of the quantity of material supplied.

The Contractor will not make direct use of any borrow pits and quarries unless the borrow pit has a valid permit, he has obtained written approval from the Transnet CM and Method Statement has been submitted and approved. The Method Statement will provide the detailed description of the location of the borrow pits and/or quarries and the procedures that will be followed to adhere to any pertinent national or local legislation (e.g. mineral extraction, rehabilitation, safety and noise levels).

5.37 Social and Labour Issues

The criteria for and selection of labourers, sub-contractors and suppliers for the project shall demonstrate preference for the local community and shall be aligned with the criteria set by Transnet SOC Ltd in appointing the Contractor. The Contractor shall keep records of the identity of all staff.

Under no circumstances shall the Contractors engage in formal discussions with landowners without prior consent by the Transnet CM.

No activity on private property shall be allowed without written consent by the relevant landowner and Transnet CM/Transnet PER.

Any damage to private property caused by the Contractor during the construction period, shall be repaired to the satisfaction of the Transnet CM, the Transnet PER and the landowner.

The Contractor shall keep record of any complaint raised during the construction period relating to the Contractor's activities.

No job-seekers shall be allowed on site and signs reflecting such shall be displayed on the notice boards.

5.38 Energy Management

The Contractor shall measure and keep updated records of the following:

- Electricity consumption (to be measured in Kilowatt Hours)
- Fuel consumption (to be measured in liters)

5.39 Handling, Storage and Management of Hazardous Substances

All hazardous materials/substances shall be stored in a secured, designated area that is fenced, bunded and has restricted entry.

All storage shall take place using suitable containers to the approval of the Transnet CM and PER.

All hazardous liquids shall be located in a secure, demarcated area and an adequate bund wall (110% of the total volume stored) shall be provided. The floor and wall of the bund area shall be impervious to prevent infiltration of any spilled/leaked liquids into the soil.

No spillages or accumulated stormwater within this bunded area will be allowed to be flushed from the bund into the surrounding area.

Hazard signs indicating the nature and volume of the stored materials shall be displayed on the storage facility or containment structure.

Weigh bills of hazardous substances shall be sourced from suppliers and kept on site for inspection by the Transnet PER.

The Contractor must provide a method statement detailing the hazardous substances that are to be used during construction, as well as the storage, handling and disposal procedures for each substance. Emergency procedures in the event of misuse or spillage that might negatively affect the environment must be specified.

Information on each hazardous substance will be available to all persons on site in the form of MSDS/SDS. Training and education about the proper use, handling, and disposal of the material will be provided to all workers handling the material.

The Contractor's EO 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.

5.40 Housekeeping

The Contractor must ensure proper housekeeping of the site for the duration of the project. If practical the contractor shall amongst construction personnel, assign one to be responsible for good housekeeping

Materials shall be stored in a neat and tidy manner in designated areas as per the approved site layout plan.

5.41 Rehabilitation

Contractors shall rehabilitate the entire site upon completion of work. Where applicable, rehabilitation must be in line with the measures outlined in the Project Environmental Specification. A rehabilitation plan will be submitted to the Transnet CM and PER for approval at least six weeks before project completion. The following, but not limited are critical issues to be included in the rehabilitation plan:

- Details of soil preparation procedures including proposed fertilisers or other chemicals being considered for use;
- A list of the plant species that will be used in the rehabilitation process. Note that these should all be indigenous species, and preferably species that are endemic to the area. The assistance of an appropriately qualified Botanist/Horticulturist should be sought in developing this 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); and
- Procedures for the prevention of the establishment and spread of alien invasive species.

5.42 Documentation and Records Management

The Contractor's EO will complete and maintain copies of all documents and records and ensure that these documents and records are kept up to date.

The Contractor's EO will submit these documents to the Transnet PER on a frequency as agreed to with the Transnet PER, except where documents have remained unchanged in which case written notification to this effect must be provided to the Transnet PER. The Contractor's EO must ensure that electronic copies of these documents are saved on the Transnet system.

Once the construction activities have been completed and the Transnet PER has conducted a site closure inspection and notified the Contractor that site closure will be granted, all documents described above must be handed over to Transnet after which a Site Closure Certificate will be issued by the Transnet Project Manager.

NOTE: All documents/records are to be retained, within the Transnet Document Control System, for a period of 10 years. In the event of environmental documentation/record being lost before receiving a Site Closure Certificate, the Contractor will be penalised according to the specifications laid down in the Contract.

6. RECORDS

Refer to CEM SOP.

7. ANNEXURES

None.