
REQUEST FOR PROPOSAL (RFP) NEC3 ENGINEERING CONSTRUCTION CONTRACT (ECC).

FOR THE SUPPLY, DELIVERY, REMOVAL, REPLACEMENT, AND COMMISSIONING OF PIPELINE INCLUDING ALL THE ACCESSORIES ON THE 225M LONG JETTY PIPEWORK AT TRANSNET NATIONAL PORT AUTHORITY (TNPA), SAND BYPASS IN PORT OF NGQURA (PoN).

RFP NUMBER : TNPA/2024/09/0008/77882/RFP

ISSUE DATE : 23 JULY 2025

COMPULSORY CLARIFICATION: 08 AUGUST 2025

**VENUE : TRANSNET NATIONAL PORTS AUTHORITY (TNPA),
PORT OF NGQURA, ACB BOARDROOM,
MARINE FIRE STATION BUILDING AT 10H00**

SITE VISIT : 08 AUGUST 2025

CLOSING DATE : 21 AUGUST 2025

CLOSING TIME : 18H00

TENDER VALIDITY PERIOD : 12 WEEKS FROM THE CLOSING DATE

PRE-QUALIFICATION CRITERIA:

- CIDB Grading: 5ME or higher / 5CE or higher.
- Certificate of attendance at Compulsory Tender Clarification Meeting.



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Number	Heading
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Part C3: Scope of Work

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THE TENDER

Part T1

DESCRIPTION OF WORKS: SUPPLY, DELIVERY, REMOVAL, REPLACEMENT, AND COMMISSIONING OF PIPELINE INCLUDING ALL THE ACCESSORIES ON THE 225M LONG JETTY PIPEWORK AT TRANSNET NATIONAL PORTS AUTHORITY (TNPA), SAND BYPASS IN PORT OF NGQURA (PoN).

T1.1 TENDER NOTICE AND INVITATION TO TENDER

SECTION 1: NOTICE TO TENDERERS

1. INVITATION TO TENDER

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

DESCRIPTION	FOR SUPPLY, DELIVERY, REMOVAL, REPLACEMENT, AND COMMISSIONING OF PIPELINE INCLUDING ALL THE ACCESSORIES ON THE 225M LONG JETTY PIPEWORK AT TRANSNET NATIONAL PORTS AUTHORITY (TNPA), SAND BYPASS IN PORT OF NGQURA (PON) FOR A ONCE OFF PERIOD.
TENDER DOWNLOADING	<p>This Tender may be downloaded directly from these websites: ALL FREE OF CHARGE.</p> <ol style="list-style-type: none"> 1. National Treasury eTender Publication Portal at www.etenders.gov.za 2. Transnet e-Tender Publication Portal website at https://transnetetenders.azurewebsites.net 3. CIDB website https://www.cidb.org.za/cidb-tenders/currenttenders <p>(please use Google Chrome to access Transnet link)</p>
COMPULSORY TENDER CLARIFICATION MEETING	<p>A Compulsory Tender Clarification Meeting will be conducted on the 08 August 2025 at 10h00 at Transnet National Ports Authority (TNPA), at Port of Ngqura, ACB Boardroom, Marine Fire Station Building for a period of \pm 2 (two) hours. [Tenderers to provide own transportation and accommodation].</p> <p>The Compulsory Tender Clarification Meeting will start punctually and information will not be repeated for the benefit of Tenderers arriving late.</p>

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	<p>A Site visit/walk will take place, tenderers are to note:</p> <ul style="list-style-type: none"> • Tenderers are required to wear safety shoes/boots, reflective visibility vests. • Tenderers without the recommended Personal Protective Equipment will not be allowed on the site walk. • Tenderers and their employees, visitors, clients and customers entering Transnet Offices, Depots, Workshops and Stores will have to undergo breathalyser testing. • All forms of firearms are prohibited on Transnet properties and premises. • The relevant persons attending the meeting must ensure that their identity documents, passports or drivers licences are on them for inspection at the access control gates. • Tenderers to provide own transportation and accommodation (if required). <p>Tenderers must complete and sign the attendance register. The attendance register will be used to verify the bidder's attendance.</p> <p>2.2 Tenders will only be accepted from those tendering entities including those entities that intend forming a joint venture appearing on the attendance register.</p> <p>2.3 Tenderers are also encouraged to bring their RFP document to the briefing session and to have their returnable document Schedule T2.2-1 certificate of attendance signed off by the Employer's authorised representative.</p> <p>2.4 Respondents failing to attend the compulsory RFP briefing will be disqualified.</p>
CLOSING DATE	<p>18:00 on 21 August 2025</p> <p>Tenderers must ensure that tenders are uploaded timeously onto the system. If a tender is late, it will not be accepted for consideration.</p>

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

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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) Each company must register its profile using its company details and use the corresponding registered profile to log an intent to bid as well as submitting any bid.
- c) Transnet will not accept a bid or will disqualify a bidder who submits a bid in the Transnet e-tender submission through another bidders'/Company's profile. In other words, each bidder must register the intent to bid and submit its bid through its own profile under the same company name that will eventually bid for the tender. No company shall submit a bid on behalf of another company regardless of the company being a subsidiary or holding company.
- d) In case of a Joint Venture, any of the parties/companies to the Joint Venture may use its registered profile to submit a bid on behalf of the Joint Venture.
- e) 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,

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delivery, etc. The names and locations of the Tenderers will be divulged to other Tenderers upon request.

- f) 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;

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- 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 T2.2-18 [**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:

**TRANSNET NATIONAL PORTS AUTHORITY**

TENDER NUMBER: TNPA/2024/09/0008/77882/RFP

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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**

ANNEXURE A


How to Access Transnet e-Tenders guide

"HOW TO" GUIDE FOR BIDDERS

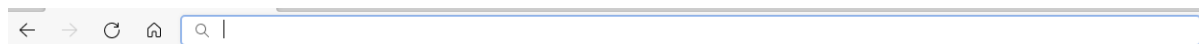
REGISTER ON ETENDER PORTAL

ACCESS TENDERS

NB: Do not wait for the last minute to register or to bid for a tender. Ensure you complete your process at least 1 day (24hours) before the closing date

Go to Google Chrome 

In the address bar type: <https://transnetetenders.azurewebsites.net>



https://transnetetender.b2clogin.com/transnetetender.onmicrosoft.com/b2c_1_signupsignin/oauth2/v2.0/authorize?client



Sign in with your email address

[Forgot your password?](#)


[Sign in](#)

[Don't have an account? → Sign up now](#)

If not already registered, click on Sign up now.


Ensure that the email you use to sign in is the same as the email that you received from the tender invite on the email, otherwise you will not see the tender

[← Cancel](#)



[Send verification code](#)

Country/Region



[Create](#)

Complete all fields, before selecting “Send verification code” and confirm that all information is correct.


VERY IMPORTANT: Each field needs to be completed and not to be left blank

If you do not have a central Supplier Database number, enter the same company registration number in that field.

Send verification code

After completing all fields, select "Send verification code". The code will be sent to your email.

< Cancel



Verification code has been sent to your inbox. Please copy it to the input box below.

abc@gmail.com

Verification Code

Copy the code as received on the email and paste it in the Verification code field
Then click on Verify code

Verify code

Send new code

Forgot your password?

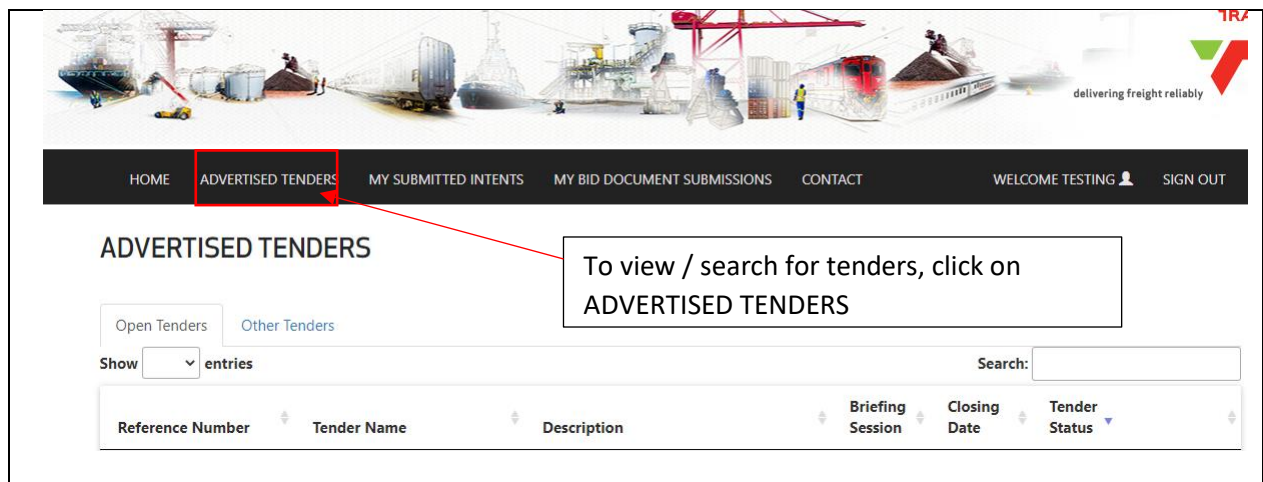
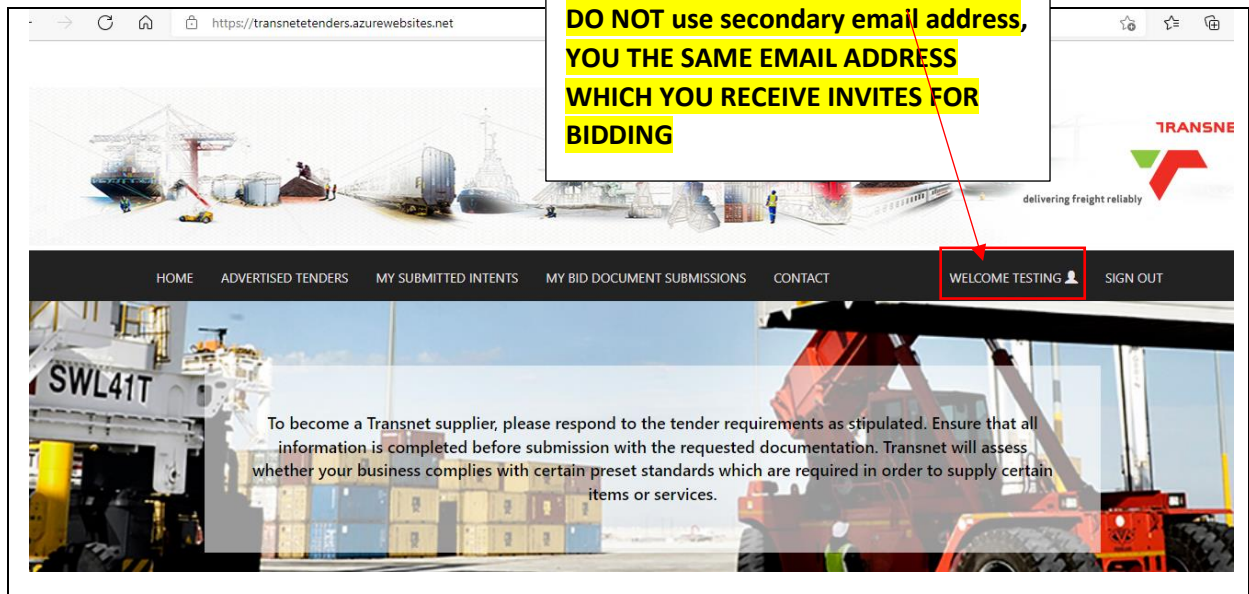
Sign in

Don't have an account? [Sign up now](#)

Then click on Sign in

Once registered and signed in, the home screen will have “WELCOME (Registered user)”

DO NOT use secondary email address, YOU THE SAME EMAIL ADDRESS WHICH YOU RECEIVE INVITES FOR BIDDING



To view / search for tenders, click on ADVERTISED TENDERS

Tender Invitation For Tender Ref # TE/2022/04/0697/RFQ - Message (HTML)

File Message Help Tell me what you want to do

Delete Archive Reply Reply All Forward Share to Teams ATM signed To Manager Team Email Move Tags Editing Read Aloud Translate Zoom Send to OneNote Viva Insights

Tender Invitation For Tender Ref # TE/2022/04/0697/RFQ

SRV-TCC-Etender
To noreply@transnet.net

This message was sent with Low importance.

Dear Suppliers,
You have been invited to bid and respond to the following tender:

Name Of Tender : TE22-SRX-1FG-02068
Description : STOP; TOP BUNK, OD 19.5 X HT 6.5 MM
Tender Number : TE/2022/04/0697/RFQ

Access to this tender will be granted by using this email when you sign up/sign in. To access the tender information

Kind Regards,
Transnet eTenders

When a bidder receives an email to quote, the bidder needs to register with the email address of the recipient that received the email. If already registered, sign in.

NOTE: The details on this email is intended for guidance only and not to be used on the live system

HOME ADVERTISED TENDERS MY SUBMITTED INTENTS MY BID DOCUMENT SUBMISSIONS CONTACT WELCOME TESTING SIGN OUT

ADVERTISED TENDERS

Open Tenders Other Tenders

Show entries Search:

Reference Number	Tender Name	Description	Briefing Session	Closing Date	Tender Status
TCC/2021/11/0031/RFQ	For the supply and installation of an air compressor	For the supply and installation of an air compressor for indoor shooting range that operates the laser system and supply air to air guns utilised during training and conduct maintenance on air supply system and hoses.		12/10/2021 12:00:00 PM	Closed View Details
TFR/2021/12/0014/RFQ	ELECTRICAL MATERIAL (CABLES)	SUPPLY AND DELIVERY OF ELECTRICAL MATERIAL (CABLES) FOR A ONCE OFF PERIOD		12/13/2021 4:00:00 PM	Closed View Details
TFR/2021/12/0017/RFQ	CRAC_JHB_36509.	FOR THE SUPPLY AND DELIVERY OF HIGH BACK CHAIRS FOR CTC OFFICES IN CENTRAL, EASTERN AND WESTERN REGIONS, FOR A ONCE OFF PERIOD.		12/14/2021 10:00:00 AM	Closed View Details
TFR/2021/12/0015/RFQ	CRAC-JHB-36313	FOR THE SUPPLY AND DELIVERY OF VARIOUS CLAMPS, TERMINAL LUGS, DROPPER CLIPS AND		1/13/2022 12:00:00	Closed View Details

When signed in, select "ADVERTISED TENDERS".

To manually search and change the view from Closed to Open, click twice on arrow next to "Tender Status". The arrow pointing down will change to blue and open tenders will be displayed.


HOME
ADVERTISED TENDERS
MY SUBMITTED INTENTS
MY BID DOCUMENT SUBMISSIONS
CONTACT
WELCOME TESTING
SIGN OUT

ADVERTISED TENDERS

Open Tenders
Other Tenders

Show
▼
entries
Search:

Reference Number	Tender Name	Description	Briefing Session	Closing Date	Tender Status	
TE/2022/04/0450/RFQ	VALVE:L-1 LOAD DET,WAGONS AIRBRAKE	VALVE:L-1 LOAD DET,WAGONS AIRBRAKE-062101802 VALVE; TYPE: L-1 LOAD DETECTOR, MEDIA FOR WHICH DESIGNED: WAGONS AIRBRAKE, CONNECTION TYPE: FLANGE, SPECIAL FEATURES: BLUE, WITHOUT PIPE BRACKET; SIMILAR ITEM: 062004338		4/8/2022 10:00:00 AM	Open	View Details
TE/2022/04/0494/RFQ	GEAR OIL	OIL, GEAR TYPE SYNTHETIC BRAND NAME MOBILGEAR SHC SERIES GRADE SCH 6800 VISCOSITY RATING 220 TO 320 FLASH POINT 234 DEG C COLOR ORANGE CONTAINER TYPE SACHET 250 G CONTAINER CAPACITY 14 KG FOR USE ON: 39-200 GM, 15E AND 19E LOCOMOTIVES		4/8/2022 10:00:00 AM	Open	View Details
TE/2022/04/0495/RFQ	SUPPLY OF CORROSION (NALCOOL) - APPROVED	ITEM NUMBER - 077807563 INHIBITOR, CORROSION; TYPE: COOL-C18, COLOR: RED,		4/8/2022 10:00:00	Open	View Details



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SIGN OUT

ADVERTISED TENDERS

Open Tenders
Other Tenders

Show
▼
entries
Search: TE/2022/04/0697/RFQ

Reference Number	Tender Name	Description	Briefing Session	Closing Date	Tender Status	
TE/2022/04/0697/RFQ	TE22-SRX-1FG-02068	STOP; TOP BUNK, OD 19.5 X HT 6.5 MM		4/13/2022 10:00:00 AM	Open	View Details

To search for a specific tender, the tender number, tender name or description can be used for searching.

ADVERTISED TENDERS

Open Tenders
Other Tenders

Show
▼
entries
Search: TE22-SRX-1FG-02068

Reference Number	Tender Name	Description	Briefing Session	Closing Date	Tender Status	
TE/2022/04/0697/RFQ	TE22-SRX-1FG-02068	STOP; TOP BUNK, OD 19.5 X HT 6.5 MM		4/13/2022 10:00:00	Open	View Details

When the tender has been identified, click on "View Details"

When the “View Details” has been selected, the following screen will be displayed where the attachments can be viewed or downloaded.

HOME ADVERTISED TENDERS MY SUBMITTED INTENTS MY BID DOCUMENT SUBMISSIONS CONTACT WELCOME TESTING SIGN OUT

TENDER DETAILS

Tender Details

Tender Reference Number	TE/2022/04/0697/RFQ
Name Of Tender	TE22-SRX-1FG-02068
Description	STOP; TOP BUNK, OD 19.5 X HT 6.5 MM
Tender Type	RFQ
Contact Person	Charl du Preez Transnet Engineering SLR
Contact Person Email Address	Charl.duPreez@transnet.net
Date Published	4/7/2022 3:51:47 PM
Closing Date	4/13/2022 10:00:00 AM
Briefing Date And Time	
Briefing Details	
Location Of Service	Coaches, Salt River

Briefing Session

Closing Date
4/13/2022 10:00:00 AM

Attachments

- 2.14 Standard Terms and Conditions of Contract f
- 2.18 Supplier Integrity Pact_April 2020_v1.pdf
- 2.19 Non Disclosure Agreement_April 2020_v1.pdf
- 2.9 Request for Quotations TE22-SRX-1FG-02068,

Log An Intent To Bid

☐

If interested to bid, on the same page there's an option to select: **Log an Intent to Bid**. Once selected, an option will appear to “**Submit Intent**” or “**Cancel**”. Click on **Submit Intent**

Tender Details

Tender Reference Number	TE/2022/04/0697/RFQ
Name Of Tender	TE22-SRX-1FG-02068
Description	STOP; TOP BUNK, OD 19.5 X HT 6.5 MM
Tender Type	RFQ
Contact Person	Charl du Preez Transnet Engineering SLR
Contact Person Email Address	Charl.duPreez@transnet.net
Date Published	4/7/2022 3:51:47 PM
Closing Date	4/13/2022 10:00:00 AM
Briefing Date And Time	
Briefing Details	
Location Of Service	Coaches, Salt River
Name Of Institution	TE
Tender Category	Goods
Tender Status	Open

Briefing Session

Closing Date
4/13/2022 10:00:00 AM

Attachments

- 2.14 Standard Terms and Conditions of Contract f
- 2.18 Supplier Integrity Pact_April 2020_v1.pdf
- 2.19 Non Disclosure Agreement_April 2020_v1.pdf
- 2.9 Request for Quotations TE22-SRX-1FG-02068,

Log An Intent To Bid

☒

Submit Intent **Cancel**

Tender Details

Tender Reference Number

Name Of Tender

Description

Tender Type RFQ

Contact Person Charl du Preez Transnet Engineering SLR

Contact Person Email Address Charl.duPreez@transnet.net

Date Published 4/7/2022 3:51:47 PM

Closing Date 4/13/2022 10:00:00 AM

Briefing Date And Time

Briefing Details

Location Of Service

Name Of Institution

Tender Category

Tender Status

Intent to Bid

Your request to log an intent to bid has been successfully submitted.

Close

When the "Submit Intent" is selected, a message will appear to indicate that the request was successfully submitted. Click on close and wait for the next screen.

Briefing Session

Closing Date 4/13/2022 10:00:00 AM


Attachments

- 2.14 Standard Terms and Conditions of Contract for
- 2.18 Supplier Integrity Pact_April 2020_v1.pdf
- 2.19 Non Disclosure Agreement_April 2020_v1.pdf
- 2.9 Request for Quotations TE22-SRX-1FG-02068.pdf


Log An Intent To Bid

☒

[Submit Intent](#) [Cancel](#)



delivering freight reliably

[HOME](#) [ADVERTISED TENDERS](#) [MY SUBMITTED INTENTS](#) [MY BID DOCUMENT SUBMISSIONS](#) [CONTACT](#) WELCOME TESTING  [SIGN OUT](#)

MY SUBMISSION INTENTS

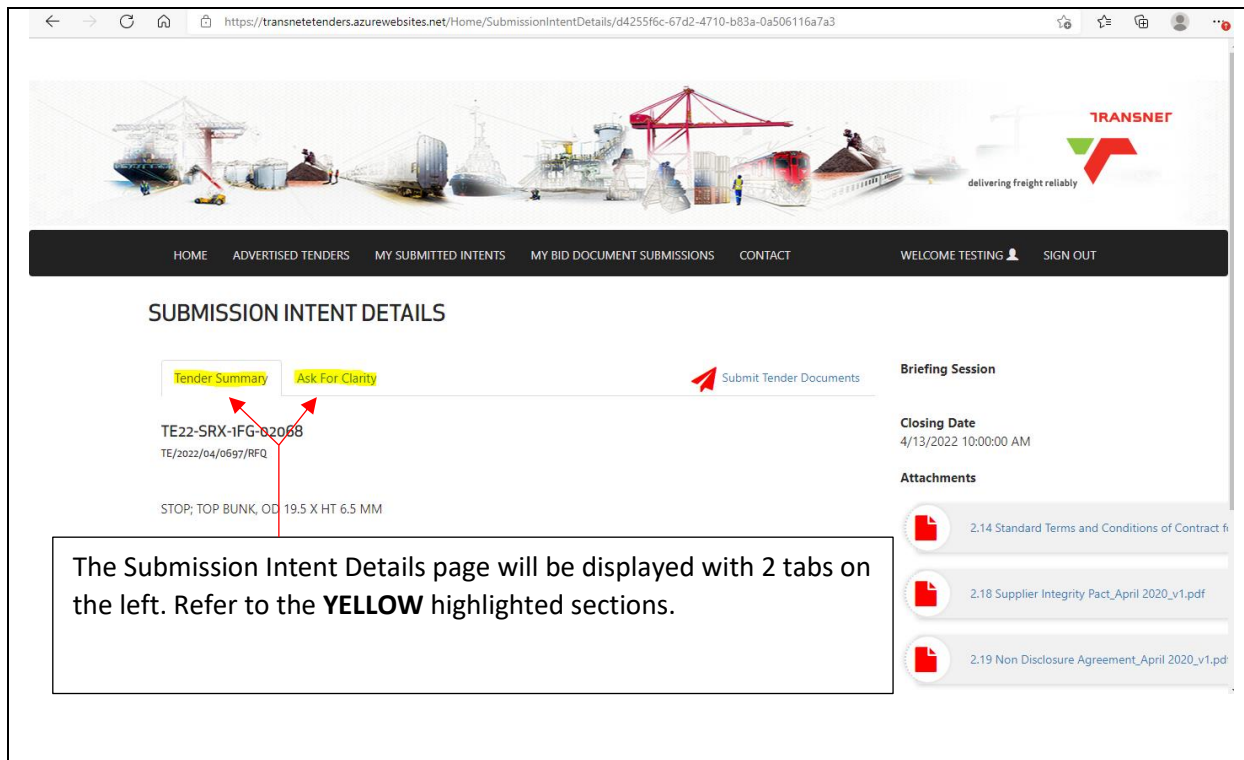
Show entries

Tender Reference Number	Name	Description Of Tender	Briefing Session Date	Closing Date	View Details
TE/2022/04/0697/RFQ	TE22-SRX-1FG-02068	STOP; TOP BUNK, OD 19.5 X HT 6.5 MM		4/13/2022 10:00:00 AM	View Details

Showing 1 to 1 of 1 entries

Previous 1 Next

The screen should be updated and load the "MY SUBMITTED INTENTS". To proceed to capturing your bid documents, click on "View Details"



https://transnettenders.azurewebsites.net/Home/SubmissionIntentDetails/d4255f6c-67d2-4710-b83a-0a506116a7a3

HOME ADVERTISED TENDERS MY SUBMITTED INTENTS MY BID DOCUMENT SUBMISSIONS CONTACT WELCOME TESTING SIGN OUT

SUBMISSION INTENT DETAILS

Tender Summary **Ask For Clarity** [Submit Tender Documents](#)

TE22-SRX-1FG-02068
TE/2022/04/0697/RFQ

STOP, TOP BUNK, OD 19.5 X HT 6.5 MM

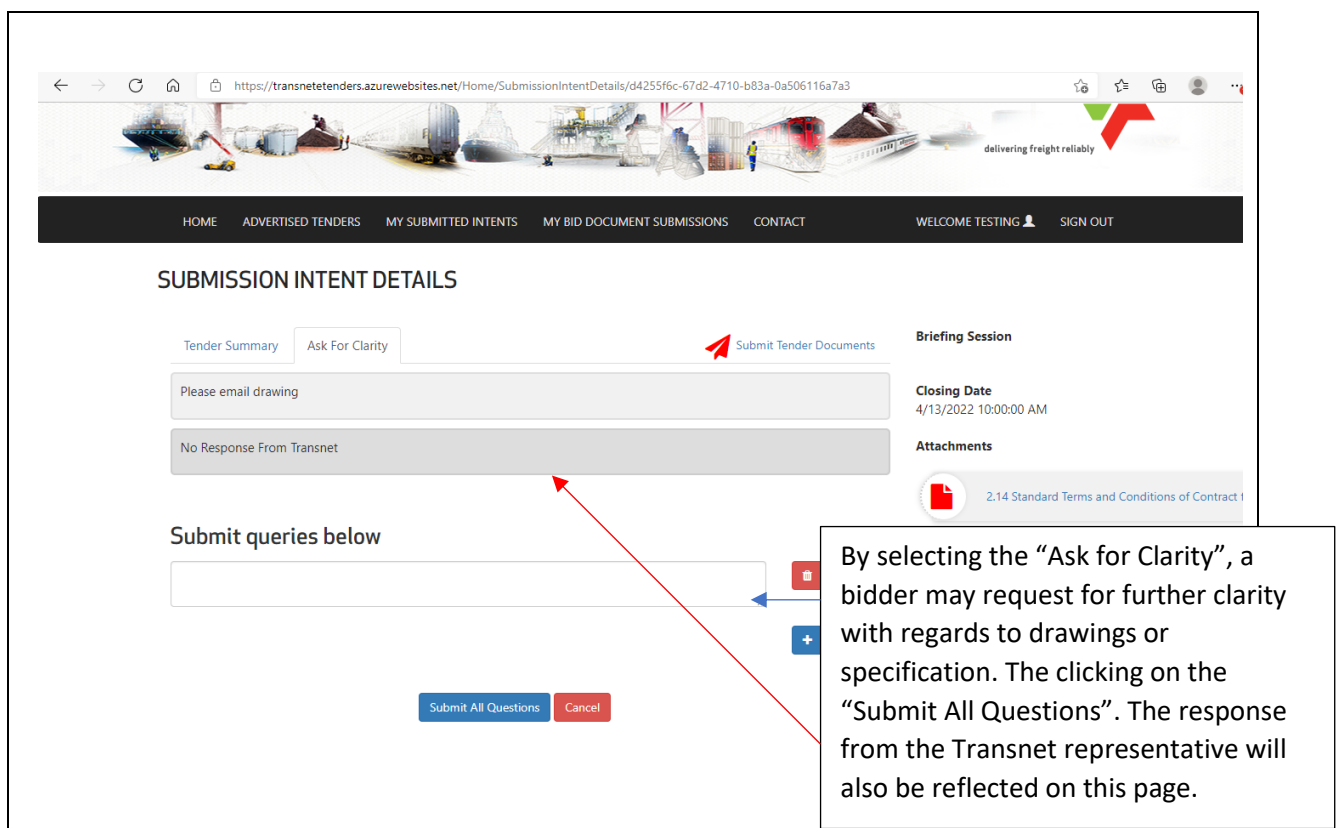
Briefing Session

Closing Date
4/13/2022 10:00:00 AM

Attachments

- 2.14 Standard Terms and Conditions of Contract f
- 2.18 Supplier Integrity Pact_April 2020_v1.pdf
- 2.19 Non Disclosure Agreement_April 2020_v1.pd

The Submission Intent Details page will be displayed with 2 tabs on the left. Refer to the **YELLOW** highlighted sections.



https://transnettenders.azurewebsites.net/Home/SubmissionIntentDetails/d4255f6c-67d2-4710-b83a-0a506116a7a3

HOME ADVERTISED TENDERS MY SUBMITTED INTENTS MY BID DOCUMENT SUBMISSIONS CONTACT WELCOME TESTING SIGN OUT

SUBMISSION INTENT DETAILS

Tender Summary **Ask For Clarity** [Submit Tender Documents](#)

Please email drawing

No Response From Transnet

Submit queries below

[Submit All Questions](#) [Cancel](#)

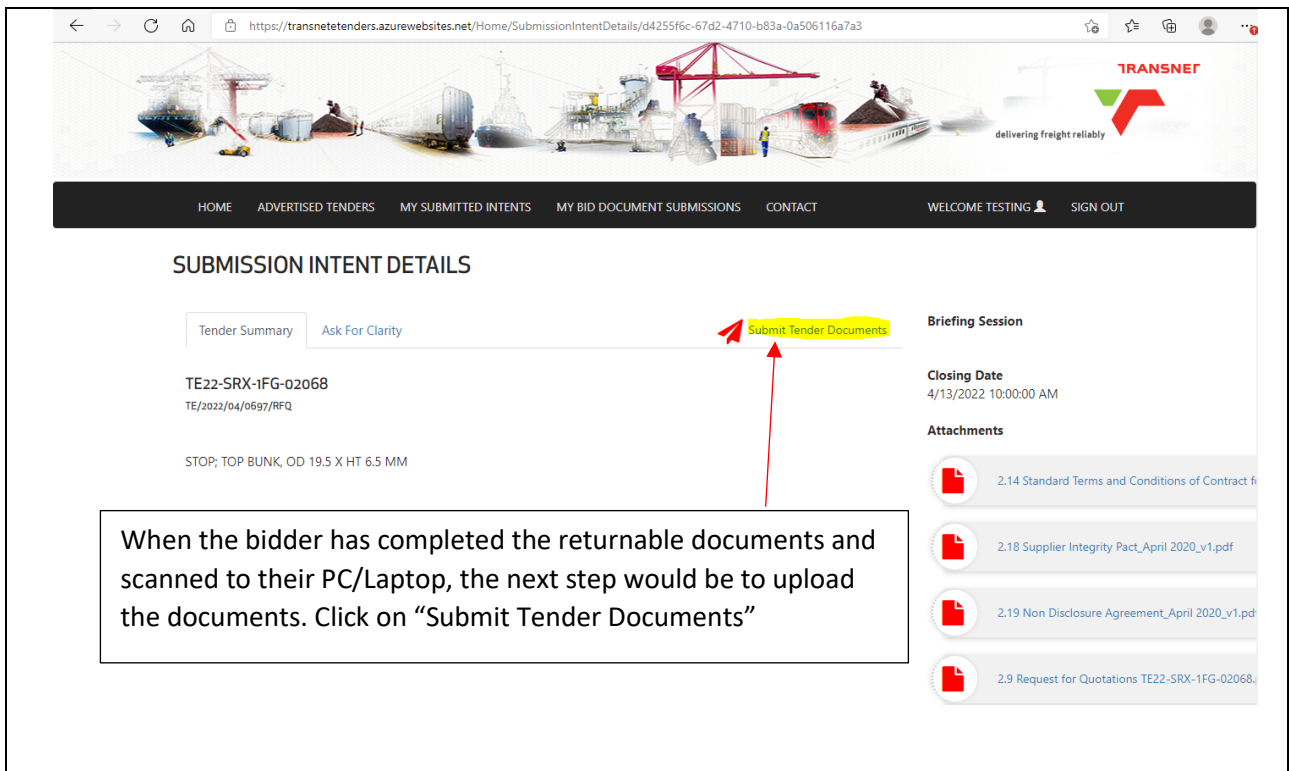
Briefing Session

Closing Date
4/13/2022 10:00:00 AM

Attachments

- 2.14 Standard Terms and Conditions of Contract f

By selecting the "Ask for Clarity", a bidder may request for further clarity with regards to drawings or specification. The clicking on the "Submit All Questions". The response from the Transnet representative will also be reflected on this page.



Submission Intent Details

Tender Summary Ask For Clarity **Submit Tender Documents**

TE22-SRX-1FG-02068
TE/2022/04/0697/RFQ

STOP; TOP BUNK, OD 19.5 X HT 6.5 MM

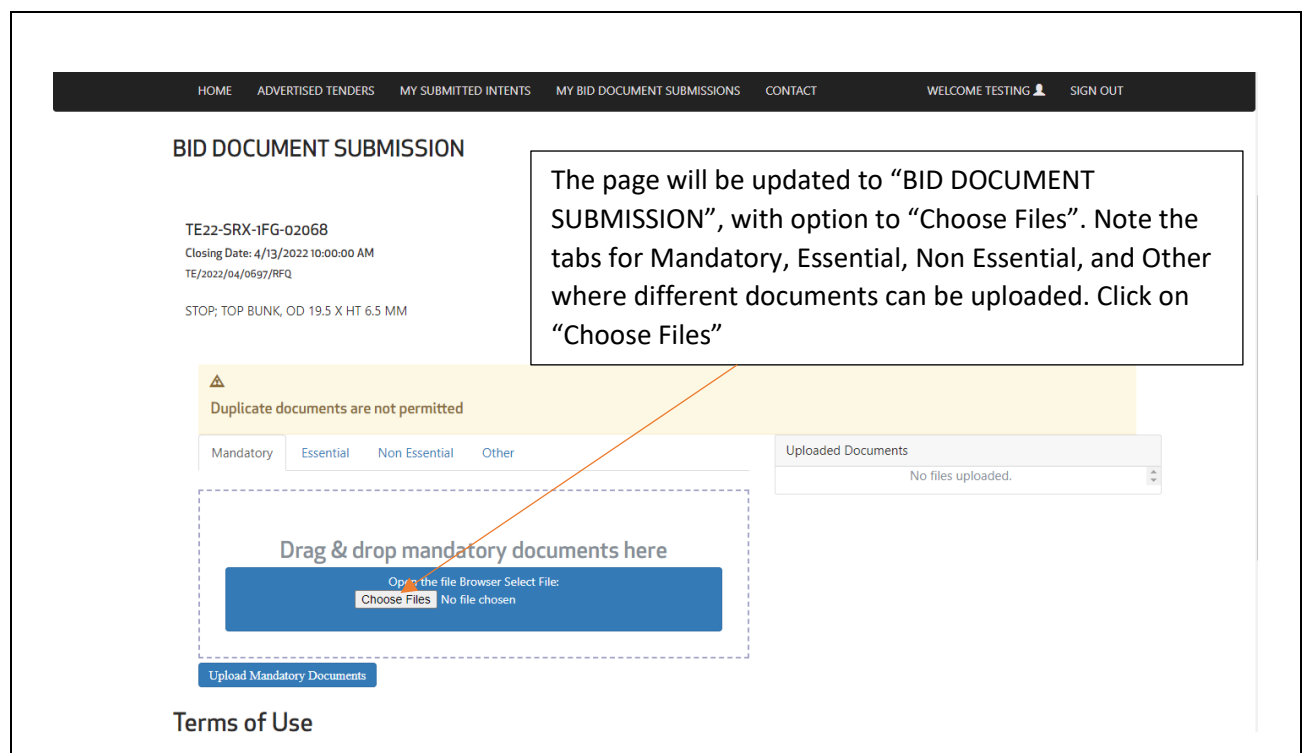
When the bidder has completed the returnable documents and scanned to their PC/Laptop, the next step would be to upload the documents. Click on “Submit Tender Documents”

Briefing Session

Closing Date
4/13/2022 10:00:00 AM

Attachments

- 2.14 Standard Terms and Conditions of Contract f
- 2.18 Supplier Integrity Pact_April 2020_v1.pdf
- 2.19 Non Disclosure Agreement_April 2020_v1.pdf
- 2.9 Request for Quotations TE22-SRX-1FG-02068.



BID DOCUMENT SUBMISSION

TE22-SRX-1FG-02068
Closing Date: 4/13/2022 10:00:00 AM
TE/2022/04/0697/RFQ

STOP; TOP BUNK, OD 19.5 X HT 6.5 MM

The page will be updated to “BID DOCUMENT SUBMISSION”, with option to “Choose Files”. Note the tabs for Mandatory, Essential, Non Essential, and Other where different documents can be uploaded. Click on “Choose Files”

Duplicate documents are not permitted

Mandatory Essential Non Essential Other

Uploaded Documents
No files uploaded.

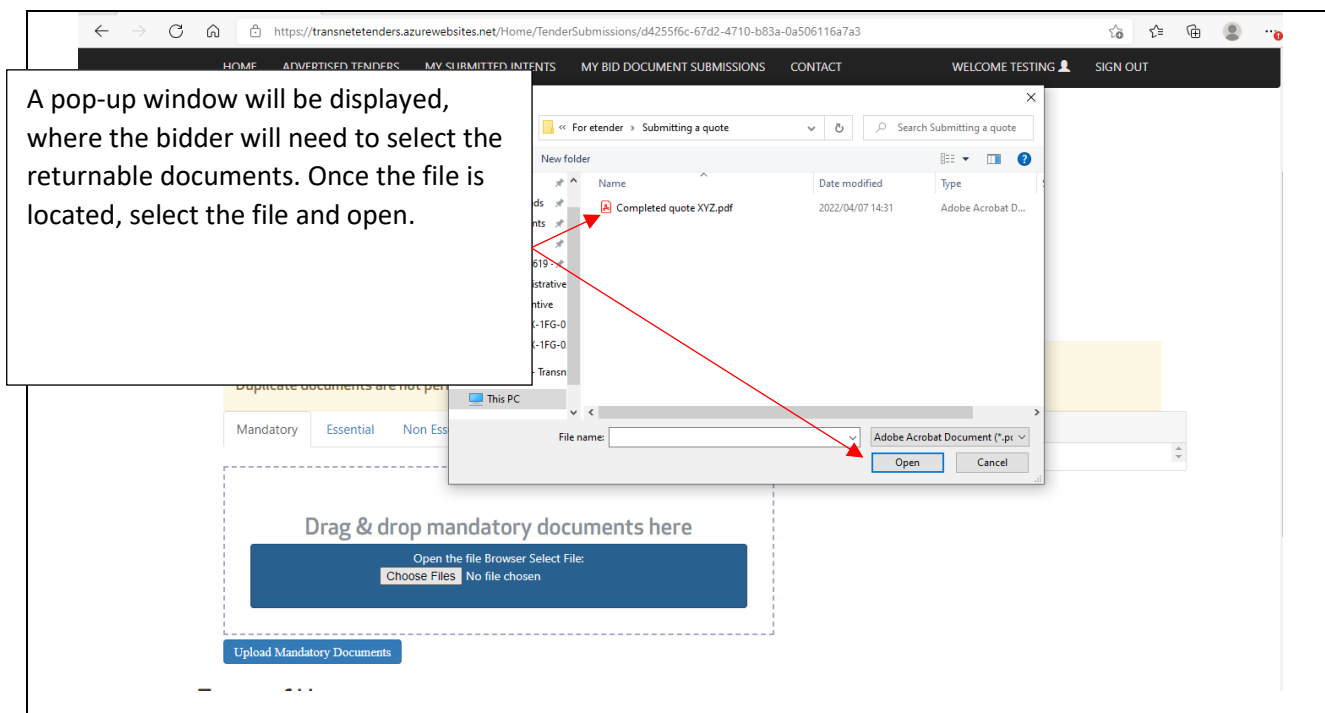
Drag & drop mandatory documents here

Open the file Browser Select File:
Choose Files No file chosen

Upload Mandatory Documents

Terms of Use

A pop-up window will be displayed, where the bidder will need to select the returnable documents. Once the file is located, select the file and open.



BID DOCUMENT SUBMISSION

TE22-SRX-IFG-02068
Closing Date: 4/13/2022 10:00:00 AM
TE/2022/04/0697/RFQ
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Duplicate documents are not permitted

Mandatory Essential Non Essential Other

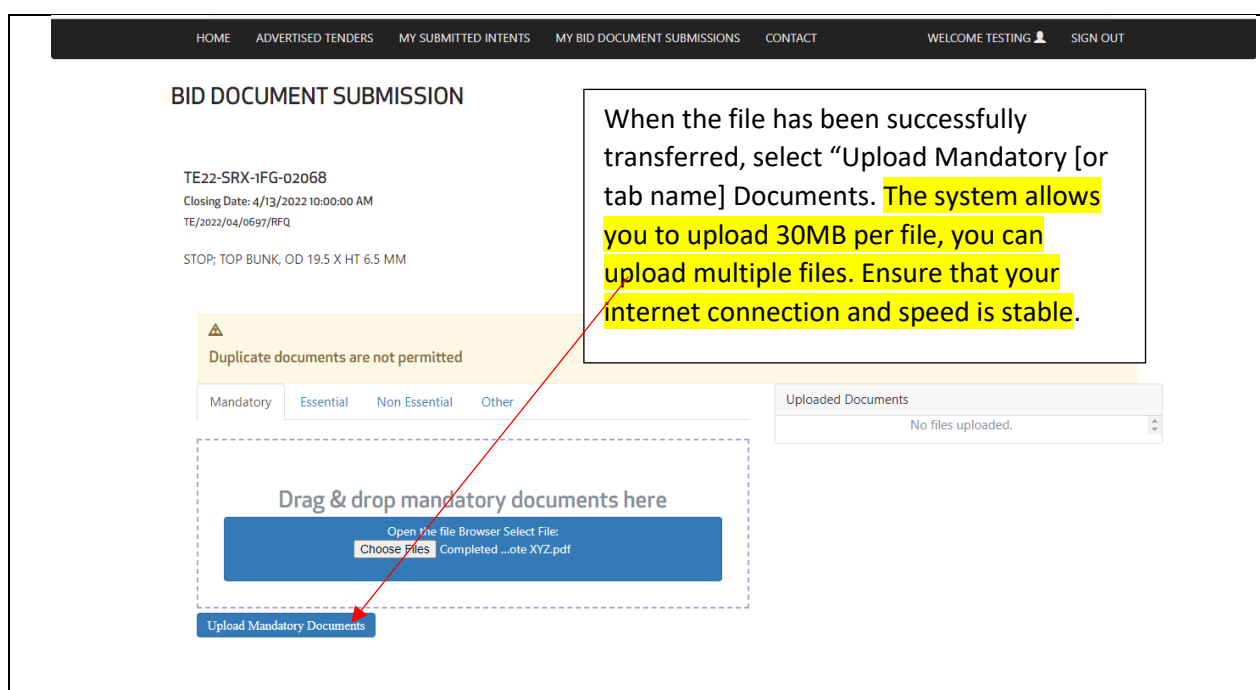
Drag & drop mandatory documents here

Open the file Browser Select File:
Choose Files Completed ...ote XYZ.pdf

Upload Mandatory Documents

Uploaded Documents
No files uploaded.

When the file has been successfully transferred, select "Upload Mandatory [or tab name] Documents. The system allows you to upload 30MB per file, you can upload multiple files. Ensure that your internet connection and speed is stable.



The "Uploaded Documents" section will be updated to confirm that the document was uploaded, then click on "Submit Bid"

TE/2022/04/0697/RFQ

STOP; TOP BUNK, OD 19.5 X HT 6.5 MM

⚠ Duplicate documents are not permitted

Mandatory Essential Non Essential Other

Drag & drop mandatory documents here

Open the file Browser Select File:
Choose Files No file chosen

Upload Mandatory Documents

Uploaded Documents

Completed quote XYZ.pdf - Document Type: Mandatory Documents


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Information provided by the bidder through this portal constitute a binding bid submission/response and a commitment to deliver Transnet requirements. Kindly note that the system automatically ranks the outcome of the evaluation of price and BBBEE scoring based on the information provided. Pricing and BBBEE information provided is the responsibility of the bidder to ensure correctness and Transnet will only consider your latest submission made before the closing date.

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MY BID DOCUMENT SUBMISSIONS

Show 10 entries Search:

Tender Reference Number	Name	Date Submitted	Company Name	View Details
TE/2022/04/0697/RFQ	TE22-SRX-1FG-02068	4/8/2022 8:59:06 AM	Transnet Engineering	View Details

Showing 1 to 1 of 1 entries

Previous 1 Next

The screen will progress to "MY BID DOCUMENT SUBMISSION", where the "View Details" can be selected to confirm that all required information is submitted correctly.

TRANSNET NATIONAL PORTS AUTHORITY

TENDER NUMBER: TNPA/2024/09/0008/77882/RFP

DESCRIPTION OF WORKS: SUPPLY, DELIVERY, REMOVAL, REPLACEMENT, AND COMMISSIONING OF PIPELINE INCLUDING ALL THE ACCESSORIES ON THE 225M LONG JETTY PIPEWORK AT TRANSNET NATIONAL PORTS AUTHORITY (TNPA), SAND BYPASS IN PORT OF NGQURA (PoN).

T1.2 TENDER DATA

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

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

The Standard Conditions of Tender make several references to Tender data for detail that apply specifically to this tender. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the Standard Conditions of Tender.

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

Clause

Data

C.1.1 The *Employer* is

Transnet SOC Ltd

(Reg No. 1990/000900/30)

C.1.2 The tender documents issued by the *Employer* comprise:

Part T: The Tender

Part T1: Tendering procedures T1.1 Tender notice and invitation to tender

T1.2 Tender data

Part T2: Returnable documents T2.1 List of returnable documents

TRANSNET NATIONAL PORTS AUTHORITY

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DESCRIPTION OF WORKS: SUPPLY, DELIVERY, REMOVAL, REPLACEMENT, AND COMMISSIONING OF PIPELINE INCLUDING ALL THE ACCESSORIES ON THE 225M LONG JETTY PIPEWORK AT TRANSNET NATIONAL PORTS AUTHORITY (TNPA), SAND BYPASS IN PORT OF NGQURA (PoN).

Part C: The contract

Part C1: Agreements and contract data	C1.1 Form of offer and acceptance
	C1.2 Contract data (Part 1 & 2)
	C1.3 Form of Securities
Part C2: Pricing data	C2.1 Pricing instructions
	C2.2 Activity Schedule
Part C3: Scope of work	C3.1 Works Information
Part C4: Site information	C4.1 Site information

RFP Annexures:

Annexure A:	How to Access Transnet e-Tenders guide
Annexure B:	Certificate of Insurance
Annexure C:	List of Transnet Guarantee Issuers

C.1.4	The Employer's agent is:	Commodity Specialist
	Name:	Sintu Pulani
	Address:	eMendi Building N2 Neptune Road Off Klub Road Port of Ngqura Port Elizabeth

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6100

E – mail

TNPAPONABOVE@transnet.net

TRANSNET NATIONAL PORTS AUTHORITY

TENDER NUMBER: TNPA/2024/09/0008/77882/RFP

DESCRIPTION OF WORKS: SUPPLY, DELIVERY, REMOVAL, REPLACEMENT, AND COMMISSIONING OF PIPELINE INCLUDING ALL THE ACCESSORIES ON THE 225M LONG JETTY PIPEWORK AT TRANSNET NATIONAL PORTS AUTHORITY (TNPA), SAND BYPASS IN PORT OF NGQURA (PoN).

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

- a) Submit all mandatory returnables. Submits a tendered price in the form of offer and acceptance which is fixed and firm for the duration of the contract.
- b) Fully comply with all the requirements of the Mandatory Eligibility Criteria returnable forms (T2.2-1 and T2.2-2).

Evaluation Criteria and Scoring Scale

1. STAGE ONE STEP 1: Test for Administrative and Substantive Responsiveness

C.2.2 The test for administrative responsiveness will include the following:

Administrative responsiveness check	RFP Reference
<ul style="list-style-type: none">Whether the Bid has been lodged on time	<i>Section 1 paragraph 3</i>
<ul style="list-style-type: none">Whether all Returnable Documents and/or schedules [where applicable] were completed and returned by the closing date and time	<i>Section 5</i>
<ul style="list-style-type: none">Verify the validity of all returnable documents	<i>Section 5</i>
<ul style="list-style-type: none">Verify if the Bid document has been duly signed by the authorised respondent	<i>All sections</i>
<ul style="list-style-type: none">Whether any general and legislation qualification criteria set by Transnet, have been met	<i>All sections</i>
<ul style="list-style-type: none">Whether the Bid contains a priced offer	<i>Section 4 - Quotation Form</i>
<ul style="list-style-type: none">Whether the Bid materially complies with the scope and/or specification given	<i>All Sections</i>
<ul style="list-style-type: none">Entity's financial stability	

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DESCRIPTION OF WORKS: SUPPLY, DELIVERY, REMOVAL, REPLACEMENT, AND COMMISSIONING OF PIPELINE INCLUDING ALL THE ACCESSORIES ON THE 225M LONG JETTY PIPEWORK AT TRANSNET NATIONAL PORTS AUTHORITY (TNPA), SAND BYPASS IN PORT OF NGQURA (PoN).

<ul style="list-style-type: none"> Whether any Technical Pre-qualification Criteria requirements have been met as follows: CIDB Grading: 5ME or higher / 5CE or higher. 	<i>Section 2 – paragraph 10 (Scope of Work) OR</i> Annexure -B
Check for substantive responsiveness	RFP Reference
<ul style="list-style-type: none"> Whether any general and legislation qualification criteria set by Transnet, have been met 	<i>All sections including Section 2 paragraphs, 2.2, 6, 11.2, General Bid Conditions clause 20</i>
<ul style="list-style-type: none"> Whether the Bid contains a priced offer as prescribed in the pricing and delivery schedule 	<i>Section 4</i>
<ul style="list-style-type: none"> Whether the Bid materially complies with the scope and/or specification given 	<i>All Sections</i>
<ul style="list-style-type: none"> Whether any Technical Pre-qualification Criteria requirements have been met as follows: CIDB Grading: 5ME or higher / 5CE or higher. 	<i>Section 3 – Scope of Work</i> Annexure -B
<ul style="list-style-type: none"> Entity's financial stability 	

The test for responsiveness [Step One] must be passed for a Respondent's Proposal to progress to Step Two for further pre-qualification

2. STAGE ONE STEP 2A - Eligibility with regards to attendance at the compulsory clarification meeting:

An authorised representative of the tendering entity or a representative of a tendering entity that intends to form a Joint Venture (JV) must attend the compulsory clarification meeting.

The arrangements for a compulsory clarification meeting are as stated in the Tender Notice

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and Invitation to Tender. Tenderers must complete and sign the attendance

register. Addenda will be issued to and tenders will only be received from those tendering entities including those entities that intends forming a joint venture appearing on the attendance register.

Tenderers are also required to bring their RFP document to the clarification meeting and have their returnable document T2.2-2 certificate of attendance signed off by the Employer's authorised representative.

Certificate of Attendance at Tender Clarification Meeting.

An authorised representative of the tendering entity or a representative of a tendering entity that intends to form a Joint Venture (JV) must attend the compulsory clarification meeting in terms C2.7.

Any tenderer that fails to meet the stipulated eligibility criteria will be regarded as unacceptable tender
--

3. STAGE ONE STEP 2B - Eligibility in terms of the Construction Industry

Development Board:

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

a) Joint Venture (JV)

Joint ventures are eligible to submit tenders subject to the following:

1. every member of the joint venture is registered with the CIDB;
 2. the lead partner has a contractor grading designation of not lower than one level below the required class of construction works under consideration and possesses the required recognition status; and
 3. the combined Contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a **SME or**
-

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higher /5CE or higher class of construction work or a value determined in accordance with Regulation 25(1B) or 25(7A) of the Construction Industry Development Regulations.

The tenderer shall provide a certified copy of its signed joint venture agreement.

Any tenderer that fails to meet the stipulated eligibility criteria will be regarded as unacceptable tender.

The test for administrative and Substantive responsiveness [Step One] must be passed for a Respondent's Proposal to progress to Step Two for Technical Criteria

4. STAGE TWO - Functionality:**Functionality:**

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 for score for functionality is **60** points.

The evaluation criteria for measuring functionality and the points for each criterion and, if any, each sub-criterion are as stated in C.3.11.3 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.

Functionality shall be scored independently by not less than 3 (three) evaluators and averaged in accordance with the following schedules:

5.1. T2.2-01 Organogram with key personnel together with no less than four years of experience, qualifications, and registrations (where applicable)

5.1. T2.2-02 Operational Continuity

5.1. T2.2-03 Lead Time

5.1. T2.2-04 Warrantees

5.1. T2.2-05 Quality Management

5.1. T2.2-06 Method Statement

5.1. T2.2-07 Project Schedule

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DESCRIPTION OF WORKS: SUPPLY, DELIVERY, REMOVAL, REPLACEMENT, AND COMMISSIONING OF PIPELINE INCLUDING ALL THE ACCESSORIES ON THE 225M LONG JETTY PIPEWORK AT TRANSNET NATIONAL PORTS AUTHORITY (TNPA), SAND BYPASS IN PORT OF NGQURA (PoN).

5.7. T2.2-08 Health and Safety Requirements

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).

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.

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5. 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. 80/90 where the financial value of one or more responsive tenders received have a value up to R50 million/exceeding R50 million, inclusive of all applicable taxes.

Thresholds	Minimum Threshold
Functionality	60

Preference point system:

Evaluation Criteria	Final Weighted Scores
Price and Total Cost of Ownership	80/90
Specific goals - Scorecard	20/10
TOTAL SCORE: 100	100

Up to 100 minus W1 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.

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DESCRIPTION OF WORKS: SUPPLY, DELIVERY, REMOVAL, REPLACEMENT, AND COMMISSIONING OF PIPELINE INCLUDING ALL THE ACCESSORIES ON THE 225M LONG JETTY PIPEWORK AT TRANSNET NATIONAL PORTS AUTHORITY (TNPA), SAND BYPASS IN PORT OF NGQURA (PoN).

Specific Goals and Points allocation applicable for this project: Specific Goals	Number of points (80/20 system)	Number of points (90/10 system)
B-BBEE Status Level of Contributor 1 or 2	06	03
30% Black Women Owned Entities	04	02
EME or QSE 51% Black Owned Entities	10	05
Non-Compliant and/or B-BBEE level 3-8 Contributors	00	00
Total points for Specific Goals must not exceed	20	10

Evidence required for claiming specific goals:

Specific Goals	Acceptable Evidence
B-BBEE Status Level of Contributor 1 or 2	<ul style="list-style-type: none"> B-BBEE Certificate / Sworn - Affidavit / CIPC B-BBEE Certificate (in case of JV, a consolidated scorecard will be accepted) as per DTIC guidelines
30% Black Women Owned Entities	<ul style="list-style-type: none"> Certified copy of ID Documents of the Owners and B-BBEE Certificate / Sworn - Affidavit / CIPC B-BBEE Certificate (in case of JV, a consolidated scorecard will be accepted) as per DTIC guidelines
EME or QSE 51% Black Owned Entities	<ul style="list-style-type: none"> Certified copy of ID Documents of the Owners and B-BBEE Certificate / Sworn - Affidavit / CIPC B-BBEE Certificate (in case of JV, a consolidated scorecard will be accepted) as per DTIC guidelines

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Specific Goals and Points allocation applicable for this project:

Specific Goals	Number of points (80/20 system)	Number of points (90/10 system)
B-BBEE Status Level of Contributor 1 or 2	06	03
30% Black Women Owned Entities	04	02
EME or QSE 51% Black Owned Entities	10	05
Non-Compliant and/or B-BBEE level 3-8 Contributors	00	00

Note: Transnet reserves the right to carry out an independent audit of the tenderer's scorecard components at any stage from the date of close of the tenders until completion of the contract.

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6. STAGE FOUR – Commercial Evaluation:

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

C.2.12 No alternative tender offers will be considered.

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

C.2.13.5 The Employer's details and identification details that are to be shown on each tender

C.2.15.1 offer are as follows:

Identification details: The tender documents must be uploaded with:

- Name of Tenderer:
- Contact person and details:
- The Tender Number: TNPA/2024/09/0008/77882/RFP
- The Tender Description: FOR THE DELIVERY, REMOVAL, REPLACEMENT, AND COMMISSIONING OF PIPELINE INCLUDING ALL THE ACCESSORIES ON THE 225M LONG JETTY PIPEWORK AT TRANSNET NATIONAL PORTS AUTHORITY (TNPA), SAND BYPASS IN PORT OF NGQURA (PON) FOR A ONCE OFF PERIOD.

C.2.13.9 Telephonic, telegraphic, facsimile or e-mailed tender offers will not be accepted.

Employer's Agent: Sintu Pulani

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: **18h00** on the **21 August 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

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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 have 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 an **affidavit** confirming annual turnover and level of black ownership, in line with the code of good practice, together with the tender;
3. A valid CIDB certificate in the correct designated grading;
4. Proof of registration on the Central Supplier Database;
5. Letter of Good Standing with the Workmen's compensation fund by the tendering entity or separate Letters of Good Standing from all members of a newly constituted JV.

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

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.

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

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

C.3.17 The number of copies of the signed contract to be provided by the Employer is

1 (one).

THE TENDER

Part T2

DESCRIPTION OF WORKS: SUPPLY, DELIVERY, REMOVAL, REPLACEMENT, AND COMMISSIONING OF PIPELINE INCLUDING ALL THE ACCESSORIES ON THE 225M LONG JETTY PIPEWORK AT TRANSNET NATIONAL PORTS AUTHORITY (TNPA), SAND BYPASS IN PORT OF NGQURA (PoN).

T2.1 List of Returnable Documents

2.1.1 These schedules are required for pre-qualification and eligibility purposes:

T2.2-1 **Stage One as per CIDB: Eligibility Criteria Schedule –**

5ME or higher /5CE or higher

T2.2-2 **Stage One as per PPPFA: Eligibility Criteria Schedule -** Certificate of attendance at Compulsory Tender Clarification Meeting

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

T2.2-01 **Evaluation Schedule:** Organogram with key personnel together with no less than four years of experience, qualifications, and registrations (where applicable).

T2.2-02 **Evaluation Schedule:** Operational Continuity

T2.2-03 **Evaluation Schedule:** Lead Time

T2.2-04 **Evaluation Schedule:** Warranties

T2.2-05 **Evaluation Schedule:** Quality Management

T2.2-06 **Evaluation Schedule:** Method Statement

T2.2-07 **Evaluation Schedule:** Project Schedule

T2.2-08 **Evaluation Schedule:** Health and Safety Requirements

2.1.3 Returnable Schedules:

General:

T2.2-09 Authority to submit tender

T2.2-10 Record of addenda to tender documents

T2.2-11 Letter of Good Standing

T2.2-12 Risk Elements

T2.2-13 Schedule of proposed Subcontractors (if subcontract in terms of TPPP is not eligibility)

T2.2-14 Site Establishment requirements

DESCRIPTION OF WORKS: SUPPLY, DELIVERY, REMOVAL, REPLACEMENT, AND COMMISSIONING OF PIPELINE INCLUDING ALL THE ACCESSORIES ON THE 225M LONG JETTY PIPEWORK AT TRANSNET NATIONAL PORTS AUTHORITY (TNPA), SAND BYPASS IN PORT OF NGQURA (PoN).

Agreement and Commitment by Tenderer:

- T2.2-15 CIDB SFU ANNEX G Compulsory Enterprise Questionnaire
- T2.2-16 Non-Disclosure Agreement
- T2.2-17 RFP Declaration Form
- T2.2-18 RFP – Breach of Law
- T2.2-19 Certificate of Acquaintance with Tender Document
- T2.2-20 Service Provider Integrity Pact
- T2.2-21 Supplier Code of Conduct

1.3.2 Bonds/Guarantees/Financial/Insurance:

- T2.2-22 Insurance provided by the Contractor
- T2.2-23 Forecast Rate of Invoicing
- T2.2-24 Three (3) years audited financial statements

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

2.3 C1.2 Contract Data

2.4 C1.3 Forms of Securities

2.5 C2.1 Pricing Instructions (Activity Schedules)

2.6 C2.2 Activity Schedules



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T2.2-1: Eligibility Criteria Schedule - CIDB Grading Designation

Note to tenderers:

Tenderers are to indicate their CIDB Grading by filling in the table below. **Attach a copy of the CIDB Grading Designation or evidence of being capable of being so registered.**

CRS Number	Status	Grading	Expiry Date

1. Only those tenderers who are registered with the CIDB, or are capable of being so prior to the evaluation of submissions, in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations, for a **5ME or higher /5CE or higher** class of construction work, are eligible to have their tenders evaluated.

2. Joint Venture (JV)

Joint ventures are eligible to submit tenders subject to the following:

1. every member of the joint venture is registered with the CIDB;
2. the lead partner has a contractor grading designation of not lower than one level one level below the required grading designation in the class of construction works under consideration and possesses the required recognition status; and
3. the combined Contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a **5ME or higher /5CE or higher** class of construction work or a value determined in accordance with Regulation 25(1B) or 25(7A) of the Construction Industry Development Regulations
4. the Contractor shall provide the employer with a certified copy of its signed joint venture agreement;
5. and in the event that the joint venture is an 'Incorporated Joint Venture' the Memorandum of Incorporation to be provided within 4 (four) weeks of the Contract Date.

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T2.2-2: Eligibility Criteria Schedule:

Certificate of Attendance at Tender Clarification Meeting

This is to certify that

(Company
Name/Member of
Joint Venture)Represented
by:(Name and
Surname)

Was represented at the compulsory tender clarification meeting

Held at:		
On (date)		Starting time:

Particulars of person(s) attending the meeting:

Name

Signature

Capacity

Attendance of the above company at the meeting was confirmed:

Name

Signature

**For and on Behalf of the
Employers Agent.**

Date

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T.2.2-01: Detailed Organogram, Curriculum Vitae (CV's) and Qualifications

The Tenderer must provide a detailed organogram showing on-site and off-site personnel. The organogram must include a clear and precise indication of each team members' function with detailed and well-structured descriptions of roles and responsibilities. Site Personnel capability and capacity to support the project execution must be submitted in the form of detailed CV's, copies of qualification (where applicable) and registration (where applicable). Detailed CV's must demonstrate that Site Personnel have sufficient knowledge, experience, qualifications (where applicable) and registration (where applicable) to provide the required goods and services on the construction of similar projects.

All Site Personnel employed by the Tenderer must have a proof of employment submitted in the form of an appointment letter or employment contract OR a letter of intent for personnel outside the employment of the Tenderer must be submitted.

Detailed CVs of the following Site Personnel will be evaluated:

1) Project Manager:

At least 7 years of post-graduation working experience in the construction of similar projects or related infrastructure projects, focusing on managing and overseeing the construction contract works to completion. Technical experience should include knowledge of the NEC3 Engineering Construction Contract (ECC) management with a minimum qualification of NQF level 6 in any Built Environment fields.

2) Construction Manager:

At least 10 years of post-graduation working experience overseeing the management of similar construction projects or related infrastructure projects, and registration as a Professional Construction Manager (Pr. CM) with the South African Council for the Project and Construction Management Professions (SACPCMP). A minimum qualification of NQF level 6 in any Built Environment fields.

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3) Mechanical Engineer:

At least 7 years of post-graduation working experience in Mechanical Engineering or similar projects. A minimum of qualification of NQF Level 6 in Mechanical Engineering. The engineer shall be registered as a Professional Engineer, Technologist & Technician (Pr Eng, Pr Tech, Pr Techni) with the Engineering Council of South African (ECSA) for the Project.

4) Project Planner:

At least 5 years post-graduation working experience in project planning (developing and managing schedules), mainly in the fields of construction and engineering. A minimum qualification of NQF level 6 is required in Built Environment, and a Microsoft Projects or Primavera P6 training certificate.

5) Instrumentation Technician:

At least 7 years of post-graduation working experience in Instrumentation Engineering. A minimum of qualification of NQF Level 6 in Electrical/Instrumentation Engineering. The Technician shall be registered as a Professional Engineer, Technologist & Technician (Pr Eng, Pr Tech, Pr Techni) with the Engineering Council of South African (ECSA) for the Project.

List of Key Persons assigned to the above disciplines

No.	Key Persons	Name and Surname	CV attached (Yes/No)
1	Construction Manager		
2	Project Manager		
3	Construction Health and Safety Officer		
4	Environmental control officer		
5	Construction Supervisor		
6	Project Quality Control Officer		
7	A trainee, intern (professional		

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The scoring of the Organogram, Staff CV's, Qualifications will be as follows:

TOTAL (20)		Organogram	Project Manager	Construction Manager	Mechanical Engineer	Project Planner	Instrumentation Technician
SUB-TOTAL		(2)	(4)	(4)	(4)	(2)	(4)
Score	0	No submission					
	20	The Organogram provided does not address the project requirements and requested key personnel, misallocation of tasks and roles.	<p>Less than 4 years of post-graduation working experience on similar projects on a CV,</p> <p>A relevant qualification (in Built Environment) of NQF level 6,</p>	<p>Less than 8 years of post-graduation working experience as a Construction Manager on similar projects on a CV,</p> <p>A relevant qualification (in any Engineering or Built Environment fields) of NQF level 6.</p> <p>No proof of registration with SACPCMP submitted.</p>	<p>Less than 4 years of post-graduation working experience on similar projects,</p> <p>Mechanical Engineering qualification of a minimum NQF level 6.</p>	<p>Less than 2 years of post-graduation working experience on similar projects on a CV,</p> <p>A relevant qualification (Project/ Construction Management) of NQF level 6.</p> <p>No proof/certification of Microsoft Projects or Primavera P6 training has been submitted.</p>	<p>Less than 4 years of post-graduation working experience on similar projects,</p> <p>Instrumentation Engineering qualification of a minimum NQF level 6.</p>
	40	The Organogram does not address onsite and offsite resources of the project, and/or there is no clarity in	5 years but less than 7 years of post-graduation working experience on similar projects on CV,	8 years but less than 10 years of post-graduation working experience as a Construction Manager on similar projects on a CV,	5 years but less than 4 years of post-graduation working experience as a Mechanical Engineer on similar projects on a CV.	Up to 4 years of post-graduation working experience on similar projects on a CV,	5 years but less than 4 years of post-graduation working experience as a Instrumentation

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TOTAL (20)		Organogram	Project Manager	Construction Manager	Mechanical Engineer	Project Planner	Instrumentation Technician
		the allocation of tasks and responsibilities	A relevant qualification of NQF level 6 (in Built Environment).	A relevant qualification of NQF level 6 (in any Engineering or Built Environment fields). No proof of registration with SACPCMP submitted.	Mechanical Engineering qualification of a minimum NQF level 6.	A relevant qualification (Project/ Construction Management) of NQF level 6. No proof/certification of Microsoft Projects or Primavera P6 training has been submitted.	Engineer on similar projects on a CV. Instrumentation Engineering qualification of a minimum NQF level 6.
		The Organogram indicates the technical level and composition of key personnel.	7 years of post-graduation working experience on similar projects on a CV, A relevant qualification of NQF level 6 (in Built Environment).	10 years of post-graduation working experience as a Construction Manager on similar projects on a CV, A relevant qualification of NQF level 6 (any Engineering or Built Environment fields).	7 years of post-graduation working experience as Mechanical Engineer on similar projects on a CV. Mechanical Engineering qualification of a minimum NQF level 6. Valid proof of registration (Pr.	5 years of post-graduation working experience on similar projects on a CV, A relevant qualification (Project/ Construction Management) of NQF level 6.	7 years of post-graduation working experience as Instrumentation Engineer on similar projects on a CV. Electrical Engineering qualification of a minimum NQF level 6 in Instrumentation Engineering.

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TOTAL (20)		Organogram	Project Manager	Construction Manager	Mechanical Engineer	Project Planner	Instrumentation Technician
	60			Valid proof of registration (Pr. CM) with SACPCMP has been submitted.	Eng, Tech & Techni) with ECSA has been submitted.	Proof/certification of Microsoft Projects or Primavera P6 training has been submitted.	Valid proof of registration (Pr. Eng, Tech & Techni) with ECSA has been submitted.
	80	The Organogram indicates that key personnel provided for all roles, legal appointments addressed, and clear and defined roles and responsibilities.	8 years but less & equal than 10 years of post-graduation working experience on similar projects on a CV, A relevant qualification of NQF level 7 (in Built Environment).	11 years but less & equal than 15 years of post-graduation working experience as a Construction Manager on similar projects on a CV, A relevant qualification of NQF level 7 (any Engineering or Built Environment fields). Valid proof of registration (Pr. CM) with SACPCMP has been submitted.	8 years but less & equal than 10 of post-graduation working experience as a Mechanical Engineer on similar projects on a CV. Mechanical Engineering qualification of a minimum NQF level 6. Valid proof of registration (Pr. Eng, Tech & Techni) with ECSA has been submitted.	3 years but less & equal than 8 years of post-graduation working experience on similar projects on a CV, A relevant qualification (Project/ Construction Management) of NQF level 7, Proof/certification of Microsoft Projects or Primavera P6 training has been submitted.	8 years but less & equal than 10 of post-graduation working experience as a Instrumentation Engineer on similar projects on a CV. Electrical Engineering qualification of a minimum NQF level 6 in Instrumentation Engineering. Valid proof of registration (Pr. Eng, Tech & Techni) with ECSA has been submitted.

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TOTAL (20)		Organogram	Project Manager	Construction Manager	Mechanical Engineer	Project Planner	Instrumentation Technician
	100	The Organogram indicates that the proposed team is clearly provided with clear roles, responsibilities and includes proposed additional resources that will be used to address the project requirements. Over and above the requested personnel.	<p>>10 years post-graduation working experience on similar projects on a CV,</p> <p>A relevant qualification of NQF level 8 or more (in Built Environment),</p>	<p>>15 years post-graduation working experience as a Construction Manager on similar projects on a CV,</p> <p>A relevant qualification of NQF level 8 or more (any Engineering or Built Environment fields),</p> <p>Valid proof of registration (Pr. CM) with SACPCMP has been submitted.</p>	<p>>10 years of post-graduation working experience as a Mechanical Engineer on similar projects on a CV.</p> <p>Mechanical Engineering qualification of a minimum NQF level 6.</p> <p>Valid proof of registration (Pr. Eng, Tech & Techni) with ECSA has been submitted.</p>	<p>>8 years post-graduation working experience on similar projects on a CV,</p> <p>A relevant qualification (Project/ Construction Management) of NQF level 7 or more,</p> <p>Proof/certification of Microsoft Projects or Primavera P6 training has been submitted.</p>	<p>>10 years of post-graduation working experience as a Instrumentation Engineer on similar projects on a CV.</p> <p>Instrumentation Engineering qualification of a minimum NQF level 6 in Instrumentation Engineering.</p> <p>Valid proof of registration (Pr. Eng, Tech & Techni) with ECSA has been submitted.</p>

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Attached submissions to this schedule:

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T2.2-02: Evaluation Schedule – Operational Continuity

1. The service provider is required to come up with alternative temporal method for Sand Bypass to continue producing the volumes of Sand whilst the pipework is undertaken.
2. The service provider is required to connect all electrical items (networks) and other relative mechanical components. Reconfigure PLC and SCADA for all installed items. Ensure the system is fully functional prior handing over

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	<p>1.1.1. <u>Methods of Sand movement:</u></p> <p>Detailed plan of the temporal arrangement installation for the Discharge of 1200 tons/day for 9 months of Sand from the West to the East side of breakwater.</p>	<p>1.1.2. <u>Post replacement and Sand Bypass system:</u></p> <p>Service provider to submit the following:</p> <ol style="list-style-type: none"> Plan for the reconfiguration include: <ul style="list-style-type: none"> Duration (less than 15 days) Activities Authorised person specialising in instrumentation Letter of intent (in a company letterhead) to reconfigure the Sand Bypass system and assurance to leave it fully operational post the replacement of pipes.
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Points (10)	5	5
Score (0)	0 –Submitted a plan that will move less than 700 tons/day for 9 months.	
Score (20)	Plan submitted but proposed methods will move 700-799 tons/day for 9 months	Submission does not cover (1) and (2).
Score (40)	Plan submitted but proposed methods will move 800 - 999 tons/day for 9 months	Submitted one of the two requirements.
Score (60)	Plan submitted but proposed methods will move 1001-1100 tons/day for 9 months.	Submitted (2) and (1) with missing information.
Score (80)	Plan submitted but proposed methods will move more than 1100 tons/day for 9 months	Submitted (1) and (2) aligns with the requirements.
Score (100)	Plan submitted but proposed methods will move 1200 tons/day for 9 months	Submitted all requirements.

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T2.2-03: Evaluation Schedule – Lead Time

1. Provision of documented clear lead-time in line with a project plan provided for the Works. The Lead time should start immediately after the Purchase Order (PO) has been issued.

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	<p>3.1.1. <u>Lead Time</u></p> <p>The Lead time to include all manufacturing involved, coating, supplies, and services from the date the PO is issued. For long lead time items, proof need to be provided in the form of a company letterhead (of the original/main supplier) with shipping schedule. Long lead time items to be negotiated for.</p>
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Points (5)	5
Score (0)	Lead time not stipulated
Score (20)	>6 months up to 9 months lead time
Score (40)	>4 months up to 6 months lead time
Score (60)	≥ 2 months up to 4 months lead time
Score (80)	2 months lead-time
Score (100)	Less than 2 months

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T2.2-04: Evaluation Schedule – Warranties

1. Provision for workmanship for all work conducted in the Jetty in the form of a company letterhead (of the original/main supplier). Attend to breakdowns related to the works.
2. Provision for warranty for the coating (Corrosion protection for marine environment according to ISO or ASTM) for all pipes and items in relation to the works in the Jetty in the form of a company letterhead (of the original/main supplier). Attend to all wear and corrosion resulting from the coating failure.
3. Provision for warranty for all items supplied in connection to the works. Submit proof of warranty for all parts in connection with the works. Unwarranted wear and tear components will be exempted.

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	<p>4.1.1. <u>Warranty for workmanship.</u></p> <p>Certificate Of Conformity from a competent person as defined by Construction Regulations. Letter of intent for warranties. Letter of intent to attend all breakdown resulting to the works</p>	<p>4.1.2. <u>Warranty coating certificate of conformity</u></p> <p>Certificate Of Conformity from a competent person Letter of intent for warranties for coating. Letter of intent to attend to all wear and corrosion resulting from the coating failure.</p>	<p>4.1.3. <u>Warranty items supplied.</u></p> <p>Submit Bill of Material (BOM) for all items to be procured or procured. Warranty letters for the spares as per BOM (excluding unwarranted wear and tear components) Letter of intent to provide Certificate of Conformity from a competent person all regulated items e.g. pressure or welding work. Letter of intent for warranties. i.</p>
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Points (15)	5	5	5
Score (0)	Warranty not stipulated		
Score (20)	6 - 12 months warranty, certificate of conformity plus provision for breakdown	5 years warranty for coating, certificate of conformity plus provision for corrosion repairs	BOM plus 6 - 9 months warranty
Score (40)	13 - 18 months warranty, certificate of conformity plus provision for breakdown	6 years warranty for coating, certificate of conformity plus provision for corrosion repairs	BOM plus 10 - 12 months warranty
Score (60)	19 - 24 months warranty, certificate of conformity plus provision for breakdown	between 7- 8 years warranty for coating, certificate of conformity plus provision for corrosion repairs	BOM plus 13 - 18 months warranty
Score (80)	25 - 30 months warranty, certificate of conformity plus provision for breakdown	9 years warranty for coating, certificate of conformity plus provision for corrosion repairs	BOM plus 19 - 24 months warranty
Score (100)	31 - 36 months warranty, certificate of conformity plus provision for breakdown	Above 10 years warranty for coating, certificate of conformity plus provision for corrosion repairs	BOM plus 36 and more months warranty

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T2.2-05: 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-014.1 _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 Manual** that is aligned to ISO 9001:2015 QMS requirements.
 2. **The Project Quality Plan** shall be project specific and be aligned to the TNPAQUAL- REQ-014.1_General Quality Requirements for Contractors and Suppliers.
 3. **CV of Quality Officer** supplemented by **Qualification** - Quality diploma / Technical diploma and ISO 9001:2015 Quality Management System training certificates (Implementation of QMS and Internal Auditing). The Quality Officer MUST have a minimum of 3 years' quality experience in construction projects.
 4. **Quality Control Plans** shall be in line with the scope of works detailing the Engineering works (i.e., Civil, structural, electrical, mechanical, Marine etc.) These QCP's shall identify all inspections as detailed in the scope of works together with other tests and verifications required to demonstrate that the works comply with the scope of works, specifications, and drawings.

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The scoring will be as follows:

	5.1.1. Quality Manual aligned to ISO 9001:2015 1. Context of the organization 2. Leadership 3. Support 4. Operations 5. Performance Evaluation	5.1.2. Project Quality Plan (PQP) for the contract 1. Scope of works 2. Control of documented information 3. Resources 4. Audits 5. Control of non-conforming outputs	Quality Officer		5.1.5. Quality Control Plan (QCP) 1. Sequence of activities 2.Procedure/code specifications 3. Intervention points 4. Field inspection checklist 5. Relevant signatories
			5.1.3. Experience	5.1.4. Education	
Points (10)	2	2	2	2	2

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Score (0)	No Submission				
Score (20)	Quality Manual contains 1 of the 5 QMS requirements.	Project Quality Plan contains 1 of the 5 PQP requirements.	Less or equals to 1 year Quality experience in construction projects.	CV Submitted with Qualifications that are NOT relevant/ applicable to the specified requirements OR CV submitted without Qualifications attached.	QCPs submitted are not project related.
Score (40)	Quality manual contains 2 of the 5 QMS requirements.	Project Quality Plan contains 2 of the 5 PQP requirements.	Up to 2 years Quality experience in construction projects.	CV submitted with only Quality Management Systems ISO 9001:2015 Training Certificates (Implementation) OR CV submitted with Qualification of NQF 4/ NQF 5 or Lower (National Senior Certificate)	Only submitted one (1) QCP out of four (4) for the listed work activities.
Score (60)	Quality manual contains 3 of the 5 QMS requirements.	Project Quality Plan contains 3 of the 5 PQP requirements.	More than 3 years Quality experience in construction projects.	CV submitted with relevant/ applicable Qualification of NQF 6 in Quality Management OR Project Specific (Diploma or Advanced Diploma) with/and Quality Management Systems ISO 9001:2015 Training Certificate (Implementation only)	Only submitted two (2) QCPs out of four (4) for the listed work activities.
Score (80)	Quality manual contains 4 of the 5 QMS requirements.	Project Quality Plan contains 4 of	Between 4-10 years Quality experience in construction projects.	CV submitted with relevant/applicable Qualification of NQF 6 in Quality Management OR Project Specific (Diploma or Advanced Certificate) with/and Quality Management Systems ISO 9001:2015 (Implementation and/or Internal Auditing)	Only submitted three (3) QCPs out of four (4) for the listed work activities.

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		the 5 PQP requirements.			
Score (100)	Quality manual contains all 5 of the QMS requirements.	Project Quality Plan contains all 5 of the PQP requirements.	More than 10 years Quality experience in construction projects.	CV submitted with relevant/applicable Qualification of NQF 7 in Quality Management OR Project Specific (Bachelor's degree or Advanced Diploma) BTech/BSc/BEng with/and Quality Management System ISO 9001:2015 Training Certificates (Implementation and/or Internal Auditing)	All four (4) QCPs have met the listed work activities.

Attached submissions to this schedule:.....

.....

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T2.2-06: Evaluation Schedule – Technical Method Statement

1. Method Statement (Must be based on the scope of work defined in the tender document).

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	<p>6.1.1. <u>Technical Method Statement</u></p> <p>Submit</p> <ul style="list-style-type: none"> (1) a detailed and structured method statement specific to the scope of works and (2) Details on how the works will be executed and quality ensured as per Scope of Work (SoW) (3) Letter of intent for correct pipe material, polyurethane lining, coating, fittings and fasteners (4) Plans addressing risk associated to hot work, working at height, above water, and around the movement of powered mobile equipment (5) Proposed types of tests and testing procedures to undertaken, commissioning and handing over of the completed works.
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Points (5)	5
Score (0)	No response
Score (20)	Method statement submitted with less than 2 requirements.
Score (40)	Method statement submitted with 2-3 requirements.
Score (60)	Method statement submitted with all 5 requirements.
Score (80)	Method statement submitted with all 5 requirements.
Score (100)	Method statement submitted with all 5 requirements and shows innovative ideas.

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Index of documentation attached to this schedule:

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T2.2-07: Evaluation Schedule – Project Plan (Schedule)

1. The tenderer must provide a Programme which provides the detail that would indicate the order and timing of activities to carry out the construction works in terms of the Employer's requirements and within the stipulated timeframes. The tenderer shall produce a level 4 schedule according to the Employer's objectives as per requirements listed in the **NEC3 ECC clause 31**.

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7.1.1. Project plan

The tenderer shall provide the proposed programme, at a minimum Level 4 showing but not limited to the following:

1. Level 4 Primavera P6 or MS Projects (pdf copy is acceptable) detailed programme, compatible with Project Scope and the Bills of Quantities or price schedule. Submissions that do not meet the required level or are submitted in Excel, Word or similar will be disqualified.
2. Demonstrate a shortened Construction timeline via Milestones or overall duration.
3. The columns that should reflect per activity on the schedule as a minimum but not limited to: Activity No., Activity Name, Start Date, Finish Date, Duration, Float, Predecessors, Successors, calendar, and Resources (no additional points will be allocated for additional columns that are not indicated as the required minimum).
4. The schedule is to have no open-end activities. All activities (including milestones) are to have predecessors and successors except the Start and Finish milestones.
5. The schedule is to have no constraints.
6. All activities to be practically and logically linked using critical path method (CPM), critical path is to be shown on schedule.
7. Schedule showing durations of activities using single unit of measure (days)
8. The calendar (reflected as a column) on the schedule should reflect South African public holidays, weekends, December / builders break and all other non-working periods. (detailed calendar breakdown to be submitted separately on Excel or Word to verify non-working days)
9. The tenderer to clearly indicate the key milestones for all the activities not limited to the following examples: Project start date, Project Completion date, Site access date, Design/Document review and approval dates, Long Lead Material delivery date, and Sectional handover (if applicable).
10. Schedules are to cover all phases within the project scope namely: engineering (covering all engineering activities/deliverables), site mobilisation (pre-construction documents, permits, etc.) and site establishment, construction activities including but not limited to:
 - a) main contractors work,
 - b) subcontracted works,

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	<ul style="list-style-type: none"> c) procurement: <ul style="list-style-type: none"> i) ordering of subcontractors, ii) ordering of long lead items, d) SHERQ requirements, permits and or applications, e) time risk allowance (TRA), project close out and de-establishment activities.
11.	A Basis of Schedule to support the development of the schedule which indicates but not limited to project schedule narrative, schedule assumptions, schedule qualifications, resource loading and production rates applied to the schedule activities, schedule exclusions and schedule risks.
12.	Allowances for critical Employer’s reviews, Inspections and approval activities, the schedule is to also to make allowances for critical testing of commodities and any other critical hold points required where applicable.

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Points (5)	5
Score (0)	Tenderer has not submitted the required information. Submitted information cannot be rated. e.g., excel or word document, insufficient level of detail (below Level 4).
Score (20)	Tenderer has demonstrated unsatisfactory knowledge of the schedule development, less the 25% of all points 1 to 16 have been covered and fully supports the specifications.
Score (40)	Tenderer has demonstrated poor knowledge of the schedule development, more than or equal to 25% but less than 50% of all points 1 to 16 have been covered and fully supports the specifications.
Score (60)	Tenderer has demonstrated reasonable knowledge of the schedule development, more than or equal to 50% but less than 75% of all points 1 to 16 have been covered and fully supports the specifications.
Score (80)	Tenderer has demonstrated good knowledge of the schedule development, more than or equal to 75% but less than 100% of all points 1 to 16 have been covered and fully supports the specifications.
Score (100)	Tenderer has demonstrated very good knowledge of the schedule development, 100% of all points 1 to 16 have been covered and fully supports the specifications.

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Index of documentation attached to this schedule:

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T2.2-08 : Evaluation Schedule – Health, safety and environmental plan

1. SHE plans indicating not limited to the following:
 - Top management’s commitment to comply with legislative requirements and other requirements.
 - Implement site safety regulations relevant to this contract.
 - Clearly define roles and responsibilities pertaining to day to day SHE management on site.
 - SHE management approach in addressing critical relevant SHE risks and implementation of motivation controls
 - Detailed Environmental Management plan for the project.
 - Environmental aspects and impacts register for the project with mitigation measures and controls.
 - Incident/Accident Procedure including reporting, recording and investigation of incidents and accidents.
2. Compliance to Compensation for Occupational Injuries & Diseases Act 130 of 1993
 - The bidder must provide a valid letter of good standing specific to the scope of work to be conducted.

List of Key Persons assigned to the above disciplines

No.	Key Persons	Name and Surname	CV attached (Yes/No)
1	Construction Manager		
2	Project Manager		
3	Construction Health and Safety Officer		
4	Environmental control officer		

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5	Construction Supervisor		
6	Project Quality Control Officer		
7	A trainee, intern (professional		
8			
9			
10			
11			

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	<p>8.1.1. <u>Health, safety and environmental plan</u></p> <p>Bidder must demonstrate full understanding of the client’s health and safety specification by presenting a detailed health and safety management plan specific to the project and</p> <ul style="list-style-type: none"> (1) must detail how the health and safety requirements will be met, (2) what health and safety measures are put in place for personnel working on site (3) project risk assessment based on the proposed method statement, (4) develop a site-specific environmental management plan (5) Incident/Accident Management Procedure including reporting, recording and investigation of incidents and accidents. (6) Bidder must provide a valid letter of good standing specific to the scope of work to be conducted 	<p>8.1.2. <u>Environmental management plan</u></p> <p>Bidder must demonstrate full understanding of the client’s Environmental management specification by presenting a detailed Environmental management plan specific to the project with the following but not limited:</p> <ul style="list-style-type: none"> (1) Must detail how the environmental management requirements will be met, (2) Identification of environmental regulatory requirements associated with the proposed development, (3) Detailed aspect and impacts register for the project with mitigation measures. (4) Project risk assessment based on the proposed method statement, (5) Develop a site-specific environmental management plan
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Points (10)	5	5
Score (0)	No submission / response	
Score (20)	Bidder has met less than 1 of the requirements plus valid letter of good standing specific to the scope of work	1 – Detailed environment management plan specific to the scope of work covering 1 of the requirements
Score (40)	Bidder has met 2 of the 4 requirements plus a valid letter of good standing specific to the scope of work	2 - Detailed environment management plan specific to the scope of work covering 2 of the requirements
Score (60)	Bidder has met all 3 requirements plus a valid letter of good standing specific to the scope of work.	3 - Detailed environment management plan and risk management plan specific to the scope of work covering 2 of the requirements
Score (80)	Bidder has met 4 requirements plus a valid letter of good standing specific to the scope of work.	4 - Detailed environment and site-specific management plan, Risk management plan including risk register specific to the scope of work
Score (100)	Bidder has met all 5 requirements plus a valid letter of good standing specific to the scope of work and exceeds expectation in an outstanding manner.	5 - All the requirements met

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T2.2-09: Authority to submit a Tender

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

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

A. Certificate for Company

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

Signed

Date

Name

Position

Chairman of the Board of Directors

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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.

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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

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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

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T2.2-10: Record of Addenda to Tender Documents

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

	Date	Title or Details
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Attach additional pages if more space is required.



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T2.2-11: 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:

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Part T2: Returnable Schedules
T2.2-12: Risk Elements

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T2.2-13: Schedule of Proposed Subcontractors

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

Note to tenderers:

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

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

Provide information of the Sub-contractors below:

Name of Proposed Subcontractor			Address		Nature of work		Amount of Worked	Percentage of work
% Black Owned	EME	QSE	Youth	Women	Disabilities	Rural/ Underdeveloped areas/ Townships		Military Veterans
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

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Name of Proposed Subcontractor			Address		Nature of work		Amount of Worked	Percentage of work
% Black Owned	EME	QSE	Youth	Women	Disabilities	Rural/ Underdeveloped areas/ Townships	Military Veterans	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Name of Proposed Subcontractor			Address		Nature of work		Amount of Worked	Percentage of work
% Black Owned	EME	QSE	Youth	Women	Disabilities	Rural/ Underdeveloped areas/ Townships	Military Veterans	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Name of Proposed Subcontractor			Address		Nature of work		Amount of Worked	Percentage of work
% Black Owned	EME	QSE	Youth	Women	Disabilities	Rural/ Underdeveloped areas/ Townships	Military Veterans	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

DESCRIPTION OF WORKS: FOR DELIVERY, REMOVAL, REPLACEMENT, AND COMMISSIONING OF PIPELINE INCLUDING ALL THE ACCESSORIES ON THE 225M LONG JETTY PIPEWORK AT TRANSNET NATIONAL PORTS AUTHORITY (TNPA), SAND BYPASS IN PORT OF NGQURA (PoN) FOR A ONCE OFF PERIOD.

Tenderers to indicate their Site establishment area requirements:

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There is a solid black vertical line along the left edge, creating a margin. The paper appears to be from a notebook or a standard ruled document.

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T2.2-15: 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.

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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

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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 Broad-Based Black Economic Empowerment [**B-BBEE**] Status Level of Contribution.

Transnet will award preference points to companies who provide valid proof of their B-BBEE status using either the latest version of the generic Codes of Good Practice or Sector Specific Codes (if applicable).

1. GENERAL CONDITIONS

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

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

1.2 The value of this bid is estimated to not exceed R50 000 000 (all applicable taxes included) and therefore the 80/20 preference point system shall be applicable. Despite the stipulated preference point system, Transnet shall use the lowest acceptable bid to determine the applicable preference point system in a situation where all received acceptable bids are received outside the stated preference point system.

1.3 Preference points for this bid shall be awarded for:

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

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

	POINTS
PRICE	90/80
B-BBEE STATUS LEVEL OF CONTRIBUTION	10/20
Total points for Price and B-BBEE must not exceed	100

(80/20 system)

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Table 3: Specific Goals and Points allocation applicable for this project: Specific Goals	Number of points (80/20 system)
B-BBEE Status Level of Contributor 1 or 2	06
30% Black Women Owned Entities	04
EME or QSE 51% Black Owned Entities	10
Non-Compliant and/or B-BBEE level 3-8 Contributors	00

(90/10 system)

Table 4: Specific Goals and Points allocation applicable for this project: Specific Goals	Number of points (90/10 system)
B-BBEE Status Level of Contributor 1 or 2	03
30% Black Women Owned Entities	02
EME or QSE 51% Black Owned Entities	05
Non-Compliant and/or B-BBEE level 3-8 Contributors	00

- 1.5 Failure on the part of a bidder to submit proof of B-BBEE status level of contributor together with the bid will be interpreted to mean that preference points for B-BBEE status level of contribution 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

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(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 defined 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.

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

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

Ps = Points scored for comparative price of bid under consideration

Pt = Comparative price of bid under consideration

Pmin = Comparative price of lowest acceptable bid

4.1 preference points must be awarded to a bidder for attaining the B-BBEE status level of contribution in accordance with the table below:

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	<p>Certificate issued by SANAS accredited verification agency</p> <p>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)</p> <p>[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.]</p>
EME ¹	<p>Sworn Affidavit signed by the authorised EME representative and attested by a Commissioner of Oaths confirming annual turnover and black ownership</p> <p>Certificate issued by CIPC (formerly CIPRO) confirming annual turnover and black ownership</p> <p>Certificate issued by SANAS accredited verification agency only if the EME is being measured on the OSE scorecard</p>

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.

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- 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 of 3 or 6 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	<input type="checkbox"/>	NO	<input type="checkbox"/>
-----	--------------------------	----	--------------------------

- 7.1.1 If yes, indicate:

i) What percentage of the contract will be subcontracted.....%

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- 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 Supplier/Service provider

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- ☐ Other Suppliers/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:

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BIDDER'S DISCLOSURE

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.

2.2

Full Name	Identity Number	Name of institution	State

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 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.

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2.2.1 If so, furnish particulars:

.....

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 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.

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- 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.

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



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T2.2-16 NON-DISCLOSURE AGREEMENT

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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,

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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

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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.

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- 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.

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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

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Tenderer

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T2.2-17: RFP DECLARATION FORM

NAME OF COMPANY:

We _____ do hereby
certify that:

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

FULL NAME OF OWNER/MEMBER/DIRECTOR/

PARTNER/SHAREHOLDER:

ADDRESS:

TENDER NUMBER: TNPA/2024/09/0008/77882/RFP

DESCRIPTION OF WORKS: SUPPLY, DELIVERY, REMOVAL, REPLACEMENT, AND COMMISSIONING OF PIPELINE INCLUDING ALL THE ACCESSORIES ON THE 225M LONG JETTY PIPEWORK AT TRANSNET NATIONAL PORTS AUTHORITY (TNPA), SAND BYPASS IN PORT OF NGQURA (PoN).

Indicate nature of relationship with Transnet:

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

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

6. We accept that any dispute pertaining to this tender will be resolved through the Transnet SCM Complaints office process and will be subject to the Terms of Reference of the Transnet SCM Complaints office. The Transnet SCM Complaints 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 the Transnet SCM

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Complaints office without having to follow a formal court process to have such award or decision set aside.

8. We have acquainted ourselves and agree with the content of "Service Provider Integrity Pact".

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

RFQ DECLARATION CERTIFICATE OF ACQUAINTANCE & BREACH OF LAW FORM WITH RFP.

By signing this certificate the Respondent is deemed to acknowledge that he/she has made himself/herself thoroughly familiar with, and agrees with all the conditions governing this RFP. This includes those terms and conditions contained in any printed form stated to form part hereof, including but not limited to the documents stated below. As such, Transnet SOC Ltd will recognise no claim for relief based on an allegation that the Respondent overlooked any such term or condition or failed properly to take it into account for the purpose of calculating tendered prices or any other purpose:

1. Transnet's General Bid Conditions
2. NEC Contract

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1	Transnet's Supplier Integrity Pact
2	Non-disclosure Agreement
3	Specifications and drawings attached to this RFP

Note: Should a Respondent be successful and awarded the bid, they will be required to complete a Supplier Declaration Form for registration as a vendor onto the Transnet vendor master database.

Should the Bidder find any terms or conditions stipulated in any of the relevant documents quoted in the RFP unacceptable, it should indicate which conditions are unacceptable and offer alternatives by written submission on its company letterhead, attached to its submitted Bid. 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. A material deviation from any term or condition may result in disqualification.

Bidders accept that an obligation rests on them to clarify any uncertainties regarding any bid to which they intend to respond on, before submitting the bid. **The Bidder agrees that he/she will have no claim or cause of action based on an allegation that any aspect of this RFP was unclear but in respect of which he/she failed to obtain clarity.**

The bidder understands that his/her Bid will be disqualified if the Certificate of Acquaintance with RFP documents included in the RFP as a returnable document, is found not to be true and complete in every respect.

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T2.2-18: REQUEST FOR PROPOSAL – BREACH OF LAW

NAME OF COMPANY: _____

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

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

NATURE OF BREACH:

DATE OF BREACH:

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

Signed on this _____ day of _____ 20____

SIGNATURE OF TENDER

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T2.2-19 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.

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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.

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Signed on this _____ day of _____ 20____

SIGNATURE OF TENDERER

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T2.2-20: Service Provider Integrity Pact

Important Note: All potential tenderers must read this document and certify in the RFP Declaration Form that they 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")

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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

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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

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privileges, personal favours, benefit or services. Such favours will be considered to constitute corruption.

- 3.2 The Tenderer/Service Provider/Contractor commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its Tender or during any ensuing contract stage in order to secure the contract or in furtherance to secure it and in particular the Tenderer/Service Provider/Contractor commits to the following:
- a) The Tenderer/Service Provider/Contractor will not, directly or through any other person or firm, offer, promise or give to Transnet or to any of Transnet's employees involved in the tendering process or to any third person any material or other benefit or payment, in order to obtain in exchange an advantage during the tendering process; and
 - b) The Tenderer/Service Provider/Contractor will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any employee of Transnet, connected directly or indirectly with the tendering process, or to any person, organisation or third party related to the contract in exchange for any advantage in the tendering, evaluation, contracting and implementation of the contract.
- 3.3 The Tenderer/Service Provider/Contractor will not collude with other parties interested in the contract to preclude a competitive Tender price, impair the transparency, fairness and progress of the tendering process, Tender evaluation, contracting and implementation of the contract. The Tenderer / Service Provider further commits itself to delivering against all agreed upon conditions as stipulated within the contract.
- 3.4 The Tenderer/Service Provider/Contractor will not enter into any illegal or dishonest agreement or understanding, whether formal or informal with other Tenderers/Service Providers/Contractors. This applies in particular to certifications, submissions or non-submission of documents or actions that are restrictive or to introduce cartels into the tendering process.
- 3.5 The Tenderer/Service Provider/Contractor will not commit any criminal offence under the relevant anti-corruption laws of South Africa or any other country. Furthermore, the Tenderer/Service Provider/Contractor will not use for illegitimate purposes or for restrictive purposes or personal gain, or pass on to others, any information provided by Transnet as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

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- 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

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- Principle 7: Businesses should support a precautionary approach to environmental challenges;
- Principle 8: undertake initiatives to promote greater environmental responsibility; and
- Principle 9: encourage the development and diffusion of environmentally friendly technologies.

d) Anti-Corruption

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

4 INDEPENDENT TENDERING

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

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

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

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

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

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- 4.4 In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the Goods or Services to which his/her tender relates.
- 4.5 The terms of the Tender as submitted have not been, and will not be, disclosed by the Tenderer, directly or indirectly, to any competitor, prior to the date and time of the official Tender opening or of the awarding of the contract.
- 4.6 Tenderers are aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to Tenders and contracts, Tenders that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and/or may be reported to the National Prosecuting Authority [NPA] for criminal investigation and/or may be restricted from conducting business with the public sector for a period not exceeding 10 [ten] years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.
- 4.7 Should the Tenderer find any terms or conditions stipulated in any of the relevant documents quoted in the Tender unacceptable, it should indicate which conditions are unacceptable and offer alternatives by written submission on its company letterhead, attached to its submitted Tender. Any such submission shall be subject to review by Transnet's Legal Counsel who shall determine whether the proposed alternative(s) are acceptable or otherwise, as the case may be.

5 DISQUALIFICATION FROM TENDERING PROCESS

- 5.1 If the Tenderer/Service Provider/Contractor has committed a transgression through a violation of section 3 of this Integrity Pact or in any other form such as to put its reliability or credibility as a Tenderer/Service Provider/Contractor into question, Transnet may reject the Tenderer's / Service Provider's / Contractor's application from the registration or tendering process and remove the Tenderer/Service Provider/Contractor from its database, if already registered.
- 5.2 If the Tenderer/Service Provider/Contractor has committed a transgression through a violation of section 3, or any material violation, such as to put its reliability or credibility into question. Transnet may after following due procedures and at its own discretion also exclude the Tenderer/Service Provider /Contractor from future tendering processes. The imposition and duration of the exclusion will be determined by the severity of the transgression. The severity will be determined by the circumstances of the case, which will include amongst

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others the number of transgressions, the position of the transgressors within the company hierarchy of the Tenderer/Service Provider/Contractor and the amount of the damage. The exclusion will be imposed for up to a maximum of 10 (ten) years. However, Transnet reserves the right to impose a longer period of exclusion, depending on the gravity of the misconduct.

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

6 TRANSNET'S LIST OF EXCLUDED TENDERERS (BLACKLIST)

- 6.1 The process of restriction is used to exclude a company/person from conducting future business with Transnet and other organs of state for a specified period. No Tender shall be awarded to a Tenderer whose name (or any of its members, directors, partners or trustees) appear on the Register of Tender Defaulters kept by National Treasury, or who have been placed on National Treasury's List of Restricted Suppliers. Transnet reserves the right to withdraw an award, or cancel a contract concluded with a Tenderer should it be established, at any time, that a tenderer has been restricted with National Treasury by another government institution.
- 6.2 All the stipulations on Transnet's restriction process as laid down in Transnet's Supply Chain Policy and Procurement Procedures Manual (CPM included) are included herein by way of reference. Below follows a condensed summary of this restriction procedure.
- 6.3 On completion of the restriction procedure, Transnet will submit the restricted entity's details (including the identity number of the individuals and registration number of the entity) to National Treasury for placement on National Treasury's Database of Restricted Suppliers for the specified period of exclusion. National Treasury will make the final decision on whether to restrict an entity from doing business with any organ of state for a period not exceeding 10 years and place the entity concerned on the Database of Restricted Suppliers published on its official website.
- 6.4 The decision to restrict is based on one of the grounds for restriction. The standard of proof to commence the restriction process is whether a "*prima facie*" (i.e. on the face of it) case has been established.
- 6.5 Depending on the seriousness of the misconduct and the strategic importance of the Goods/Services, in addition to restricting a company/person from future

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business, Transnet may decide to terminate some or all existing contracts with the company/person as well.

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

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

a) Has, in bad faith, withdrawn such Tender after the advertised closing date and time for the receipt of Tenders;

b) has, after being notified of the acceptance of his Tender, failed or refused to sign a contract when called upon to do so in terms of any condition forming part of the Tender documents;

c) has carried out any contract resulting from such Tender in an unsatisfactory manner or has breached any condition of the contract;

d) has offered, promised or given a bribe in relation to the obtaining or execution of the contract;

e) has acted in a fraudulent or improper manner or in bad faith towards Transnet or any Government Department or towards any public body, Enterprise or person;

f) has made any incorrect statement in a certificate or other communication with regard to the Local Content of his Goods or his B-BBEE status and is unable to prove to the satisfaction of Transnet that:

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

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

g) caused Transnet damage, or to incur costs in order to meet the contractor's requirements and which could not be recovered from the contractor;

h) has litigated against Transnet in bad faith.

6.8 Grounds for blacklisting include a company/person recorded as being a company or person prohibited from doing business with the public sector on National

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Treasury's database of Restricted Service Providers or Register of Tender Defaulters.

- 6.9 Companies associated with the person/s guilty of misconduct (i.e. entities owned, controlled or managed by such persons), any companies subsequently formed by the person(s) guilty of the misconduct and/or an existing company where such person(s) acquires a controlling stake may be considered for blacklisting. The decision to extend the blacklist to associated companies will be at the sole discretion of Transnet.

7 PREVIOUS TRANSGRESSIONS

- 7.1 The Tenderer/Service Provider/Contractor hereby declares that no previous transgressions resulting in a serious breach of any law, including but not limited to, corruption, fraud, theft, extortion and contraventions of the Competition Act 89 of 1998, which occurred in the last 5 (five) years with any other public sector undertaking, government department or private sector company that could justify its exclusion from its registration on the Tenderer's/Service Provider's/Contractor's database or any tendering process.
- 7.2 If it is found to be that the Tenderer/Service Provider/Contractor made an incorrect statement on this subject, the Tenderer/Service Provider/Contractor can be rejected from the registration process or removed from the Tenderer/Service Provider/Contractor database, if already registered, for such reason (refer to the Breach of Law Returnable Form contained in the document.)

8 SANCTIONS FOR VIOLATIONS

- 8.1 Transnet shall also take all or any one of the following actions, wherever required to:
- a) Immediately exclude the Tenderer/Service Provider/Contractor from the tendering process or call off the pre-contract negotiations without giving any compensation the Tenderer/Service Provider/Contractor. However, the proceedings with the other Tenderer/Service Provider/Contractor may continue;
 - b) Immediately cancel the contract, if already awarded or signed, without giving any compensation to the Tenderer/Service Provider/Contractor;
 - c) Recover all sums already paid by Transnet;
 - d) Encash the advance bank guarantee and performance bond or warranty bond, if furnished by the Tenderer/Service Provider/Contractor, in order to recover the payments, already made by Transnet, along with interest;
 - e) Cancel all or any other contracts with the Tenderer/Service Provider/Contractor; and

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- 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

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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.

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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

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T2.2-21: 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:

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- 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.

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- 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.

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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

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T2.2-22: Insurance provided by the *Contractor*

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

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

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



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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.

<p>Index of documentation attached to this schedule:</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>



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T2.2-24: 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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.....

THE CONTRACT

Part C1

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:

SUPPLY, DELIVERY, REMOVAL, REPLACEMENT, AND COMMISSIONING OF PIPELINE INCLUDING ALL THE ACCESSORIES ON THE 225M LONG JETTY PIPEWORK AT TRANSNET NATIONAL PORTS AUTHORITY (TNPA), SAND BYPASS IN PORT OF NGQURA (PoN).

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

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

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

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

Signature(s)

Name(s)

Capacity

**For the
tenderer:**

TRANSNET NATIONAL PORTS AUTHORITY



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Name &
signature of
witness

*(Insert name and address of
organisation)*

Date

Tenderer's CIDB registration number:

Acceptance

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

The terms of the contract, are contained in:

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

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

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

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

Notwithstanding anything contained herein, this agreement comes into effect on the date when the tenderer receives one fully completed original copy of this document, including the Schedule of Deviations (if any).

TRANSNET NATIONAL PORTS AUTHORITY

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

Signature(s)

Name(s)

Capacity

**for the
Employer**

Transnet SOC Ltd

Name &
signature of
witness

*(Insert name and address of
organisation)*

Date



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Schedule of Deviations

Note:

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

No.	Subject	Details
1		
2		
3		
4		
5		

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

TRANSNET NATIONAL PORTS AUTHORITY

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Date

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	
		A: Priced contract with activity schedule
	dispute resolution Option	W1: Dispute resolution procedure
	and secondary Options	X1: Changes in law
		X2: Delay damages
		X3: Performance Bond
		X4: Retention
		X5: Limitation of liability
		Z: Additional conditions of contract
	of the NEC3 Engineering and Construction Contract June 2005 (amended June 2006 and April 2013)	



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10.1	The <i>Employer</i> is:	Transnet SOC Ltd (Registration No. 1990/000900/30)
	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 eMendi Building N2 Neptune Road Off Klub Road Port of Ngqura Port Elizabeth 6100
10.1	The <i>Project Manager</i> is: (Name)	TBA
	Address	Emendi Admin Building, Neptune Road, Gqeberha, 6065
	Tel
	e-mail
10.1	The <i>Supervisor</i> is: (Name)	TBA
	Address	eMendi Building, N2 Neptune Road, Off Klub Road, Port of Ngqura, Gqeberha, 6100
	Tel No.
	e-mail	<u>.....</u>
11.2(13)	The <i>works</i> are	FOR THE DELIVERY, REMOVAL, REPLACEMENT, AND COMMISSIONING OF PIPELINE INCLUDING ALL THE ACCESSORIES ON THE 225M LONG JETTY PIPEWORK AT TRANSNET NATIONAL PORTS AUTHORITY (TNPA), SAND BYPASS IN PORTS OF NGQURA (PoN) FOR A ONCE OFF PERIOD.

11.2(14) The following matters will be included in the Risk Register

1. SHE plans indicating not limited to the following:

- Top management's commitment to comply with legislative requirements and other requirements.
- Implement site safety regulations relevant to this contract.
- Clearly define roles and responsibilities pertaining to day to day SHE management on site.
- SHE management approach in addressing critical relevant SHE risks and implementation of motivation controls
- Detailed Environmental Management plan for the project.
- Environmental aspects and impacts register for the project with mitigation measures and controls.
- Incident/Accident Procedure including reporting, recording and investigation of incidents and accidents.

2. Compliance to Compensation for Occupational Injuries & Diseases Act 130 of 1993

11.2(15)	The <i>boundaries of the site</i> are	As stated in Part C4.1Description of the Site and its surroundings" Port of Ngqura
11.2(16)	The Site Information is in	Part C4.1
11.2(19)	The Works Information is in	Part C3
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

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13.3	The <i>period for reply</i> is	2 (Two) weeks
2	The <i>Contractor's</i> main responsibilities	No additional data is required for this section of the conditions of contract.
3	Time	
11.2(3)	The <i>completion date</i> for the whole of the <i>works</i> is	To be confirmed
11.2(9)	The <i>key dates</i> and the <i>conditions</i> to be met are:	Key dates
		1 Starting date To be confirmed
		2 Completion date To be confirmed
30.1	The <i>access dates</i> are	Part of the site date
		1 Whole of the Site To be confirmed
31.1	The <i>Contractor</i> is to submit a first programme for acceptance within	2 weeks of the Contract Date.
31.2	The <i>starting date</i> is	To be confirmed
32.2	The <i>Contractor</i> submits revised programmes at intervals no longer than	4 weeks.
35.1	The <i>Employer</i> is not willing to take over the <i>works</i> before the Completion Date.	Yes
4	Testing and Defects	
42.2	The <i>defects date</i> is	52 (fifty two) weeks after Completion of the whole of the <i>works</i>.
43.2	The <i>defect correction period</i> is	2 weeks
5	Payment	
50.1	The <i>assessment interval</i> is	15th (fifteenth) day of each successive month.



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51.1	The <i>currency of this contract</i> is the	South African Rand.
51.2	The period within which payments are made is	Payment will be effected on or before the last day of the month following the month during which a valid Tax Invoice and Statement were received.
51.4	The <i>interest rate</i> is	the prime lending rate of Rand Merchant Bank of South Africa
6	Compensation events	
60.1(13)	The <i>weather measurements</i> to be recorded for each calendar month are,	the cumulative rainfall (mm) the number of days with rainfall more than 10 mm the number of days with minimum air temperature less than 0 degrees Celsius the number of days with snow lying at 08:00 hours South African Time and these measurements:
	The place where weather is to be recorded (on the Site) is:	On site at Port of Ngqura
	The <i>weather data</i> are the records of past <i>weather measurements</i> for each calendar month which were recorded at:	Port Elizabeth weather station
	and which are available from:	South African Weather Service 012 367 6023 or info3@weathersa.co.za.
7	Title	No additional data is required for this section of the <i>conditions of contract</i>.
8	Risks and insurance	Public Liability Insurance
80.1	These are additional <i>Employer's</i> risks	None



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84.1 The *Employer* provides these insurances from the Insurance Table

1	Insurance against:	Loss of or damage to the <i>works</i>, Plant and Materials is as stated in the Insurance policy for Contract Works/ Public Liability.
	Cover / indemnity:	to the extent as stated in the insurance policy for Contract Works / Public Liability
	The deductibles are:	as stated in the insurance policy for Contract Works / Public Liability
2	Insurance against:	Loss of or damage to property (except the <i>works</i>, Plant and Materials & Equipment) and liability for bodily injury to or death of a person (not an employee of the <i>Contractor</i>) arising out of or in connection with the performance of the Contract as stated in the insurance policy for Contract Works / Public Liability
	Cover / indemnity	Is to the extent as stated in the insurance policy for Contract Works / Public Liability
	The deductibles are	as stated in the insurance policy for Contract Works / Public Liability
3	Insurance against:	Loss of or damage to Equipment (Temporary Works only) as stated in the insurance policy for contract Works and Public Liability
	Cover / indemnity	Is to the extent as stated in the insurance policy for Contract Works / Public Liability
	The deductibles are:	As stated in the insurance policy for Contract Works / Public Liability
4	Insurance against:	Contract Works SASRIA insurance subject to the terms, exceptions and conditions of the SASRIA coupon
	Cover / indemnity	Cover / indemnity is to the extent provided by the SASRIA coupon



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The deductibles are

The deductibles are, in respect of each and every theft claim, 0,1% of the contract value subject to a minimum of R2,500 and a maximum of R25,000.

Note:

The deductibles for the insurance as stated above are listed in the document titled "Certificate of Insurance: Transnet (SOC) Limited Principal Controlled Insurance."

84.1

The minimum limit of indemnity for insurance in respect of death of or bodily injury to employees of the *Contractor* arising out of and in the course of their employment in connection with this contract for any one event is

The *Contractor* must comply at a minimum with the provisions of the Compensation for Occupational Injuries and Diseases Act No. 130 of 1993 as amended.

The *Contractor* provides these additional Insurances

- 1 Where the contract requires that the design of any part of the *works* shall be provided by the *Contractor* the *Contractor* shall satisfy the *Employer* that professional indemnity insurance cover in connection therewith has been affected**
- 2 Where the contract involves manufacture, and/or fabrication of Plant & Materials, components or other goods to be incorporated into the *works* at premises other than the site, the *Contractor* shall satisfy the *Employer* that such plant & materials, components or other goods for incorporation in the *works* are adequately insured during manufacture and/or fabrication and transportation to the site.**
- 3 Should the *Employer* have an insurable interest in such items during manufacture, and/or fabrication, such interest shall be noted by endorsement to the *Contractor's* policies of insurance as well as those of any sub-contractor**



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DESCRIPTION OF WORKS: SUPPLY, DELIVERY, REMOVAL, REPLACEMENT, AND COMMISSIONING OF PIPELINE INCLUDING ALL THE ACCESSORIES ON THE 225M LONG JETTY PIPEWORK AT TRANSNET NATIONAL PORTS AUTHORITY (TNPA), SAND BYPASS IN PORT OF NGQURA (PoN).

- 4 Motor Vehicle Liability Insurance comprising (as a minimum) "Balance of Third Party" Risks including Passenger and Unauthorised Passenger Liability indemnity with a minimum indemnity limit of R 5 000 000**
- 5 Marine Craft Hull insurance in respect of all marine craft or vessels utilised in performance of the Works for a sum sufficient to provide for their replacement**
- 6 Protection and Indemnity Insurance in respect of all marine craft or vessels utilised in performance of the Works extended for Specialist Operations with a minimum indemnity limit of R 20,000,000**
- 7 The insurance coverage referred to in 1, 2, 3, 4, 5 and 6 above shall be obtained from an insurer(s) in terms of an insurance policy approved by the *Employer*. The *Contractor* shall arrange with the insurer to submit to the *Project Manager* the original and the duplicate original of the policy or policies of insurance and the receipts for payment of current premiums, together with a certificate from the insurer or insurance broker concerned, confirming that the policy or policies provide the full coverage as required. The original policy will be returned to the *Contractor*.**

84.2 The minimum limit of indemnity for insurance in respect of loss of or damage to property (except the works, Plant, Materials and Equipment) and liability for bodily injury to or death of a person (not an employee of the *Contractor*) caused by activity in connection with this contract for any one event is

Whatever the *Contractor* requires in addition to the amount of insurance taken out by the *Employer* for the same risk.



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84.2	The insurance against loss of or damage to the works, Plant and Materials as stated in the insurance policy for contract works and public liability selected from:	Principal Controlled Insurance policy for Contract OR Project Specific Insurance for the contract
9	Termination	There is no additional Contract Data required for this section of the <i>conditions of contract</i>.
10	Data for main Option clause	
B	Activity Schedule	No additional data is required for this Option.
60.6	The <i>method of measurement</i> is	The activity schedule have been measured in accordance with SANS 1200 unless indicated otherwise.
11	Data for Option W1	
W1.1	The <i>Adjudicator</i> is	Both parties will agree 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 will appoint an <i>Adjudicator</i>.
W1.2(3)	The <i>Adjudicator nominating body</i> is: If no <i>Adjudicator nominating body</i> is entered, it is:	The Chairman of the Association of Arbitrators (Southern Africa) 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 Rules for the Conduct of Arbitrations of the Association of Arbitrators (Southern Africa)
	The place where arbitration is to be held is	Gqeberha, Republic of South Africa



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The person or organisation who will choose an arbitrator

- if the Parties cannot agree a choice or
- if the arbitration procedure does not state who selects an arbitrator, is

The Chairman of the Association of Arbitrators (Southern Africa)

12 Data for secondary Option clauses

X2 Changes in the law No additional data is required for this Option

X7 Delay damages (but not if Option X5 is also used)

X7.1 Delay damages for Completion of the whole of the *works* are

R25 000.0 per day up to a limit of 7% of the total Contract Price

X13 Performance bond

X13.1 The amount of the performance bond is

5% of the total of the Prices. A proforma Performance Guarantee is attached with this Contract as Part C1.3 – Forms and Guarantees

X16 Retention

X16.1 The retention free amount is

Nil

The retention percentage is

10% on all payments certified.

X18 Limitation of liability



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X18.1	The <i>Contractor's</i> liability to the <i>Employer</i> for indirect or consequential loss is limited to:	Nil
X18.2	For any one event, the <i>Contractor's</i> liability to the <i>Employer</i> for loss of or damage to the <i>Employer's</i> property is limited to:	The deductible of the relevant insurance policy
X18.3	The <i>Contractor's</i> liability for Defects due to his design which are not listed on the Defects Certificate is limited to:	The cost of correcting the Defect
X18.4	The <i>Contractor's</i> total liability to the <i>Employer</i> for all matters arising under or in connection with this contract, other than excluded matters, is limited to:	The Total of the Prices
X18.5	The <i>end of liability date</i> is	5 years after Completion of the whole of the works

Z ***Additional conditions of contract are:***

Z2 **Additional clause relating to Performance Bonds and/or Guarantees**

Z2.1	The Performance Guarantee under X13 above shall be an irrevocable, on-demand performance guarantee, to be issued exactly in the form of the Pro Forma documents provided for this purpose under C1.3 (Forms of Securities), in favour of the <i>Employer</i> by a financial institution reasonably acceptable to the <i>Employer</i>.
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Z3 Additional clauses relating to Joint Venture

Z3.1

Insert the additional core clause 27.5

27.5. In the instance that the *Contractor* is a joint venture, the *Contractor* shall provide the *Employer* 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 Date.

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 constituent's 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 liabilities to the *Employer* to Provide the Works;**
 - ii. **identification of the lead partner in the joint venture confirming the authority of the lead partner to bind the joint venture through the *Contractor's* representative;**



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iii. Identification of the roles and responsibilities of the constituents to provide the Works.

- Financial requirements for the Joint Venture:

iv. 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;

v. the names of the auditors and others, if any, who will provide auditing and accounting services to the Joint Venture.

Z3.2

Insert additional core clause 27.6

27.6. The *Contractor* shall not alter its composition or legal status of the Joint Venture without the prior approval of the *Employer*.

Z4 Additional obligations in respect of Termination

Z4.1

The following will be included under core clause 91.1:

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 (R22)
- repudiated this Contract (R23)



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Z4.2 Termination Table

The following will be included under core clause 90.2 Termination Table as follows:

Amend "A reason other than R1 – R21" to "A reason other than R1 – R23"

Z4.3

Amend "R1 – R15 or R18" to "R1 – R15, R18, R22 or R23."

**Z5 Right Reserved by the
Employer to Conduct Vetting
through SSA**
Z5.1

The *Employer* reserves the right to conduct vetting through State Security Agency (SSA) for security clearances of any *Contractor* who has access to National Key Points for the following without limitations:

1. Confidential – this clearance is based on any information which may be used by malicious, opposing or hostile elements to harm the objectives and functions of an organ of state.
2. Secret – clearance is based on any information which may be used by malicious, opposing or hostile elements to disrupt the objectives and functions of an organ of state.
3. Top Secret – this clearance is based on information which may be used by malicious, opposing or hostile elements to neutralise the objectives and functions of an organ of state.

**Z6 Additional Clause Relating to
Collusion in the Construction
Industry**
Z6.1

The contract award is made without prejudice to any rights the *Employer* may have to take appropriate action later with regard to any declared tender rigging including blacklisting.

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Z7 Protection of Personal Information Act

Z7.1

The *Employer* and the *Contractor* are required to process information obtained for the duration of the Agreement in a manner that is aligned to the Protection of Personal Information Act.

C1.2 Contract Data

Part two - Data provided by the *Contractor*

The tendering *Contractor* is advised to read both the NEC3 Engineering and Construction Contract - June 2005 (with amendments June 2006 and April 2013) and the relevant parts of its Guidance Notes (ECC3-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 156 to 158 of the ECC3 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>Contractor</i> is (Name):	
	Address	
	Tel No.	
	Fax No.	
11.2(8)	The <i>direct fee percentage</i> is	
	The <i>subcontracted fee percentage</i> is	%
11.2(18)	The <i>working areas</i> are the Site and	
24.1	The <i>Contractor's</i> key persons are:	
	1 Name:	
	Job:	
	Responsibilities:	
	Qualifications:	
	Experience:	
	2 Name:	
	Job	
	Responsibilities:	
	Qualifications:	
	Experience:	

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		CV's (and further key persons data including CVs) are appended to Tender Schedule entitled.		
11.2(14)	The following matters will be included in the Risk Register			
31.1	The programme identified in the Contract Data is			
B	Priced contract with activity schedule			
11.2(21)	The activity schedule is in			
11.2(31)	The tendered total of the Prices is	(in figures) (in words), excluding VAT		
	Data for Schedules of Cost Components	<i>Note "SCC" means Schedule of Cost Components starting on page 60 of ECC, and "SSCC" means Shorter Schedule of Cost Components starting on page 63 of ECC.</i>		

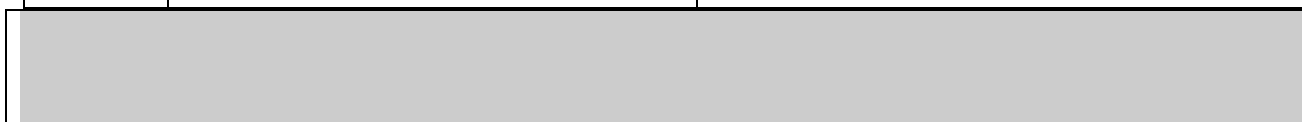
B	Priced contract with bill of quantities	Data for the Shorter Schedule of Cost Components		
41 in SSCC	The percentage for people overheads is:	%		
21 in SSCC	The published list of Equipment is the last edition of the list published by			
	The percentage for adjustment for Equipment in the published list is	% (state plus or minus)		
22 in SSCC	The rates of other Equipment are:	Equipment	Size or capacity	Rate

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61 in SCCC	The hourly rates for Defined Cost of design outside the Working Areas are	Category of employee		Hourly rate
62 in SCCC	The percentage for design overheads is	%		
63 in SCCC	The categories of design employees whose travelling expenses to and from the Working Areas are included in Defined Cost are:			




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Pro forma Parent Company Guarantee (for use with Option X4)
(to be reproduced exactly as shown below on the letterhead of the Contractor's Parent Company)

Transnet SOC Ltd
C/o Transnet National Ports Authority
Transnet Corporate Centre
138 Eloff Street
Braamfontein
Johannesburg
2000

Date:

Dear Sirs,

Parent Company Guarantee for Contract No.

With reference to the above numbered contract made or to be made between

{Transnet SOC Ltd, Registration No. 1990/000900/30}

(the *Employer*) and

{Insert registered name and address of the Contractor}

(the *Contractor*), for

{Insert details of the works from the Contract Data}

(the *works*).

I/We the undersigned

on behalf of the *Contractor's*
parent company

of physical address

and duly authorised thereto do hereby unconditionally guarantee to the *Employer* that the *Contractor* shall Provide the Works in accordance with the above numbered Contract.

1. If for any reason the *Contractor* fails to Provide the Works, we hereby agree to cause to Provide the Works at no additional cost to the *Employer*.
2. If we fail to comply with the terms of this Deed of Guarantee, the *Employer* may itself procure such performance (whether or not the Agreement be formally determined). The *Employer* is to notify us and we shall indemnify the *Employer* for any additional cost or expense it incurs.
3. Our liability shall be as primary obligor and not merely as surety and shall not be impaired or discharged by reason of any arrangement or change in relationship made between the *Contractor* and the *Employer* and/or between us and *Contractor*; nor any alteration in the obligations undertaken by the *Contractor* or in the terms of the Agreement; nor any indulgence, failure, delay by you as to any matter; nor any dissolution or liquidation or such other analogous event of the *Contractor*.
4. The *Employer* shall not be obliged before taking steps to enforce the terms of this Deed of Guarantee to obtain judgement against the *Contractor* in any court or other tribunal, to make or file any claim in liquidation (or analogous proceedings) or to seek any remedy or proceed first against the *Contractor*.

**TRANSNET NATIONAL PORTS AUTHORITY**

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5. This Deed of Guarantee shall be governed by and construed in accordance with the laws of the Republic of South Africa and we hereby submit to the non-exclusive jurisdiction of any Supreme Court of South Africa with competent jurisdiction.

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Signed at _____ on this _____ day of _____ 20__

Signature(s)	
Name(s) (printed)	
Position in parent company	
Signature of Witness(s)	
Name(s) (printed)	

ANNEXURE B

Certificate of Insurance

T2.2-25: Insurance provided by the *Contractor*

Clause 84.1 in NEC3 Engineering & Construction Contract (June 2005)(amended June 2006 and April 2013) requires that the *Contractor* provides the insurance stated in the insurance table except any insurance which the *Employer* is to provide as stated in the Contract Data.

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

Insurance against (See clause 84.2 of the ECC)	Name of Insurance Company	Cover	Premium
Liability for death of or bodily injury to employees of the <i>Contractor</i> arising out of and in the course of their employment in connection with this contract			
Motor Vehicle Liability Insurance comprising (as a minimum) "Balance of Third Party" Risks including Passenger and Unauthorised Passenger Liability indemnity with a minimum indemnity limit of R5 000 000.			
Insurance in respect of loss of or damage to own property and equipment.			
(Other)			

ANNEXURE C

List of Transnet Guarantee Issuers



TRANSNET NATIONAL PORTS AUTHORITY

TENDER NUMBER: TNPA/2024/09/0008/77882/RFP - FOR DELIVERY, REMOVAL, REPLACEMENT, AND COMMISSIONING OF PIPELINE INCLUDING ALL THE ACCESSORIES ON THE 225M LONG JETTY PIPEWORK AT TRANSNET NATIONAL PORTS AUTHORITY (TNPA), SAND BYPASS IN PORT OF NGQURA (PoN) FOR A ONCE OFF PERIOD.

APPROVED TRANSNET GUARANTEE ISSUERS

ABSA BANK LIMITED GROUP
BANK OF AMERICA, N.A
BANK OF CHINA LIMITED GROUP
BARCLAYS BANK PLC GROUP
BESA MEMBERS
BNP PARIBAS GROUP
CHINA CONSTRUCTION BANK GROUP
CITIBANK GROUP
CREDIT SUISSE GROUP
DEUTSCHE BANK GROUP
FIRSTRAND BANK LIMITED GROUP
GOLDMAN SACHS INTERNATIONAL
HSBC HOLDINGS GROUP
INVESTEC BANK LTD
JPMORGAN CHASE BANK GROUP
MORGAN STANLEY
MACQUARIE BANK LIMITED
NEDBANK LTD
SOCIETE GENERALE BANK GROUP
STANDARD BANK GROUP
STANDARD CHARTERED BANK GROUP
AFRICAN BANK LTD
BIDVEST BANK LTD
CAPITEC BANK LTD
DISCOVERY BANK LTD
GRINDROD BANK LTD
ABN AMRO Bank N.V.
BANCO BILBAO VIZCAYA ARGENTARIA S.A
Coöperative Rabobank U.A.
CREDIT AGRICOLE CORPORATE AND INVESTMENT BANK
DANSKE BANK
INDUSTRIAL DEVELOPMENT CORPORATION
ING Bank N.V.
KBC BANK
LANDESBANK BADEN-WUERTTEMBERG
MIZUHO BANK, LTD
NATIONAL AUSTRALIA BANK LIMITED

APPROVED TRANSNET GUARANTEE ISSUERS

SKANDINAVISKA ENSKILDA BANKEN
SUMITOMO MITSUI BANKING CORPORATION
SVENSKA HANDELSBANKEN AB
AIG SOUTH AFRICA
CONSTANTIA INSURANCE LTD
CREDIT GUARANTEE INSURANCE CORPORATION
GUARDRISK INSURANCE
HOLLARD INSURANCE COMPANY
INFINITY INSURANCE
LOMBARD INSURANCE GROUP
MUTUAL & FEDERAL
RENASA INSURANCE COMPANY
SANTAM
BRYTE INSURANCE COMPANY LTD
ZURICH INSURANCE PLC

THE CONTRACT

Part C2

**TRANSNET NATIONAL PORTS AUTHORITY**

TENDER NUMBER: TNPA/2024/09/0008/77882/RFP

DESCRIPTION OF WORKS: SUPPLY, DELIVERY, REMOVAL, REPLACEMENT, AND COMMISSIONING OF PIPELINE INCLUDING ALL THE ACCESSORIES ON THE 225M LONG JETTY PIPEWORK AT TRANSNET NATIONAL PORTS AUTHORITY (TNPA), SAND BYPASS IN PORT OF NGQURA (PoN).

PART 2: PRICING DATA

Document reference	Title: Supply, delivery, removal, replacement, and commissioning of pipeline including all the accessories on the 225m long Jetty pipework at Transnet National Port Authority, Sand Bypass in Port of Ngqura.	No of pages
C2.1	Pricing instructions: Option A	3
C2.2	Activity Schedule	2



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DESCRIPTION OF WORKS: SUPPLY, DELIVERY, REMOVAL, REPLACEMENT, AND COMMISSIONING OF PIPELINE INCLUDING ALL THE ACCESSORIES ON THE 225M LONG JETTY PIPEWORK AT TRANSNET NATIONAL PORTS AUTHORITY (TNPA), SAND BYPASS IN PORT OF NGQURA (PoN).

C2.1 Pricing Instructions: Option A

1. The *conditions of contract*

1.1. How the contract prices work and assesses it for progress payments

Clause 11 in NEC3 Engineering and Construction Contract, June 2005, (with amendments June 2006 and April 2013) (ECC) Option A states:

Identified 11 and defined 11.2 terms

(20) The Activity Schedule is the *activity schedule* unless later changed in accordance with this contract.

(22) Defined Cost is the cost of the components in the Shorter Schedule of Cost Components whether work is subcontracted or not excluding the cost of preparing quotations for compensation events.

(27) The Price for Work Done to Date is the total of the Prices for

- each group of completed activities and
- each completed activity which is not in a group

A completed activity is one which is without Defects which would either delay or be covered by immediately following work.

(30) The Prices are the lump sums for each of the activities on the Activity Schedule unless later changed in accordance with this contract.

1.2. Measurement and Payment

1.2.1 The Activity Schedule provides the basis of all valuations of the Price for Work Done to Date, payments in multiple currencies, price adjustments for inflation and general progress monitoring.

1.2.2 The amount due at each assessment date is based on **completed activities and/or milestones** as indicated on the Activity Schedule.

1.2.3 The Activity Schedule work breakdown structure provided by the *Contractor* is based on the Activity Schedule provided by the *Employer*. The activities listed by the *Employer* are the minimum activities acceptable and identify the specific activities which are required to achieve Completion. The activity schedule work breakdown structure is compiled to the satisfaction of the *Project Manager* with any additions and/or amendments deemed necessary.

1.2.4 The *Contractor's* detailed Activity Schedule summates back to the Activity Schedule provided by the *Employer* and is in sufficient detail to monitor completion of activities related to the Accepted Programme in order that payment of completed activities may be assessed.

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- 1.2.5 The short descriptions in the Activity Schedule are for identification purposes only. All work described in the Works Information is deemed included in the activities.
- 1.2.6 The Activity Schedule is integrated with the Prices, Accepted Programme and where required the forecast rate of payment schedule.
- 1.2.7 Activities in multiple currencies are separately identified on both the Activity Schedule and the Accepted Programme for each currency.
- 1.2.8 The tendered total of the prices as stated in the Contract Data is obtained from the Activity Schedule summary. The tendered total of the prices includes for all direct and indirect costs, overheads, profits, risks, liabilities and obligations relative to the Contract.

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C2.2 Activity Schedule

The Tenderer details his Activity Schedule below or makes reference to his Activity Schedule and attaches it to this schedule.

The details given below serve as guidelines only and the Tenderer may split or combine the activities to suit his particular methods.

Activity No	Activity Description	Unit	Qty	Rate	Price of each activity
Section A - Preliminaries and General					
A1	Fixed related Preliminaries and General	sum	1		
A2	Time related Preliminaries and General	sum	1		
A3	Health, Safety and Environment requirements	sum	1		
Sub Total					
Section B - Supply of Polyurethane Lined Steel Jetty pipelines.					
B1	200NB Steel (ASTM A106), 10mm PU liner Fluidization pipeline	sum	1		
B2	200NB Steel (ASTM A106), 15mm PU liner Intermediate pipeline	sum	1		
B3	350NB Steel (ASTM A106), 10mm PU liner Motive pipeline	sum	1		
Sub Total					

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Section C – Blanking off pipes					
C1	Blanking-off of fluidization pipelines complete with all accessories	sum	1		
C2	Blanking-off intermediate pipelines complete with all accessories	Sum	1		
C3	Blanking-off motive pipelines complete with all accessories	sum	1		
Sub Total					
Section D – Jet Pumps					
D1	Temporary removal Jet pumps	sum	1		
D2	Reinstallation of Jet pumps	sum	1		
Sub Total					
Section E – Removal of Jetty pipelines and accessories and storage					
E1	Removal of Jetty Fluidization pipeline, accessories (to be stored within the port precinct) and transportation of the pipes to a storage facility within the port precinct	sum	1		
E2	Removal of Jetty Intermediate pipeline, accessories (to be stored within the port precinct) and transportation of the pipes to a storage facility within the port precinct	sum	1		

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E3	Removal of Jetty Motive pipeline, accessories (to be stored within the port precinct) and transportation of the pipes to a storage facility within the port precinct	sum	1		
E4	Removal of Sand Bypass pipes in 4 booster stations including all accessories forming part of the pipe network allocated at various location within the Port, and transportation of pipes to a storage facility within the port precinct	sum	1		
Sub Total					
Section F – Coating					
F1	Coating of pipes, flanges and all accessories complete (Corrosion protection for marine environment) according to ISO or ASTM standards.	sum	1		
Sub Total					
Section G – Replacement of Jetty pipelines and accessories					
G1	Replacement of the Jetty Fluidization pipeline including all accessories complete.	sum	1		
G2	Replacement of the Jetty Intermediate pipeline including all accessories complete.	sum	1		
G3	Replacement of the Jetty Motive pipeline including all accessories complete.	sum	1		

**TRANSNET NATIONAL PORTS AUTHORITY**

TENDER NUMBER: TNPA/2024/09/0008/77882/RFP

DESCRIPTION OF WORKS: SUPPLY, DELIVERY, REMOVAL, REPLACEMENT, AND COMMISSIONING OF PIPELINE INCLUDING ALL THE ACCESSORIES ON THE 225M LONG JETTY PIPEWORK AT TRANSNET NATIONAL PORTS AUTHORITY (TNPA), SAND BYPASS IN PORT OF NGQURA (PoN).

G4	Replacement of Sand Bypass pipes in 4 booster stations including all accessories forming part of the pipe network allocated at various location within the Port	sum	1		
Sub Total					
Section H – Sand Bypass tonnage operations					
H1	Provide and operate temporary discharge solution to transport max 1200 tons/day of sand from the Western Breakwater (sand bypass) to the Eastern Breakwater (ACB Building side).	sum	1		
Sub Total					
Section I – Supply and Installation of Pipeline valves and Accessories					
I1	Supply of Gate Valves complete with all accessories to join with new pipeline.	sum	1		
I2	Installation of Gate Valves complete with all accessories to join with new pipeline.	sum	1		
I3	Supply of Pressure valves complete with all accessories to join with new pipeline.	sum	1		
I4	Installation of Pressure valves complete with all accessories to join with new pipeline.	sum	1		
Sub Total					
Section J – Electrical components in the Jetty pipeline					
J1	Safely remove for re-use all electrical components and wiring.	sum	1		

**TRANSNET NATIONAL PORTS AUTHORITY**

TENDER NUMBER: TNPA/2024/09/0008/77882/RFP

DESCRIPTION OF WORKS: SUPPLY, DELIVERY, REMOVAL, REPLACEMENT, AND COMMISSIONING OF PIPELINE INCLUDING ALL THE ACCESSORIES ON THE 225M LONG JETTY PIPEWORK AT TRANSNET NATIONAL PORTS AUTHORITY (TNPA), SAND BYPASS IN PORT OF NGQURA (PoN).

J2	Installation of electrical components and wiring that have been removed.	sum	1		
J3	Installation of electric wiring.	sum	1		
J4	Reconfiguration of the Sand Bypass system into PLC and SCADA	Sum	1		
Sub Total					
Section K – Test and Commissioning the Works					
K2	Test and Commissioning	Sum	1		
Sub Total					
SECTION SUMMARY					
Section A					
Section B					
Section C					
Section D					
Section E					
Section F					
Section G					
Section H					
Section J					
TOTAL CARRIED TO FORM OF OFFER (EXCLUDING VAT):					
TOTAL:					

THE CONTRACT

Part C3

PART C3: SCOPE OF WORK

Document reference	Title: Supply, delivery, removal, replacement, and commissioning of pipeline including all the accessories on the 225m long Jetty pipework at Transnet National Port Authority (TNPA), Sand Bypass in Port of Ngqura (PoN).	No of page
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C3.2	Employer's Works Information	2
	Contractor's Works	74
Total number of pages		75

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Figure 1: Sand Bypass Jetty

SECTION 1

1 Interpretation and terminology

The following abbreviations are used in this Works Information:

Abbreviation	Meaning given to the abbreviation
AIA	Authorised Inspection Authority
BBBEE	Broad Based Black Economic Empowerment
CEMP	Construction Environmental Management Plan
CD	Compact Disc
CDR	Contractor Documentation Register
CDS	Contractor Documentation Schedule
CRL	Contractor Review Label
CSHEO	Contractor's Safety, Health, and Environmental Officer
CM	Construction Manager
DTI	Department of Trade and Industry
DGN
DWG	Drawings
EDMS
EO	Environmental Officer
HAW	Hazard Assessment Workshop
HAZOP	Hazard and Operability Study
HSSP	Health and Safety Surveillance Plan
INC	Independent Nominated Consultant
IP	Industrial Participation
IR	Industrial Relations
IPP	Industrial Participation Policy
IPO	Industrial Participation Obligation
IPS	Industrial Participation Secretariat
IRCC	Industrial Relations Co-ordinating Committee
JSA	Job Safety Analysis
CIRP	Contractor's Industrial Relations Practitioner
Native	Original electronic file format of documentation
PES	Project Environmental Specifications
PHA	Preliminary Hazard Assessment
PIRM	Project Industrial Relations Manager
PIRPMP	Project Industrial Relations Policy and Management Plan
PLA	Project Labour Agreements
PSIRM	Project Site Industrial Relations Manager
PSPM	Project Safety Program Manager
PSSM	Project Site Safety Manager
ProgEM	Programme Environmental Manager
ProjEM	Project Environmental Manager

QA	Quality Assurance
R&D	Research and Development
SANS	South African National Standards
SASRIA	South African Special Risks Insurance Association
SES	Standard Environmental Specification
SHE	Safety, Health, and Environment
SHEC	Safety, Health, and Environment Co-ordinator
SIP	Site Induction Programme
SMP	Safety Management Plan
SSRC	Site Safety Review Committee
DFFE	Department of Forestry, Fisheries, and the Environment
NEMA	National Environment Management Act
ROD	Record of Decision
TNPA	Transnet National Port Authority
PoN	Port of Ngqura
HSE	Health, Safety, and the Environment
OSHAct	Occupational Health and Safety Act No.85 of 1993 and Regulations.
PPE	Personal Protective Equipment
OPMEP	Operational Management Environment Plan
SANS	South African National Standards
SABS	South African Bureau of Standards
QC	Quality controller
ASME	American Society of Mechanical Engineer's
ANSI	American National Standards Institute
SACPCMP	Project and Construction Management Professions
SCADA	Supervisory Control and Data Acquisition
PLC	Programmable Logic Controller
Note: Contractor and service provider are used interchangeable	

2 Description of the works

2.1 Executive Overview

Port of Ngqura's Sand Bypass system (as referred to System) was constructed between September 2002 to October 2005. The System was then commissioned with a completion certificate issued in July 2007.

As part of the Port's Record of Decision (RoD), this construction was to ensure the natural movement of sand that is interrupted due to the construction of the Port; therefore, the system is designed to mimic the natural movement of sand to prevent accretion on the Western Side (South) and erosion on the Eastern (North) side of the coastline.

The annual net long-shore transport rate within the Algoa Bay is 150 000 – 200 000m³/year and assuming a sand density of 1.6tons/m³ that equates between a minimum volume of 240 000 to a maximum volume of 320 000tons/year. This amount of sand is required to be bypassed by the system from the Jetty jet pumps and pipeline through the main booster pump (B0) and other three booster station (B1, B2 and B3) to the discharge point on the Eastern side as displayed by the Supervisory Control and Data Acquisition (SCADA) in figure 3.

From its inception, the system prides itself for its 16th year of operation from the day it was commissioned and handed over to Port of Ngqura (PoN) in 2007.

Over the period:

- Mechanical components have either corroded or worn-out due the harsh environment and abrasive nature of the sand slurry being pumped by the system,
- Electrical components have worn-out, some components are obsolete, with no spares available on the market for maintenance/ replacement,
- The PLC components and field instruments have reached their life span and requires replacements and software upgrades.

Malfunctioning of the Sand Bypass System, not only in contravention of the rules and regulations set by **Department of Fisheries, Forest, and Environment** (DFFE), however severely impacting on the neighbouring developments as the sand build-up in the western side of the Port.

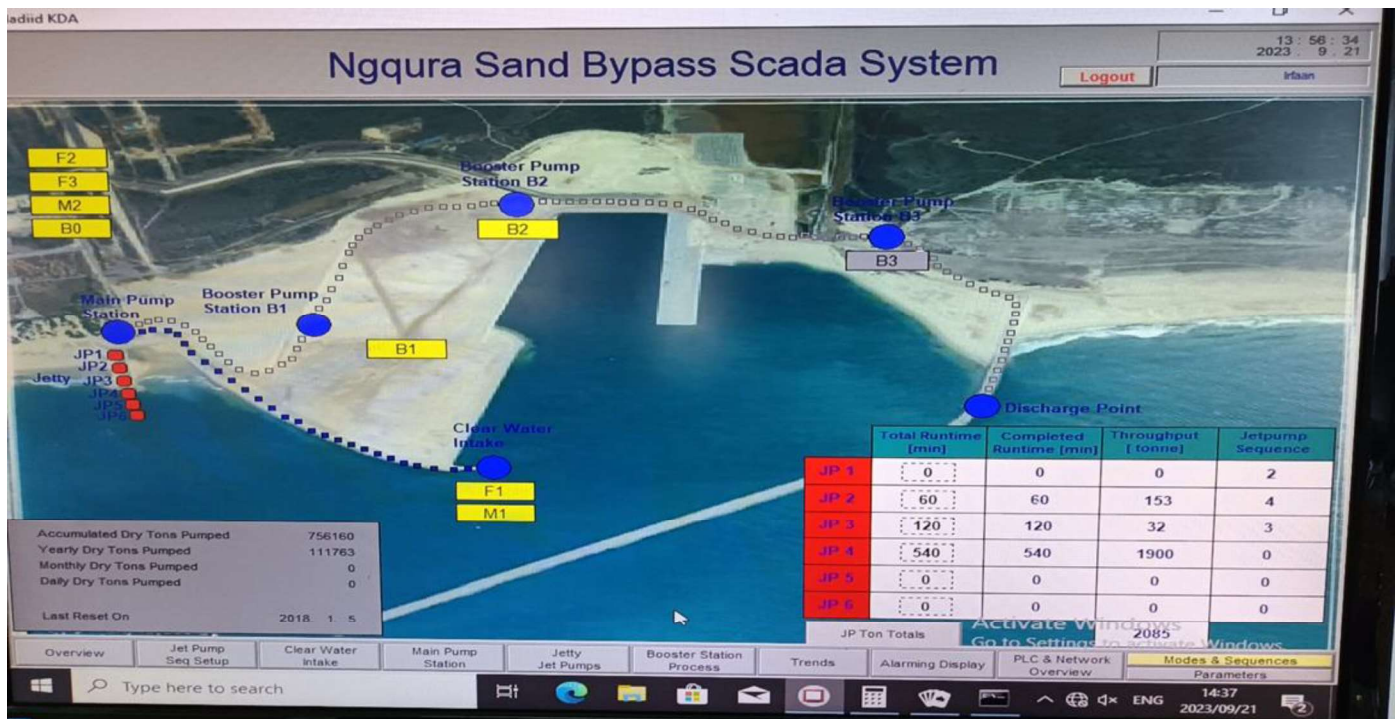


Figure 2: Sand Bypass overview as it appears on SCADA

Due to long lead times and that most of the equipment are imported, with spares (both Mechanical and Electrical) not easily available, hence it is important that we look to keeping spare parts for breakdowns.

This intervention offers an opportunity to quickly attend to breakdowns and replace worn parts to ensure maximum productivity. Additional to that, the old part is refurbished and kept as a spare owing to its working condition and financial viability.

Thus, in fact Replacement of corroded steel pipeline is critical to the system noting that most of the piping has become thin, unrepairable to an extent that sandblast and paint as part of maintenance is impossible.

Purchasing and refurbishment of components will increase the lifespan of the Sand Bypass system and further comply with the environmental requirement set by DFFE, thereby reducing the risk of penalties to TNPA by DFFE for noncompliance.

The cost of fixed dredging via a sand bypassing system is more cost effective when compared to the dredging of a sand trap as found at other Ports. Therefore, the upkeep of the current system would be advantageous to the Port in the long term. All aspects of the project will be subject to the applicable requirements of relevant legislation, particularly the National Environmental Management Act (Act 107 of 1998).



Figure 3: Access Jetty from Sand Bypass main booster station

1.1. Employer's Objectives

- 1.1.1. PoN is to ensure that the Sand Bypass System is always functional. Thus, the employer's objective is to appoint a potential service provider for the replacement of the 225m long Jetty pipeline and other exposed pipes entering and exiting the Sand Bypass main pump station through settling tank as well B1, B2 and B3 pipes.
- 1.1.2. The works that the Contractor is to perform involves construction of marine structural steel work with heavy lifting, electrical installation, and pressure equipment. Therefore safety, quality and professional accreditation in the built and construction industry is paramount.
- 1.1.3. Without derogating from any of the requirements contemplated in this document, however, the potential service provider will be required to:
 - Comply to all environmental requirements as TNPA's environment specialist may deem necessary in accordance with Transnet's rules and regulations.

- Be certified to ISO 9001: 2015 as well in the Management of Quality in accordance with ISO 3834:2005 Part 1-6, and other quality requirement specified in this document.
- Be listed CIDB 5ME/CE/ or more Qualification, and
- Be able to provide plant, machinery, and equipment suitable for the work such as mobile cranes with a rigging team.
- Have experience in marine construction and produce a portfolio of evidence in complex structural projects with accreditation in relevant codes and standards.
- Be a member of a construction regulatory body in South Africa, such as the South African Council for the Project and Construction Management Professions (SACPCMP).

1.1.4. It is therefore important that the replacement of pipeline is done with minimal impact to operations, further commissioning of works is done to ensure that once the network is handed over to the Project Manager by the service provider, PoN will not have the need of a long list of critical repairs still to be done.

1.1.5. Port Engineering Department will work closely with the TNPA's various departments to ensure that all the required governance is complied with and to ensure achieving the objectives of the sand bypass and the quality of components supplied, and the workmanship will be in accordance with the National Standards and those detailed in the scope of works.

1.1.6. The service provider shall issue a certificate of completion for all work conducted, and including:

- For any work resulted to defect from workmanship, material supplied, and any service rendered by the service provider to TNPA, that includes
- For any damages caused to Transnet property.

Note: The service provider will be liable for all cost, in which the liability period shall extend to twelve (12) months from the date stipulated in the certificate of completion.

2. Engineering Scope of Works



Figure 4: Aerial view of Sand Bypass Jetty, showing the full length of pipeline including all Jet pumps (JP1 to JP6)



Figure 5: One of the four booster stations with exposed inlet and outlet Jet pipes

2.1. Sand Bypass System Jetty Pipeline

The jetty comprises of concrete piles (see figure 3 and 4) with a permanent steel casing, concrete headstocks, and a concrete deck of precast and in situ construction. All pipework and valves are supported at deck level by precast beams. Transnet will provide relevant drawings and all other relevant information for the existing structure where the construction is going to take place.

2.1.1. The information related to the employer's scope of works is contained in:

- Employer's works information
- Technical Specification
- Drawings
- Bill of Quantities

2.1.2. The Jetty is 225m plus long. The inlet and outlet jetty pipes on main booster, settling tank, B1, B2 and B3 pipes are shown in the drawings with dimensions which will be supplied by TNPA Port of Ngqura. (See drawings below, larger drawings will be provided to the service providers during site briefing).

Drawing number	Revision	Title
256/F4/215/04	02	Jetty pipes
256/F4/215/01	04	Sand Bypass structural drawings
256/F4/225/02	05	Sand Bypass Jetty Pipework
256/F4/225/01	04	Jetty Pipework connecting
256/F4/235/01	04	Sand Bypass Booster (B1, B2, B3)
256/F4/215/02&03	03	Jetty pipes

2.1.3. The pipes are made of seamless steel pipe in accordance with ASTM A106 Grade B with polyurethane lining, flanged at 6m centres and supported as shown in figure below.



Figure 6: Three Jetty steel pipeline

- 2.1.4. The steel pipes to be changed are installed above the ground from the jetty, entering and exiting the Sand Bypass main pump station.
- 2.1.5. The portion that sits on the jetty is 225m long and comprise of 3 pipes that work together with the Genflo Sandbag jet pumps to create the slurry (mixing beach sand with water) that is transported across the port to be discharged at the eastern breakwater.
- 2.1.6. The steel pipe network connects the various pump stations of the sand bypass and is a conduit for movement of clear seawater and sand/seawater slurry from the western beach to the eastern breakwater.
- 2.1.7. **Note:** The discharge pipeline and discharge point (including all its components) are provisional work and may be omitted in its entirety at TNPA's discretion. If required, the temporary discharge will be required to be positioned to within the outer basin reclamation

within 100m of the Main Pump station. The discharge point may be required to be moved periodically within this area to prevent excessive accretion at the discharge point.

- 2.1.8. The Employer grants the Contractor a licence to use the copyright in design data presented to the Contractor only for the purpose of the works (and the Contractor's obligation under paragraph 2.2 of the Employer's Works Information).

2.2. Parts of the Works which the Contractor is to Design

- 2.2.1. The Contractor is to design the following parts of the works:
- None, unless otherwise identified during the undertaking of the works in which the Project Manager will have to be informed and approve the design before commencement.
- 2.2.2. The Contractor is responsible in his design for the overall integration of the design of the works with the design of the Employer as stated under 2.1 Sand Bypass System Jetty Pipeline above for the following parts of the works:
- Whenever applicable, as the PM may advise and approve.
- 2.2.3. Unless expressly stated to form part of the design responsibility of the Employer as stated under 2.1 Sand Bypass System Jetty Pipeline above and whether or not specifically stated to form part of the design responsibility of the Contractor under this paragraph 2.2, all residual design responsibility and overall responsibility for the total design solution for the works rests with the Contractor.

2.3. Procedure for Submission and Acceptance of Contractor's Design

- 2.3.1. The Contractor shall address the following procedures:
- In the event that a design is needed, the Contractor shall:
- Prepare design drawings, calculations, and any other relative information where designs are concerned.
 - Prepare and complete a design report.
 - Submit drawings and report for approval to the Project Manager
 - Once TNPA has reviewed all drawings and report, the Contractor shall arrange a review meeting for discussion and agreements on all inputs before the final approval of the design pack.

- Contractor shall submit the final signed design pack for approval by TNPA Engineers.

2.3.2. The Contractor undertakes design safety reviews with TNPA Engineers, Project Manager and/or any other personnel as TNPA may deem necessary.

2.3.3. Documentation Submission:

In undertaking the 'Works' (including all incidental services required), the Supplier shall conform and adhere to the requirements of the 'Contractor Document Submittal Requirements' Standard.

2.4. Review and Acceptance of Contractor Documentation

- The Contractor submits documentation as the 'Works Information' requires to the Project Manager for review and acceptance.
- In undertaking the 'Works' (including all incidental services required), the Supplier shall conform and adhere to the requirements of the 'Contractor Document Submittal Requirements' Standard.

2.5. Pipeline Scope of Work

2.5.1. Service provider will supply, deliver pipes to the Sand Bypass at TNPA in PoN.

2.5.2. Remove the old pipeline above the ground across the 225m plus long jetty (see figure 1, 3, 4 and 5), the exposed pipes entering the settling tank and exiting the main booster pump station, B1, B2 and B3 pipes.



Figure 7: Piping from the settling tank side

- 2.5.3. Before and after the work, the service provider will be required to disconnect and reconnect the Sand Bypass system, in particular the Jetty into the SCADA and reconfigure the Programmable Logic Controller (PLC) for the full functioning of the Sand Bypass System.
- 2.5.4. The removal and reinstallation will include all connections linked to the pipeline such as valves, actuators, electrical wiring and possibly all six (6) jet pumps on the jetty.
- 2.5.5. A temporary discharge pipeline and discharge point may need to be constructed and maintained to enable the Sand Bypass system to operate for the duration of the works. This is required immediately after commencement of the supply, and delivery of pipes to PoN until the final commission of all works. The service provider will be required to safely remove all accessories to the pipelines, i.e., valves, actuators, electrical cables, and any other components. Upon completion, the service provider will be required to reinstall all the components, reconfigure into the Sand Bypass system before commissioning. Replace any damaged components.

- 2.5.6. Service provider shall ensure that all welding and joints are verified by an approved welding inspector with a minimum Level 1 or an authorized inspection authority who shall issue a signed verification certificate for the works, that the piping complies with relevant standards and will be safe when properly used.
- 2.5.7. Once the installation of new pipeline (including joints and other accessories) is completed, service provider will commission the work ensuring the Sand Bypass system is fully functional.
- 2.5.8. This work is categorised as marine construction work with marine structures, mechanical, electrical, civil, and building works. That means the work will require excavation, heavy lifting, major hazard installation many other construction vehicles.
- 2.5.9. The work is going to take place at Transnet National Port Authority (TNPA), at Port of Ngqura (PoN) in Sand Bypass. Upon completion of the works, TNPA will allocate a location where the service provider will place the old pipes and rubbles coming out of the construction work.
- 2.5.10. The disposal of the old pipes will be achieved through reverse engineering as specified by a Transnet National Port Authority representative.
- 2.5.11. The potential service provider shall:
- Solely specialize in marine steel construction work and be able to produce a portfolio of evidence in complex structural projects with accreditation in relevant codes and standards. Additionally, be a member of a construction regulatory body in South Africa, such as the South African Council for the Project and Construction Management Professions (SACPCMP).
 - Ensure all engineering spares brought abroad such as pipes, fasteners, etc are stamped with ASME/ANSI code of standards. The service provider must also be certified to ISO 9001: 2015 as well the Management of Quality in accordance with ISO 3834:2005 Part 1-6, and to be listed CIDB 5ME/CE or more Qualification.
 - Attend a compulsory site meeting/briefing.
 - Implement management procedures as guided by TNPA HSE department to minimize the environment impact during the works.

2.6. The Contractor's designs (where required) and works complies with the following Specifications:

- The pipes are made of seamless steel pipe in accordance with ASTM A106 Grade B with polyurethane lining, flanged at 6m centres and supported. (See Drawing No's

256/F4/215/01, 02, 03, & 04. Drawing No's 256/F4/225/01 & 02, Drawing No's 256/F4/235/01 and Drawing No's 256/F4/255/01).

- All pipework and valves are supported at deck level by precast beams.
- Pipe details as follows:

Pipe Description	Material	Length (m)
Fluidization pipeline	200NB Steel (ASTM A106), 10mm PU liner	225+
Motive pipeline	350NB Steel (ASTM A106), 10mm PU liner	225+
Intermediate pipeline	200NB Steel (ASTM A106), 15mm PU liner	225+

- Other specification for the pipes including but not limited to fasteners, connections, and bellows are as follows:

Steel pipe:	SABS 62
Electric welded low carbon steel pipes:	SANS 719
Seamless steel pipe:	ASTM A106
Stainless steel pipe:	ASTM A312
HDPE Specification (if required)	SABS 533
Welding of thermoplastics - Welding process:	SANS 10268
Pipe Holderbats:	SANS 1209
Fabricated flanged steel pipe work:	SANS 1476
Circular flanges - pipes, valves, and fittings (PN designated):	BS EN 1092

Polyurethane Lined Steel Pipes

- All steel pipes are to be lined internally with polyurethane (PU) to the thickness specified and the polyurethane lining shall extend over the flange faces.
- The steel pipes shall be externally coated with corrosion protection system "System C."

Fittings and Specials

- All bolts, washers and nuts shall generally be of the same material as the flanges on which they are used except in the case of the rubber hoses which form part of the jetty pipework when it shall be stainless steel (Grade 316) unless otherwise specified.
- Flanges shall be drilled to BS EN 1092: Part 1 unless otherwise specified.

- Specials shall be of the same material as the pipe or hose to which they are connected unless otherwise specified.

Joining Materials

- Joining materials shall be as shown in the drawings.
- In general, the following shall apply for the different types of pipes:



Figure 8: Steel pipeline connection

Stainless Steel on stainless steel

- Welded on flanges (Grade 316L) with approved gaskets and stainless-steel bolts, washers, and nuts (Grade 316)

Steel on steel

- Welded on flanges with approved gaskets and stainless-steel bolts, washers and nuts suitable insulation material between the stainless steel and the mild steel pipe.
- Where polyurethane lined steel pipe (or stainless-steel pipe) butts with Nordbak Nordwear lined steel pipe (or stainless-steel pipe), the polyurethane lining shall be provided with a

1:10 transition slope to ensure matching internal diameters of adjoining pipe sections to a permissible tolerance of $\pm 1\text{mm}$.



Figure 9: Pipeline with gate valve and actuator

2.7. Quality Requirements

- The Contractor shall ensure that all contractual deliverables required to be executed and completed are given due consideration to meet the client's Technical Specifications, Drawings and General Quality Requirements for Contractors and Suppliers (**TNPA-QUAL-REQ-014.1**).
- The Contractor's Quality Management System (QMS) shall conform with the requirements of ISO 9001:2015 to ensure and demonstrate that material, workmanship, procedures, and services conform to the specified requirements.

- The Contractor submits his Quality documents to the Employer as part of his programme under ECC Clause 31.2 to include details of:

2.7.1.1. Quality Manual of the organisation that is aligned to ISO 9001:2015 QMS requirements.

2.7.1.2. Project Quality Plan shall be project specific and be aligned to the TNPA-QUAL-REQ-014.1_General Quality Requirements for Contractors and Suppliers.

2.7.1.3. CV of Quality Officer supplemented by Qualification - Quality diploma / Technical diploma and ISO 9001:2015 Quality Management System training certificates (Implementation of QMS and Internal Auditing). The Quality Officer MUST have a minimum of 3 years' quality experience in Construction and Fabrication projects.

2.7.1.4. Quality Control Plans shall be in line with the scope of works detailing the Engineering works:

- Civil
- Structural
- Mechanical
- Electrical
- Marine

2.7.1.5. These QCP's shall identify all inspections as detailed in the scope of works together with other tests and verifications required to demonstrate that the works comply with the scope of works, specifications, and drawings.

2.7.2. **Project Quality Plan**

- The Project Quality Plan (PQP) shall outline the quality strategy, methodology, quality resource allocation, Quality Assurance and Quality Control co-ordination activities to ensure that the scope meet the standards stated in the Scope Information.
- The Contractor's PQP shall provide a description of how documents provided by the Employer to the Contractor are to be managed. The Contractor develops and maintains a comprehensive register of documents that will be generated throughout the contract including all quality related documents as part of its Quality Plan.

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

2.7.3. Quality Manual

A copy of the Contractor's Quality Manual will be requested for review by the Employer followed, by a Quality Management Systems (QMS) audit at the Contractor's Head Office to obtain evidence that a satisfactory quality management system is being maintained.

2.7.4. Quality Officer

The Contractor shall nominate a suitably experienced quality representative as referenced in item 4 above. The Quality representative will be responsible for ensuring that the PQP requirements are implemented on site. The Contractor shall submit the CV and qualifications / certificates of his nominated quality representative for the Project Manager's review and approval.

2.7.5. Quality Control Plan

- 2.7.5.1. The Contractor shall provide a Quality Control Plan (Inspection and Test Plan) specifying his proposed quality control activities for the entire scope of supply and scope of works. The Quality Control Plan shall reference the procedures, codes and standards which apply to the listed activities, the acceptance criteria, the records to be produced and similarly it shall incorporate all Sub-contractors and supplier's activities. The Quality Control Plan shall be prepared in the Contractors / Suppliers standard format.
- 2.7.5.2. Deviations from this Quality Control Plan may only be permitted following acceptance in writing by the Engineer and/or the appointed Third-Party Inspection Authority.
- 2.7.5.3. The Contractor shall not undertake any work in advance of the review and acceptance of the Quality Control Plan without the written consent of Transnet.
- 2.7.5.4. During the review of the Quality Control Plan / Inspection and Test Plan, Inspection and Test intervention points will be included by Transnet and, where applicable, the Third-Party Inspection Authority to indicate their intended monitoring during manufacturing, fabrication, and installation.

2.7.5.5. The Contractor / Supplier shall ensure that any work subcontracted will be covered by Quality Control Plans / Inspection and Test Plans generated by the relevant Sub-contractor or Supplier.

2.7.6. **Subcontractor**

The Contractor shall also ensure that all Sub-contractors are suitably qualified and experienced to carry out the work for which they have been sub-contracted. The Employer may, at own discretion, require a Quality Audit of sub-contractor(s) to ensure that the sub-Contractor(s) have the necessary management, facilities, skilled staff, and quality control facilities to carry out the Works to ensure compliance with the Works Information. The Contractor shall accept full responsibility for the quality of his sub-contractor(s) work and of materials used, irrespective of any quality surveillance that may be carried out by the Employer or his representative.

2.7.7. **Site Facilities and temporary offices**

The service provider shall provide its facilities. All temporary connection or installation in terms of electrical power and water supply charges will be levied against the service provider in accordance with Metro and municipality rates. No external service provider shall temper with TNPA's infrastructure without a written approval from the Project Manager or the relevant TNPA's Senior Engineer responsible for the Port of Ngqura's legal compliance in accordance with Occupational Health and Safety Act No.85 of 1993 and Regulations.

2.8. **Use of Contractor's design**

2.8.1. The Contractor grants the Employer a licence to use the copyright in all design data presented to the Employer in relation to the **supply, delivery, removal, replacement, and commissioning of pipeline which include all the accessories on the 225m long Jetty pipework at TNPA), Sand Bypass in PoN** for any purpose in connection with the construction, re-construction, refurbishment, repair, maintenance and extension of the **supply, delivery, removal, replacement, and commissioning of pipeline which include all the accessories on the 225m long Jetty pipework** with such licence being capable of transfer to any third party without the consent of the Contractor.

2.8.2. The Contractor vests in the Employer full title guarantee in the intellectual property and copyright in the design data created in relation to the works as follows:

- The supply, delivery, removal, replacement, and commissioning of pipeline which include all the accessories on the 225m long Jetty pipework at TNPA), Sand Bypass in PoN.

2.9. **Design of Equipment**

- 2.9.1. The Contractor submits his design details for the following categories of his proposed principal Equipment to the Project Manager for his information only.
- 2.9.2. All Equipment designs for use in conducting the supply, delivery, removal, replacement, and commissioning of pipeline which include all the accessories on the 225m long Jetty pipework at TNPA), Sand Bypass in PoN will be supplied by TNPA. However, any modifications to any of the pipes for purposes of improving strength, efficiency in project, challenges with material from supplier or any modifications necessary for ensuring a successful project must be approved by TNPA.

2.10. Equipment required to be included in the works

- 2.10.1. None

2.11. As-built drawings, operating manuals, and maintenance schedules

- 2.11.1. The Contractor provides the following:

- All necessary equipment for the purpose of this work, such equipment must comply with all relevant standards incorporated in the Occupational health and Safety Act and Regulations.
- Service provider shall make provision for endurance period and personnel to attend to any defects resulted from the work conducted and any part or item supplied.
- Service provider to supply TNPA with all relevant drawings and maintenance plans for the works.
- All imported pressure equipment must be stamped by an authorised manufacturer in compliance with full ASME code of construction and comply with all the Pressure equipment regulations.

- 2.11.2. And any other imported equipment used in the execution of the works shall be stamped by an authorized manufacturer, be calibrated, and tested in line with applicable SANS standards where applicable.

- 2.11.3. As Built/Final Documentation

In undertaking the 'Works' (including all incidental services required), the Supplier shall conform and adhere to the requirements of the 'Contractor Document Submittal Requirements' Standard.

2.11.4. Installation, Maintenance and Operating Manuals and Data Books

In undertaking the 'Works' (including all incidental services required), the Supplier shall conform and adhere to the requirements of the 'Data Books and Manuals' Standard included in Annexure 10 (Refer DOC-STD-0001) and the 'Contractor Documentation Submittal Requirements' Standard included in Annexure 1 (Refer to DOC-STD-0001).

3. Construction

3.1. Temporary works, Site services & construction constraints

3.1.1. Employer's Site entry and security control, permits, and Site regulations.

- Access is gained through security personnel at the entrance of PoN via the N2 at Neptune Road. Before commencement of any work, an arrangement will need to be made with the security control having submitted all the particulars of the service provider's personnel as TNPA security will advise. Access will also be permitted based on valid/accepted medical status for all personnel seeking to enter PoN, free from any kind of intoxication, necessary applicable personal protective equipment, induction slip (issued by HSE Department), and access permit for the duration of the works as granted by HSE. All plant and other relative vehicles must be roadworthy as recognised by the TNPA security control. Service providers are required to adhere to the rules and regulations of TNPA.

3.1.2. The Contractor complies with the following:

- Submits HSE file, upon approval the HSE Department will arrange for induction and thereafter prepare a site access on an agreed duration with the Project Manager. This will allow the service provider to be issued with a temporarily permit to access PoN. **Note: HSE will provide the relevant checklist of its requirement and any other relevant** requirements of the Employer.

3.1.3. Restrictions to access on Site, roads, walkways, and barricades:

- All restrictions at the Port are in accordance with HSE department as stipulated in the HSE file requirements. Additional to that will be covered on induction and other restrictions will be communicated by the PM.

3.1.4. The Contractor complies with the following:

- Submits HSE file, upon approval the HSE Department will arrange for induction and thereafter prepare a site access on an agreed duration with the Project Manager. This will allow the service provider to be issued with a temporarily permit to access PoN. Note: HSE will provide the relevant checklist of its requirement.
- The service provider shall only conduct work in the designated areas and remain within those identified areas for the duration of the works throughout the day.

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

- Restrictions and hours of work may apply on some Sites. It is very important that the Contractor keeps records of his people on Site, including those of his Subcontractors which the Project Manager or Supervisor have access to at any time. These records may be needed when assessing compensation events.
- The Contractor keeps daily records of his people engaged on the Site and Working Areas (including Subcontractors) with access to such daily records available for inspection by the Project Manager at all reasonable times.
- The Contractor complies with the CEMP, SES and PES in the construction of the works, all as described under paragraph 1.3 of C3.1 Employer's Works Information.

3.1.6. The Contractor complies with the following hours of work for his people (including Subcontractors) employed on the Site:

- TNPA working hours are from 07:45 to 16:30, Monday to Friday. Any arrangement will be made between the Project Management and the service provider in which the presence of the service provider on site shall be under the supervision of the PM or any person approved by the PM in relation to the work to be performed.
- The Contractor has no title to all Materials arising from excavation and demolition in the performance of the works, such Materials will remain with the TNPA. The Project Manager shall instruct the Contractor how to label, mark, set aside and/or dispose of such Materials for the benefit of TNPA in accordance with ECC Clause 73.1.

3.1.7. The Contractor keeps daily records of his people engaged on the Site and Working Areas (including Subcontractors) with access to such daily records available for inspection by the Project Manager at all reasonable times.

3.1.8. Health and safety facilities on Site

- The contractor will be expected to implement management procedures as guided by TNPA HSE department to minimize the environment impact during the works.
- Service provider to refer to the HSE requirements as stipulated by HSE Department
- Comply with all OSH Act requirements, and
- All other requirement in line with the Terminal Operator of PoN and TNPA as a whole.

3.1.9. The Contractor complies with the requirements stated under paragraph 2.3 of C3.1 Employer's Works Information.

3.1.10. Environmental controls, fauna & flora, dealing with objects of historical interest.

- Service provider to adhere such controls as detailed on induction and in accordance with the requirements of HSE Department and OPMEP.

3.1.11. The Contractor complies with the CEMP, SES, and PES in the construction of the works, all as described under paragraph 1.3 of C3.1 Employer's Works Information.

- Wherever the Employer provides facilities (including, inter alia, temporary power, water, waste disposal, telecommunications etc) for the Contractor's use within the Working Areas and the Contractor adapts such facilities for use, then the Contractor makes good and provides full reinstatement to the land (including all apparatus of the Employer and Others in, on or under the land) and surrounding areas to its original standard upon dismantling of such facilities and hand-back to the Employer.

3.1.12. Title to Materials from demolition and excavation

- The disposal of the old pipes will be achieved through a reverse engineering as advised by a TNPA representative.
- Clause 73.2 states that the Contractor has title to Materials from excavation and demolition (e. g. copper) only as stated in the Works Information. The Project Manager shall instruct the Contractor how to label, mark, set aside and/or dispose of such Materials for the benefit of the Employer in accordance with ECC Clause 73.1.

- Wherever the Contractor provides facilities (either his own or for the Project Manager and/or Supervisor) and all items of Equipment, involving, inter alia, offices, accommodation, laboratories, Materials storage, compound areas etc, within the Working Areas, then the Contractor makes good and provides full reinstatement to the land (including all apparatus of the Employer and Others in, on or under the land) and surrounding areas to its original standard, upon dismantling of such facilities and items of Equipment.
- Unless expressly stated as a responsibility of the Employer as stated under 5.1.11 Site services and facilities, all residual requirements for the provision of facilities and all items of Equipment necessary for the Contractor to Provide the Works remains the responsibility of the Contractor.
 - Every effort shall be made by the service provider to obtain excavation permits and ensure that any existing services are considered before the service provider commences with any excavation or drilling on site.

3.1.13. The Contractor has no title to all Materials arising from excavation and demolition in the performance of the works except for:

- Material that the project manager has deemed that it is for the Contractor to dispose. The Project Manager shall instruct the Contractor how to label, mark, set aside and/or dispose of such Materials for the benefit of the Employer in accordance with ECC Clause 73.1. A gate pass in line with the instructions of the project manager on labelling will be signed by the project manager for use at the exit of the port by the contractor.
- The disposal of the old pipes will be achieved through reverse engineering as advised by a TNPA representative. The contractor will also receive instructions on how to classify, label and pack the removed pipes in the designated storage area from the project manager.

3.1.14. Cooperating with and obtaining acceptance of others

- The service provider will communicate or liaise with the Project Manager, or anyone authorised thereto on behalf of TNPA, further than that the service provider may liaise with whomever assigned by TNPA in relation to the service provider occupying the TNPA premises for the duration of the works.
- The service provider complies with all instructions issued to him/her by a TNPA personnel (directly, indirectly, in the case of emergency).

- The service provider shall not interfere with the operations of TNPA unless otherwise a permission is granted by the PM.

3.1.15. The Contractor performs the works and co-operates with:

- All the other parties as authorised by TNPA whenever it is deemed necessary.

3.1.16. Publicity and progress photographs

- The service provider shall obtain a written approval or permission for notice boards, advertising rights, media relations, photography and progress photographs, any other information in relation to property rights and POPIA act as legislated by TNPA or any other South African laws. Such written approval must be obtained from the TNPA security department or any other relative department as TNPA security personnel may advise.
- Where a Project Manager requires the above, he or she shall provide such information and requirements having taken into consideration of all TNPA rules and regulations.

3.1.17. The Contractor provides a notice board at site with all standard requirements and details provided by the Project manager.

3.1.18. The Contractor provides progress photographs as the Project Manager may advise after considering the following:

- The service provider shall obtain a written approval or permission for notice boards, advertising rights, media relations, photography and progress photographs, any other information in relation to property rights and POPIA act as legislated by TNPA or any other South African laws. Such written approval must be obtained from the TNPA security department or any other relative department as TNPA security personnel may advise.
- Where a Project Manager requires the above, he or she shall provide such information and requirements having taken into consideration of all TNPA rules and regulations.

- The Contractor does not advertise the contract or the project to any third party, nor communicate directly with the media (in any jurisdiction) whatsoever without the express written notification and consent of the Project Manager.

3.1.19. Contractor's Equipment

The contractor shall ensure that all equipment used is in compliance with all safety regulations such as:

- Load testing and equipment examinations where applicable.
- Service intervals are up to date and records are available for auditing.
- Pressure testing as applicable to pressure vessels.
- Calibrated and all licences and registrations are documented and up to date.
- The storage and transporting to site of this equipment is done safely.
- The personnel are aware and compliant with the PPE required when operating the equipment.
- All GMR standards are complied with, and the equipment is operated by suitably qualified personnel.

3.1.20. The Contractor keeps daily records of his Equipment used on Site and the Working Areas (distinguishing between owned and hired Equipment) with access to such daily records available for inspection by the Project Manager at all reasonable times.

- All documentation in connection with the works at TNPA shall be kept safe on site and readily available on request, for auditing purposes or inspection and whenever TNPA deems it necessary. Security may require certain documents from the service provider for access and for security purposes in which the service provider is required to comply with such request.

3.1.21. The Contractor complies with all safety and health requirement as HSE department may impose, as well taking into consideration and adherence to all OSHAct and regulations standards applicable to the site in which the works is undertaken throughout the duration of the contract. All other permissions and restrictions in connection with the use of Equipment as required by the Employer will be communicated and adhered to, that includes:

- In connection to performance of the works, completion of the works, all necessary material, labour, tools, plant and equipment, articles, substances, PPE, notice and signages, transportation is a responsibility of the service provider.

3.1.22. Equipment provided by the Employer

- None

3.1.23. The Employer provides the following Equipment on the Site for the Contractor's use:

- None

3.1.24. The Contractor complies with the following conditions in using the Employer's Equipment:

- No employer's equipment shall be used without the prior written approval from the PM.
- Any damages resulted to the use of employer's equipment; the service provider will be liable for such damages.

3.1.25. Site services and facilities:

- The employer will provide a point of supply for the service provider's facilities and a point of outlet where necessary for machinery connection.
- The service provider shall be liable for connection by a registered person as defined in the Electrical Installation regulations, who would be in a position to issue a certificate of compliance upon installations.
- The employer will provide water, waste disposal, and any other means out of the service provider's ability or reach which may hinder the progress in connection with the undertaking of the service provider whilst onsite.
- The contractor will provide the means to measure the usage of the utilities such as water and electricity which will be billed to the contractor for the duration of the contract.
- Employer will designate an area to be occupied by the service provider for the duration of the works.
- Without derogating from the above, the service provider shall provide everything else necessary for Providing the Works.

- 3.1.26. The Employer provides the following facilities for the Contractor:
- None, the Service provider will provide its own facilities.
- 3.1.27. Wherever the Employer provides facilities (including, inter alia, temporary power, water, waste disposal, telecommunications etc) for the Contractor's use within the Working Areas and the Contractor adapts such facilities for use, then the Contractor makes good and provides full reinstatement to the land (including all apparatus of the Employer and Others in, on or under the land) and surrounding areas to its original standard upon dismantling of such facilities and hand-back to the Employer.
- 3.1.28. Facilities provided by the Contractor:
- The service provider is responsible for the provision of facilities with all the corresponding amenities for its personnel that include ablutions, storages, site accommodation and offices etc.
 - The facilities must be in compliance with the facilities regulations and relevant SANS/SABS in relation to facilities and any other standards in connection with health or safety.
 - Facility must comply with all TNPA standards and regulations, and any requirement that may be deemed necessary by the HSE Department.
 - The service provider to ensure that all facilities within the TNPA premises do not pose hazard or risk to health or safety to any person who may be affected by the facilities being on site, and further the installation of the facilities must not interfere with TNPA production.
 - Upon completion of the works, the service provider is responsible for the immediate removal of all erected facilities, disconnect all installations effected in any TNPA premises for the purpose of their undertaking.
- 3.1.29. The Contractor provides the following facilities for the Project Manager and Supervisor:
- None
- 3.1.30. Wherever the Contractor provides facilities (either his own or for the Project Manager and/or Supervisor) and all items of Equipment, involving, inter alia, offices, accommodation, laboratories, Materials storage, compound areas etc, within the Working

Areas, then the Contractor makes good and provides full reinstatement to the land (including all apparatus of the Employer and Others in, on or under the land) and surrounding areas to its original standard, upon dismantling of such facilities and items of Equipment.

- 3.1.31. Unless expressly stated as a responsibility of the Employer as stated under 5.1.11 Site services and facilities, all residual requirements for the provision of facilities and all items of Equipment necessary for the Contractor to Provide the Works remains the responsibility of the Contractor.
- 3.1.32. Existing premises, inspection of adjoining properties and checking work of Others:
- In collaboration with the PM, the service provider may conduct inspection to record the condition of the site before occupancy.
 - Further the service provider would take a full liability in case of any damages to TNPA property resulted from the service provider's undertaking.
 - Corresponding inspection shall take place after the service providers has completed the works contracted to perform.
- 3.1.33. The Contractor inspects and surveys the following [buildings / premises / facilities] adjacent to the site in accordance with TNPA standard conditions and in conjunction with the Project Manager:
- 3.1.34. The Contractor inspects all areas connected to the site where the works will commence, of with which the works interfaces in conjunction with the Project Manager:
- Refer to 3.1.33.
 - Furthermore, any damage to adjacent property, a full inventory (and potentially surveys) should be undertaken with the Service provider, as this would have a bearing on any subsequent third-party action and the Parties risks under the ECC Clauses 80.1 and 81.1.
- 3.1.35. Survey control and setting out of the works:
- The service provider will supply information on survey controls established at the Jetty, if any, and state requirements for survey control and the setting out of the works.

- 3.1.36. The Employer provides the following information and survey controls for the Contractor:
- Not applicable
- 3.1.37. Excavations and associated water control:
- Service provider to ensure a full compliance of excavation work and any other water related issued that may result to excavation.
 - All excavation work shall be performed in accordance with construction regulations, in a manner that complies with OSH Act requirements.
- 3.1.38. The Contractor complies with the following requirements:
- Additionally, to 3.1.38, a service provider shall ensure no material/rubbles/debris or waste dropped to any point which falls outside the exterior walls of the jetty into the sea unless the area is effectively protected.
 - Service provider shall ensure provisions are made in accordance with construction regulations 26(1), 26(2) under water environments.
- 3.1.39. Underground services, other existing services, cable, and pipe trenches and covers:
- Every effort shall be made by the service provider to obtain excavation permits and ensure that any existing services are considered before the service provider commences with any excavation or drilling on site.
 - Take a reasonable care for all existing underground services/existing services cables/pipe trenches found during the service provider's undertaking.
 - All electrical components including wiring, all valves, instruments, platforms, and structures to be carefully removed to allow the pipework to be achieved.
 - After the pipework is completed, it is a responsibility of a service provider to reinstall all the above-mentioned amenities, where a damage has occurred, the service provider is liable and must repair or replace such damages
 - Service provider to ensure all functional components are returned to their original functional state upon completion of the works.
 - Service provider is to inform the PM all the encounters and repairs effected.

Service provider shall make use of the drawing supplied by TNPA with the aim to:

- Describe known services making reference to drawings containing known services and state requirements for locating, marking, and recording such services.
- State requirements for the treatment of existing services i.e. their termination, diversion, or continued use, either temporarily or permanently, and set out the procedures relating thereto.
- State requirements, as necessary, for the use and availability of detection equipment for the location of underground services.
- State responsibility for damage to services, known and unknown, and requirements for working in close proximity to services etc.
- State requirements and reinstatement procedures for the notification and repair of damage to services and any penalties applicable to the damage of services.

3.1.40. Where the Contractor encounters existing underground services / existing services cables / pipe trenches/mechanical components like valves and the electronic actuators, the Contractor undertakes the following:

- Take a reasonable care for all existing underground services / existing services cables / pipe trenches found during the service provider's undertaking.
- All electrical components including wiring, all valves, instruments, platforms, and structures to be carefully removed to allow the pipework to be achieved.
- After the pipework is completed, it is a responsibility of a service provider to reinstall all the above-mentioned amenities, where a damage has occurred, the service provider is liable and must repair or replace such damages.
- Service provider to ensure all functional components are returned to their original functional state upon completion of the works.
- Service provider is to inform the PM all the encounters and repairs effected.

3.1.41. Control of noise, dust, water, and waste.

- Service provider shall adhere to OSHAct and Regulations such as Noise-Induced hearing loss Regulations and any other standards where the health and safety of person is concerned in relation to noise, dust, water, and waste.

3.1.42. The Contractor complies with the following:

- With paragraph 3.1.42 of the Works Information and the OSHAct.

- In addition to that, service provider is hereby obliged to not only familiarise themselves with the Construction Regulations but adhere to the Regulation and put extra consideration to Regulation 7, 9, 10, 11, 12, 13, 22, 24, and 27 amongst other relative clauses.

3.1.43. Sequences of construction or installation:

- The service provider must stagger the works providing opportunity for advancement of operational demands and movement of Sand.
- This will not apply where a service provider installed a temporary structure for the movement of Sand whilst the works in underway.
- Service provider to incorporate the staggering and temporary installation in the method statement, detailing the procedures to be followed.
- Any changes in the sequences of work which might be require on site must be must brought to the PM with sufficient evidence.

3.1.44. The Contractor complies with the following:

- With the Work specification and all other requirements stipulated by TNPA in connection with the works and in accordance with OSHAct.
- In addition to that, service provider is hereby obliged to not only familiarise themselves with the Construction Regulations but adhere to the Regulation and put extra consideration to Regulation 7, 9, 10, 11, 12, 13, 22, 24, and 27 amongst other relative clauses.

3.1.45. Giving notice of work to be covered up to the PM or supervisor in writing in no less than 24 hours prior to the proposed covering up.

3.1.46. The Contractor notifies the Supervisor of the following elements of the which are to be covered up:

- Any works which are to be covered

3.1.47. Hook ups to existing works:

- Electrical and mechanical components including other existing structures.

3.1.48. The Contractor complies with the following constraints in the execution of the works:

- Hot work permit requirement with fire department, working at a height above water therefore fall protection plan is required, rigging and heavy lifting, abnormal sizes of pipes and other elements.
- The staggering of the works providing opportunity for advancement of operational demands and movement of Sand.
- Service provider's employees working with life vest.
- Working on limited space

3.2. Completion, testing, commissioning, and correction of Defects

3.2.1. The work to be done by the Completion Date:

On or before the Completion Date the Contractor shall have done everything required to Provide the Works including the work listed below which is to be done before the Completion Date and in any case before the dates stated. The Project Manager cannot certify completion until all the work listed below has been done and is also free of defects, which would have, in his opinion, prevented the Employer from using the works and Others from doing their work.

Item of work	To be completed by
As built drawings in connection with the works, Any Equipment designs for use in conducting the supply, delivery, removal, replacement, and commissioning of pipeline which include all the accessories on the 225m long Jetty pipework at TNPA), Sand Bypass in PoN , the service provider to supply TNPA with all relevant drawings and maintenance plans for the works.	Twenty days prior completion

All welds and joints to be inspected and certified by an Authorised Welding inspector. The line to be inspected and certified by an approved person.	Prior commission and handing over.
All spares list for the purpose of maintenance, maintenance manuals and maintenance strategies to be provided to TNPA. submit a detailed commissioning procedure and duration for all the works.	Fifteen days prior completion
Submit all the performance test, quality test and documents in connection with the works and components supplied for the purpose of the works.	During handover
All rubbles, old pipes to be made ready for disposal or reverse engineering as per instruction of the TNPA representative	Five days prior completion

3.2.2. The Contractor is permitted to carry out the following works after Completion:

- Repairs or replacement to any TNPA structural damages, and site rehabilitation.

3.2.3. Use of the works before Completion has been certified.

- In the event where the works has not been completed as per agreed or contractual completion date. TNPA reserves the right to make use any part of the works before Completion has been certified not necessarily taking over that part of the works however taking the opportunity to accelerate operational demands

3.2.4. The Employer uses the following part / parts of the works before Completion is certified by the Project Manager which do not constitute take over by the Employer for the reason(s) stated:

- No part of the works will be used by TNPA unless an opportunity arises to use part of the works to further operational demands, provided that the PM and the service provider agree.

3.2.5. Materials facilities and samples for tests and inspections.

- Will depend on the requirements as agreed by the PM, QC, and the service provider.

3.5.1. The Contractor provides the Employer with the following [state what facilities will be made available and when, what Materials if any and samples in order for the Supervisor to perform his tests and inspections as described under paragraph 5.2.1 of C3.1 Employer's Works Information] as ECC Clause 40.2:

- None

3.5.2. The Employer provides the Contractor with the following [state what facilities will be made available and when, what materials if any and samples in order for the Supervisor to perform his tests and inspections as described under paragraph 3.2.1 of C3.1 Employer's Works Information] as ECC Clause 40.2:

- Whichever facilities or materials deemed relevant by the service provider provided that the facility or material is available at TNPA premises.
- Where the Contractor has presented a Maintenance and Operating Manuals as appropriate to the Project Manager at take-over, the Contractor modifies and updates As-built documents as necessary prior to Completion.

3.2.6. Commissioning

- After completion of the work the service provider is required to conduct commissioning and thereafter make provision for endurance test for a period of six months for all works to the satisfaction of the PM whilst Sand Bypass is at full operation.
- Fifteen (15) days prior completion, the service provides to submit a detailed commissioning procedure and duration for all the works.
- Service provider to submit commission certificates to the PM.
- The test and commissioning will include but are not limited to:
 - All instruments attached to the pipeline (including testing points)
 - All electrical wiring
 - All lubrication points
 - Reconfiguration of PLC and SCADA by a registered and reputable contractor (include all communication networks are tested and functioning accordingly)
 - Pressure valves

- All 6 jet pumps, and
- The whole piping system with all other relative attachments (This includes the integrity of all welds and ensuring the pipes take the required pressure of fluid flowing into the line)



Figure 10: Actuator

- 3.2.7. The Contractor provides the following commissioning activities to bring the works in use in liaison with the Employer:
- Fifteen (15) days prior completion, the service provides to submit a detailed commissioning procedure and duration for all the works.
 - Submit all the performance test, quality test and documents in connection with the works and components supplied for the purpose of the works.
- 3.2.8. Start-up procedures required to put the works into operation:

- Once all verifiable document in relation to works and components supplied for the purpose of the works have been submitted to TNPA.
- Quality checks and assurance complied with, and quality pack submitted to TNPA in accordance with the Works information.
- All electrical and mechanical amenities connected in accordance with OSHAct and Regulations.
- All weld and checks are verified
- Performance test and commissioning completed
- All housekeeping rules adhered to
- And all other requirements as stipulated in the Works information
- The PM, QC, HSE personnel and service provider satisfies themselves with the quality, safety compliance and functionality of the work.
- The service provider must take all reasonably actions to ensure that the Sand Bypass system especially the jetty part is 100 % working, and further it is safe and without risk to safety or health when it is properly used.

3.2.9. The Contractor performs the following duties and actions on behalf of the Employer to put the works into operation:

- All reasonable actions to ensure that the Sand Bypass system especially the jetty part is 100 % working, and further it is safe and without risk to safety or health when it is properly used.

3.2.10. Take over procedures:

- Refer to paragraphs 3.2.10 and 3.2.11.
- Additionally, to that the QC, PM, HSE personnel, and service provider must go through all requirements and satisfy themselves with the works before taking over. All documents including the Project Handover pack to be submitted to the PM before the handover.

3.2.11. The Contractor provides the following assistance to the Employer:

- Refer to paragraph 3.2.12.

- 3.2.12. The Contractor ensures that the documentation as described under paragraph 3.8 of the Works Information is presented to the Project Manager before Completion.
- 3.2.13. The Contractor ensures that the Project Manager has a full and accurate dossier of As-built documents that represent the combination of Mechanical, Electrical, Instrumentation, General Layout as appropriate status of the completed works (to include Plant within the works) to present to the Employer.
- The service provider shall make provision for endurance test whilst the Sand Bypass is in operation for a period of twelve (12) months. All tests and verification for equipment supplied and works, must be according to the Quality standards set by TNPA. Furthermore, the service provider must comply with the requirements stipulated in Section 2.5 and C3.2.8 – 3.2.12 of the employer's work information. Failure will result for the service provider incurring all cost associated to the equipment supplied and works conducted under the Employer's Work information.
- 3.2.14. The Contractor ensures that the Project Manager has a full and accurate dossier of Maintenance and Operating Manuals as appropriate at the earlier of take-over or Completion.
- 3.2.15. Where the Contractor has presented state Maintenance and Operating Manuals as appropriate to the Project Manager at take-over, the Contractor modifies and updates As-built documents as necessary before Completion.
- 3.2.16. Access given by the Employer for correction of Defects.
- During the endurance period, as and when may be required as determined by the PM after the completion of the work.
- 3.2.17. The Contractor complies with the following constraints and procedures of the Employer where the Project Manager arranges access for the Contractor after Completion:
- Where the Contractor has to return to the Site after Completion to rectify notified Defects, the Employer may either impose the same Site access/egress restrictions as communicated elsewhere under C3.1 Employer's Works Information at the starting date/access date stated under Contract Data - Part One or as the works are now in

use or the Employer's occupation of the Site may be incrementally or substantially changed post Completion, there may be further access/egress restrictions stated here at paragraph 3.2.13 of C3.1 Employer's Works Information.

- As stipulated in paragraphs 3.1.1 to 3.1.11

3.2.18. Performance Tests after Completion:

- The service provider shall make provision for endurance test whilst the Sand Bypass is in operation for a period of six (6) months. All tests and verification for equipment supplied and works, must be according to the Quality standards set by TNPA. Furthermore, the service provider must comply with the requirements stipulated in Section 2.5 and C3.2.8 – 3.2.12 of the employer's work information. Failure will result for the service provider incurring all cost associated to the equipment supplied and works conducted under the Employer's Work information.

3.2.19. The Contractor performs the following performance tests after Completion of the works:

- The service provider shall make provision for endurance test whilst the Sand Bypass is in operation for a period of six (6) months. All tests and verification for equipment supplied and works, must be according to the Quality standards set by TNPA. Furthermore, the service provider must comply with the requirements stipulated in Section 2.5 and C3.2.8 – 3.2.12 of the employer's work information. Failure will result for the service provider incurring all cost associated to the equipment supplied and works conducted under the Employer's Work information.

3.2.20. Training and technology transfer

- N/A

3.2.21. The Contractor facilitates the following requirements for training workshops after the Completion of the works in use:

- N/A

3.2.22. The Contractor arranges for the following technology transfer to the Employer after Completion for the works in use:

- N/A

3.2.23. Operational maintenance after Completion

- N/A

3.2.24. The Contractor performs the following operational maintenance in relation to the works after Completion:

- N/A

4. Plant and Materials Standards and Workmanship

4.1. Investigation, Survey and Site Clearance

4.1.1. The Contractor carries out the following investigations at the Site:

As built information, TNPA will provide to the service provider all relevant information where applicable. Without derogating from the statement, the service provider shall conduct all necessary site investigation in line with the works, safety, and with the aim to achieve the desired outcome of the works.

4.2. Building works

Where the Association of South African Quantity Surveyors Model Preamble for Trades 1999 are used within the Works Information, the following interpretations and meanings shall apply:

- 4.2.1. In case of any conflict in interpretation, ambiguity, or discrepancy between any Model Preamble for Trades 1999 (whether standard or written as a particular project specification) contained in the Works Information and the conditions of contract, the conditions of contract take precedence within the ECC Contract.
- 4.2.2. In case of any conflict in interpretation, ambiguity or discrepancy between any Model Preamble for Trades 1999 (whether standard or written as a particular project specification) contained in this paragraph 4.2 of C3.1 Employer's Works Information and specific statements contained elsewhere in C3.1 Employer's Works Information, the specific statements contained elsewhere shall prevail, without prejudice to the Project Manager's express duty to resolve any ambiguity or inconsistency in the Works Information under ECC Clause 17.1.
- 4.2.3. Within the Model Preambles for Trades 1999, the following amendments and interpretations shall apply:

- Where the word or expression "Principal Agent" is used, read "Project Manager" or "Supervisor" as the context requires.
- Where the word or expression "Contractor" is used, read "Contractor."
- Where the word or expression "Engineer" is used, read "Project Manager" or "Supervisor" as the context requires.
- Where the Model Preambles for Trades 1999 mention "rates" for measured work and any contractual statements relating to payment, all such statements shall be discounted, with the ECC conditions of contract taking precedence.

4.2.4. Within the Model Preambles for Trades 1999, A. GENERAL, the following amendments and interpretations shall apply:

- Where the word or expression "bills of quantities" is used, this shall be discounted for the purposes of the Works Information. The ECC Contract Data - Part One states the main option to apply within the ECC Contract between the Parties.

4.2.5. Within the Model Preambles for Trades 1999, B. ALTERATIONS, B.2 MATERIALS FROM THE ALTERATIONS, CREDIT, ETC and C. EARTHWORKS, C1.4 Materials from demolitions shall not apply. C3.1 Employer's Works Information paragraph 3.1.6 states details of the Contractor's title (if any) to Materials arising from excavations and/or demolitions and how such Materials are either to be disposed of or re-used in the works.

4.2.6. Within the Model Preamble for Trades 1999 Q. PLUMBING AND DRAINAGE, Q.24 TESTS shall be deemed to be included within paragraph 3.2.1 of C3.1 Employer's Works Information.

4.2.7. Within the Model Preamble for Trades 1999 U. EXTERNAL WORKS, U.3.8 Process control tests shall be deemed to be included within paragraph 3.2.1 of C3.1 Employer's Works Information.

4.2.8. The principles, meanings and interpretation stated and established within paragraphs 6.2.1 to 6.2.8 with respect to the Model Preambles for Trades 1999 equally apply to the other Model Preambles for Trades 1999 references used within this paragraph 4.2 of C3.1 Employer's Works Information.

4.3. Civil Engineering and Structural Works

Where the SANS 2001 series of Specifications are used within the Works Information, the following interpretations and meanings shall apply:

- 4.3.1. In case of any conflict in interpretation, ambiguity, or discrepancy between any SANS 1200 Specification (whether standard or written as a particular project specification) contained in the Works Information and the conditions of contract, the conditions of contract take precedence within the ECC contract.
- 4.3.2. In case of any conflict in interpretation, ambiguity or discrepancy between any SANS 1200 Specification (whether standard or written as a particular project specification) contained in this paragraph 4.3 of the Employer's Works Information and specific statements contained elsewhere in C3.1 Employer's Works Information, the specific statements contained elsewhere shall prevail, without prejudice to the Project Manager's express duty to resolve any ambiguity or inconsistency in the Works Information under ECC Clause 17.1.
- 4.3.3. Within SANS 2001 A: GENERAL, the following amendments and interpretations shall apply:
 - Where the word or expression "Employer" is used, read "Employer."
 - Where the word or expression "Contractor" is used, read "Contractor."
 - Where the word or expression "Engineer" is used, read "Project Manager" or "Supervisor" as the context requires.
 - Where the word or expression "schedule of quantities" is used, this is deleted in entirety. Assessment and payment are in accordance with the conditions of contract (and the ECC main and secondary options stated therein).
- 4.3.4. Within SANS 2001 A: GENERAL 2.3 DEFINITIONS, the following apply:
 - "Acceptable. Approved (Approval)" is interpreted as either a Project Manager or a Supervisor communication or instruction in relation to Works Information compliance, consistent with the conditions of contract as the context requires.
 - "Adequate" is deleted. The Project Manager notifies the Contractor where the Contractor has not complied with the Works Information.

- "Measurement and payment" and the further definitions contained within 6.3 c) are deleted. Assessment and payment are in accordance with the conditions of contract (and the ECC main and secondary options stated therein);

4.3.5. Within SANS 2001 A: GENERAL 2.6 APPROVAL, the following applies:

"Approval" by either the Project Manager and/or the Supervisor is without prejudice to ECC Clause 14.1 and, inter alia, ECC Clauses 13.1, 14.3 and 27.1.

4.3.6. SANS 2001 A: GENERAL 2.8 ITEMS IN SCHEDULE OF QUANTITIES, is deleted in entirety. Assessment and payment are in accordance with the conditions of contract (and the ECC main and secondary options stated therein).

4.3.7. SANS 2001 A: GENERAL 3.2 STRUCTURES AND NATURAL MATERIAL ON SITE, applies only to the extent that it is consistent with paragraph 3.1.6 of C3.1 Employer's Works Information.

4.3.8. Within SANS 2001 A: GENERAL 7.1 PLANT, the following applies:

Where the word or expression "Plant" is used, read "Equipment."

4.3.9. SANS 2001 A: GENERAL 7.2 CONTRACTOR'S OFFICES, STORES AND SERVICES, applies but the Project Manager resolves any inconsistency with statements included within paragraph 3.1.12 of C3.1 Employer's Works Information.

4.3.10. SANS 2001 A: GENERAL 3.1 SURVEY, applies only to the extent that it is consistent with paragraph 3.1.14 of C3.1 Employer's Works Information.

4.3.11. Within SANS 2001 A: GENERAL 3.2 WATCHING, BARRICADING, LIGHTING AND TRAFFIC CROSSINGS, the following applies:

Where the word or expression "specification" is used, read "Works Information."

- 4.3.12. SANS 2001 A: GENERAL 3.4 PROTECTION OF OVERHEAD AND UNDERGROUND SERVICES applies only to the extent that it is consistent with the specific statements made elsewhere in C3.1 Employer's Works Information and in any case and at all times consistent with the conditions of contract.
- 4.3.13. Within SANS 2001 A: GENERAL 5 TESTING, the following applies:
Where the word or expression "Engineer" is used, read "Supervisor."
- 4.3.14. SANS 2001 A: GENERAL 8 MEASUREMENT AND PAYMENT, is deleted in entirety. Assessment and payment are in accordance with the conditions of contract (and the ECC main and secondary options stated therein).
- 4.3.15. The principles, meanings and interpretation stated and established within paragraphs 6.3.1 to 6.3.15 with respect to SANS 2001 series and to SANS 2001 A: GENERAL equally apply to the other SANS 2001 specification references [state particulars of SANS 2001 used] used within this paragraph 6.3 of C3.1 Employer's Works Information.

4.4. Electrical & mechanical engineering works



Figure 11: Steel pipe connected to the pressure valves

All Electrical and Mechanical engineering works must be in accordance with section 2, section 3.2 and C3.1.40 of the Employer's work information.

The Contractor complies with the CEMP, SES and PES. The Contractor abides by the instructions of the Project Manager regarding the implementation of the CEMP.

- 4.4.1. Where SANS 10142 and/or SANS 10198 specifications are used within the Works Information, then where the term "Equipment" (or the like) is used with the meaning of installation and items left behind in the works, then please read this term as "Plant" for ECC defined term compliance.
- 4.4.2. Where SANS 10142 and/or SANS 10198 is applicable, the 'inspection and testing' needs to be addressed in relation to the Supervisor's express duties for tests and inspections (or tests / inspections to be undertaken by a third party (e.g.) accredited authority for notification to the Supervisor) for the Supervisor to communicate his acceptance or otherwise.

4.5. Process control and IT works.

As per the manufacture's specifications, otherwise in accordance with the directive of TNPA ICT representative and in line with the Port's rules and regulations.

4.6. Other [as required]

As per Section 2 of C3.1 Employer's Works information

5. List Of Drawings

5.1. Drawings issued by the Employer

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

Note: Some drawings may contain both Works Information and Site Information.

Drawing number	Revision	Title
256/F4/215/04	02	Jetty pipes
256/F4/215/01	04	Sand Bypass structural drawings
256/F4/225/02	05	Sand Bypass Jetty Pipework
256/F4/225/01	04	Jetty Pipework connecting
256/F4/235/01	04	Sand Bypass Booster (B1, B2, B3)
256/F4/215/02&03	03	Jetty pipes

SECTION 2

6. Management and start up

6.1. Management meetings

Regular meetings of a general nature may be convened and chaired by the Project Manager as follows:

Title and purpose	Approximate time & interval	Location	Attendance by:
Risk registers and compensation events	Weekly on Thursdays	Location as determined by the Project Manager	Project Manager, HSE Representative, Quality, Supervisor and Contractor
Overall contract progress and feedback	Weekly on Tuesdays	Location as determined by the Project Manager	Employer, Contractor, Supervisor and Project Manager
SHE meetings	Monthly or as determined by HSE Department	Location as determined by the HSE Representative	CSHEO, CM, Project Manager, SHEC, ProjEM, and Quality

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

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

6.2. Documentation Control

In undertaking the 'Works' (including all incidental services required), the Contractor shall conform and adhere to the requirements of the 'Contractor Documentation Submittal Requirements' Standard.

The Contractor is to ensure that the latest versions of the required application software and a suitable 'IT' Infrastructure are in place to support the electronic transmission of documentation.

6.2.1. The *Contractor* shall make a formal submission of his Quality Documentation on award of the *Contract* and at the times defined in the *Contractor's* Documentation Schedule, included in the *Works Information* for the *Contract*.

6.2.2. The Contractor's responsibilities are defined in terms of *DOC-STD-0001* which outlines the standard requirements for preparation, submission, receipt, review, and collection of Technical and (or) Deliverable Documentation, as detailed in the Contractor Documentation Schedule (CDS).

- 6.2.3.** TRANSNET uses the *Contractor's* Documentation Schedule (CDS), included in the *Works Information* for the *Contract*, to indicate those documents required to be submitted for information/review and/or acceptance.
- 6.2.4.** The *Contractor* shall develop and maintain a comprehensive register of documents (*Contractor's* Documentation Register – CDR) that will be generated throughout the project. The CDR includes all quality-related documents. The CDR is a 'live' document and is submitted to TRANSNET for review following each revision by the *Contractor*. The CDR indicates the dates of issue of the documents considering sufficient time to allow for the TRANSNET review/acceptance cycle prior to the document being required for use. A sample of a CDR (DOC-FAT-0002) is issued by TRANSNET at the start of every *contract*.

6.3. Safety risk management

- 6.3.1. The Contractor complies with the following SMP:
- HSE Department's guideline for HSE Contractor Compliance File Assessment Checklist
 - The service provider to comply with all the health and safety requirements as promulgated by the Occupational Health and Safety Act No.85 of 1993 and Regulations
- 6.3.2. The Contractor ensures that its Subcontractors comply with the requirements of the SMP.
- 6.3.3. The Contractor performs the works having due regard to the HSSP.
- 6.3.4. The HSSP is:
- With reference to 6.3.1.
- 6.3.5. The Contractor in the performance of the works establishes an incentive programme for its employees with respect to SMP compliance.
- 6.3.6. The Contractor complies with the requirements of the SSRC with respect to his own activities and others on the Site and Working Areas
- 6.3.7. The Contractor makes the SMP available to its employees and Subcontractors in the language of this contract and other local languages as required.
- 6.3.8. The Contractor participates in a HAZOP at intervals upon the instruction and direction of the Project Manager.
- 6.3.9. The Contractor completes a JSA prior to carrying out any operation on the Site and/or Working Area to the approval of Project Manager.

- 6.3.10. The lines of communication of the various personnel acting on behalf of the Project Manager who communicate directly with the Contractor and his key persons with respect to the SMP will be communicated by the Project Manager.
- 6.3.11. The roles and responsibilities of the various personnel acting on behalf of the Project Manager with respect to the SMP and health and safety issues are as stated in the paragraphs following:
- N/A
- 6.3.12. The CM is responsible (in the context of the SMP only) for health and safety on the Site and Working Areas and reports to the Project Manager.
- 6.3.13. The CM specific tasks (in the context of the SMP) are:
- With reference to 6.3.1.
- 6.3.14. The PSSM specific tasks are:
- With reference to 6.3.1.
- 6.3.15. The PSPM specific tasks are:
- With reference to 6.3.1.

6.4. Environmental constraints and management

- 6.4.1. The Contractor complies with the following:

Ngqura Operational Management Environmental Plan (OPMEP).

Construction Environmental Management Plan (CEMP):

- The Contractor performs the works and all construction activities within the Site and Working Areas having due regard to the environment and to environmental management practices as more particularly described within the SES and PES.
- The SES describes the minimal acceptable standard for environmental management for a range of environmental aspects commonly encountered on construction projects and sets environmental objectives and targets, which the Contractor observes and complies.
- The PES may require higher minimal standards than those described in the SES as may be required by the Project Manager or Others.

- 6.4.2. The overarching obligations of the Contractor under the CEMP before construction activities commence on the Site and/or Working Areas is to provide an environmental method statement for a particular construction operation at the Site and/or Working Area by the Contractor and when requested by the CM and to comply with the following:

Where relevant, method statements, as detailed in the SES and PES, shall be provided by the Contractor. These include, but are not limited to, the following where applicable:

- Establishment of construction lay down area
- Hazardous and non-hazardous solid waste management
- Storm water management
- Contaminated water management
- Prevention of marine pollution
- Hydrocarbon spills
- Diesel tanks and refuelling procedures
- Dust control
- Spoil dumping
- Sourcing, excavating, transporting, and dumping of fill material
- Noise and vibration control
- Removal of rare, endemic, or endangered species
- Removal and stockpiling of topsoil
- Rodent and pest control
- Environmental awareness training
- Site division
- Emergency procedures for environmental incidents
- Contractor's SHE Officer
- Closure of construction laydown area

- 6.4.3. The Contractor shall ensure that his management, supervisors and the general workforce, as well as all suppliers and visitors to Site have attended the Induction prior to commencing any work on Site. If new personnel commence work on the Site during construction, the Contractor shall ensure that these personnel undergo the Induction Programme and are made aware of the environmental specifications on Site.

- 6.4.4. Where applicable, the Contractor ensures that he appoints a suitably qualified Subcontractor, to be approved by the Project Manager, to undertake the "Removal of rare, endemic or endangered species." This appointment must be completed at least three weeks before commencement of any other work on Site.
- The Protection of the Environment Form shall be signed and submitted to the CM within 14 days after the Contract Date.
- 6.4.5. Where required, one of the first actions to be undertaken by the Contractor shall be to erect and maintain a temporary fence along the boundaries of the Site and Working Areas as applicable, and around any no-go areas identified on the layout plans, to the satisfaction of the Project Manager.
- 6.4.6. The plant search and rescue (if applicable) must be undertaken and completed prior to any Site clearance or any other construction activity that may damage the vegetation can commences on Site.
- 6.4.7. The Contractor must appoint a sufficient number of named assistants to the CSHEO to monitor environmental issues e.g. litter, spills, illegal activities, fence patrol, dust etc. These appointments, along with details of the individuals being appointed and job descriptions, must be sent to the Project Manager for his approval.
- 6.4.8. During the construction period, the Contractor complies with the following:
- A copy of the SES, and the relevant PES shall be available on Site, and the Contractor shall ensure that all the personnel on Site (including Subcontractors and their staff) as well as suppliers are familiar with and understand the specifications contained in the SES (as amended by the PES).
 - Method statements that are required during construction must be submitted to the Project Manager for approval at least 20 days prior to the proposed commencement of the activity. Emergency construction activity method statements may also be required. The activities requiring method statements cannot commence if they have not been approved by the Project Manager.
 - The method statements for Completion by the Contractor are contained within OPMEP and CEMP.

- Where applicable, the Contractor shall provide job-specific training on an ad hoc basis when workers are engaged in activities, which require method statements.
- The Contractor shall ensure that any Materials delivery drivers are informed of all procedures and restrictions (e.g. which access roads to use, no go areas, speed limits, noise, etc) required by the CEMP before they arrive at Site and off load any Materials.
- The Contractor shall be responsible for rehabilitating and re-vegetating all areas to the satisfaction of the Project Manager as detailed in the SES and PES.
- The Contractor shall clear and clean the Site and Working Areas and ensure that everything not forming part of the works is removed from the Site and Working Areas and that all rehabilitation has taken place in accordance with the PES. An Environmental Closure Certificate has been issued by the SHEC and signed off by the Project Manager.
- The Contractor complies with environmental inspections and audits as contained within OPMEP and CEMP.
- The Contractor makes copies of the CEMP, SES and PES available at the offices of the Contractor on Site. The Contractor ensures that all personnel on Site (including Subcontractors) are familiar with and understand the requirements of the CEMP.

6.4.9. The Contractor complies with the following SES:

- The Contractor shall identify the kinds of environmental impacts that will occur as a result of his activities and then prepare separate method statements describing how each of those impacts will be prevented or managed so that the standards set out in this document are achieved. These method statements will be prepared in accordance with the requirements set out in the CEMP.
- To ensure that environmental issues are taken into account in the establishment of the Site offices and all other facilities on Site.

6.4.10. The Contractor complies with the following PES:

- With reference to 6.3.1.

6.4.11. The lines of communication of the various personnel acting on behalf of the Project Manager who communicate to the Contractor and his keys persons with respect to the CEMP are contained within Annexure.

- N/A

6.4.12. The roles and responsibilities of the various personnel acting on behalf of the Project Manager with respect to environmental issues are stated in the paragraphs following.

6.4.13. The ProjEM is responsible for ensuring that the Contractor complies with the CEMP. The ProjEM acts on behalf of the Project Manager.

The ProjEM specific tasks are:

- With reference to 6.3.1.

The CM specific tasks (in the context of the CEMP) are:

- With reference to 6.3.1.

6.4.14. The Contractor complies with the CEMP, SES and PES. The Contractor abides by the instructions of the Project Manager regarding the implementation of the CEMP.

6.5. Quality assurance requirement

6.5.1. Quality Manual of the organisation that is aligned to ISO 9001:2015 QMS requirements.

- a) Project Quality Plan shall be project specific and be aligned to the TNPA-QUAL-REQ-014.1_General Quality Requirements for Contractors and Suppliers.
- b) CV of Quality Officer supplemented by Qualification - Quality diploma / Technical diploma and ISO 9001:2015 Quality Management System training certificates (Implementation of QMS

and Internal Auditing). The Quality Officer MUST have a minimum of 3 years' quality experience in Construction and Fabrication projects.

- c) Quality Control Plans shall be in line with the scope of works detailing the Engineering works:
 - Civil
 - Structural
 - Mechanical
 - Electrical
 - Marine
- d) These QCP's shall identify all inspections as detailed in the scope of works together with other tests and verifications required to demonstrate that the works comply with the scope of works, specifications, and drawings.

6.5.2. Project Quality Plan

- The Project Quality Plan (PQP) shall outline the quality strategy, methodology, quality resource allocation, Quality Assurance and Quality Control co-ordination activities to ensure that the scope meet the standards stated in the Scope Information.
- The Contractor's PQP shall provide a description of how documents provided by the Employer to the Contractor are to be managed. The Contractor develops and maintains a comprehensive register of documents that will be generated throughout the contract including all quality related documents as part of its Quality Plan.
- The Employer indicates those documents required to be submitted for information, review or acceptance and the Contractor indicates such requirements within his register of documents.
- The register shall indicate the dates of issue of the documents with the Employer responding to documents submitted by the Contractor for review or acceptance within the period for reply prior to such documents being used by the Contractor.

6.5.3. Quality Manual

- A copy of the Contractor's Quality Manual will be requested for review by the Employer followed, by a Quality Management Systems (QMS) audit at the Contractor's Head Office to obtain evidence that a satisfactory quality management system is being maintained.

6.5.4. Quality Officer

- The Contractor shall nominate a suitably experienced quality representative as referenced on item 4 above. The Quality representative will be responsible to ensure that the PQP requirements are implemented on site. The Contractor shall submit the CV and qualifications / certificates of his nominated quality representative for the Project Manager's review and approval.

6.5.5. Quality Control Plan

- a) The Contractor shall provide a Quality Control Plan (Inspection and Test Plan) specifying his proposed quality control activities for the entire scope of supply and scope of works. The Quality Control Plan shall reference the procedures, codes and standards which apply to the listed activities, the acceptance criteria, the records to be produced and similarly it shall incorporate all Sub-contractors and supplier's activities. The Quality Control Plan shall be prepared in the Contractors / Suppliers standard format.
- b) Deviations from this Quality Control Plan may only be permitted following acceptance in writing by the Engineer and/or the appointed Third-Party Inspection Authority.
- c) The Contractor shall not undertake any work in advance of the review and acceptance of the Quality Control Plan without the written consent of Transnet.
- d) During the review of the Quality Control Plan / Inspection and Test Plan, Inspection and Test intervention points will be included by Transnet and, where applicable, the Third-Party Inspection Authority to indicate their intended monitoring during manufacturing, fabrication, and installation.
- e) The Contractor / Supplier shall ensure that any work subcontracted will be covered by Quality Control Plans / Inspection and Test Plans generated by the relevant Sub-contractor or Supplier.

6.5.6. Subcontractor

- a) The Contractor shall also ensure that all Sub-contractors are suitably qualified and experienced to carry out the work for which they have been sub-contracted. The Employer may, at own discretion, require a Quality Audit of sub-contractor(s) to ensure that the sub-Contractor(s) have the necessary management, facilities, skilled staff, and quality control facilities to carry out the Works to ensure compliance with the Works Information. The Contractor shall accept full responsibility for the quality of his sub-contractor(s) work and of materials used, irrespective of any quality surveillance that may be carried out by the Employer or his representative.

- b) To be completed in conjunction with the Quality Manager
 - Specify minimum requirements for the Contractor's Quality Plan and Work Procedures or provide the Employer's Quality Plan if that is to be used. Make sure witness and hold points are identified generally and describe any particular requirements for QA outside the working areas. Indicate how the Contractor's QA documentation is to be submitted for acceptance and any conditions that need to be imposed relating to acceptance. State whether ISO compliance is a condition and if so, which ISO standard shall apply.
 - c) The Contractor shall have, maintain and demonstrate its use to the Project Manager (and/or the Supervisor to satisfy the requirements appropriated by Quality Assurer) the documented Quality Management System to be used in the performance of the works. The Contractor's Quality Management System shall conform to International Standard ISO 9001 (or an equivalent standard acceptable to the Project Manager).
 - d) The Contractor submits his Quality Management System documents to the Project Manager as part of his programme under ECC Clause 31.2 to include details of:
 - Quality Plan for the contract
 - Quality Policy
 - Index of Procedures to be used; and
 - A schedule of internal and external audits during the contract
 - e) The Contractor develops and maintains a comprehensive register of documents that will be generated throughout the contract including all quality related documents as part of its Quality Plan.
 - The Project Manager indicates those documents required to be submitted for either information, review or acceptance and the Contractor indicates such requirements within his register of documents. The register shall indicate the dates of issue of the documents with the Project Manager responding to documents submitted by the Contractor for review or acceptance within the period for reply prior to such documents being used by the Contractor.
- 6.5.7. The Quality Plan means the Contractor's statement, which outlines strategy, methodology, resources allocation, QA, and Quality Control co-ordination activities to ensure that the works meet the standards stated in the Works Information.
- f) The Quality Policy means the Contractor's quality policy.
 - g) The Index of Procedures means the Contractor's Index of procedures.

6.6. Programming Constraints

- 6.6.1. The Contractor shows on each programme he submits to the Project Manager, the requirements of the [CEMP, SES, PES and SMP] as described under section 2.5 of the Works Information, together with the associated environmental method statements.
- 6.6.2. The Contractor complies with the Employer's programme on submission to the Project Manager.
- 6.6.3. The Contractor presents his first programme and all subsequently revised programmes (see ECC Clauses 31.2 and 32.1) in hard copy.
- 6.6.4. The Contractor uses Primavera version as TNPA may advise for his programme submissions or a similar programme software package equivalent to Primavera version 8.2 subject to the prior written notification and acceptance by the Project Manager.
- 6.6.5. The Contractor shows on his Accepted Programme and all subsequently revised programmes schedules showing the critical path or paths and all necessary logic diagrams demonstrating sequence of operations.
- 6.6.6. The Contractor's programme shows duration of operations in working days.
Weekdays 08h00 to 16h30.
- 6.6.7. 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. Individual operations will be assigned a code The Project Manager notifies any subsequent layouts and corresponding filters on revised programmes.
 - 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.

- 6.6.8. The Contractor shows on each revised programme he submits to the Project Manager a resource histogram showing planned progress versus actual, deviations from the Accepted Programme and any remedial actions proposed by the Contractor.
- 6.6.9. The Contractor submits programme report information to the Project Manager at weekly intervals in addition to the intervals for submission of revised programmes stated under Contract Data Part One.
- 6.6.10. The Contractor's weekly programme narrative report includes:
- Level 4 Project Schedule – showing two separate bars for each task i.e. the primary bar must reflect the current forecast dates and the secondary bar the latest Accepted programme.
 - 3-week Look ahead Schedule - showing two separate bars for each task i.e. the primary bar must reflect the current forecast dates and the secondary bar the latest Accepted programme.
 - Manpower Histogram – reflecting actual, forecasted and planned activities
 - S-curves – reflecting the actual percentage complete versus the planned percentage for the overall contract utilising the earned values as calculated by the detailed progress report.
 - The Employer (including the agents of the Employer) operates on Site during TNPA normal operating hours and/or as arranged with the PM.
 - Others [state specific third parties] operate on Site during [either state specific calendar dates or timings when the Contractor has completed certain elements of the works etc].
 - N/A

6.7. Contractor's Management, Supervision, and Key People

- 6.7.1. The Contractor employs a CSHEO as a key person under ECC Clause 24.1
- 6.7.2. The CSHEO reports to the SHEC on the Site. The CSHEO ensures that the works (to include any part thereof) are subject to a prior environmental method statement(s) approved by the Project Manager, CM or SHEO and ensures that the CEMP is implemented by the Contractor in a timely and proper manner. The SCHEO provides the Project Manager with all environmental method statements.
- 6.7.3. The CSHEO tasks are:
- Daily, weekly, and monthly inspections of the Site and Working Areas.

Monitor compliance with the CEMP (to include the SES and PES) and the environmental method statements submitted to the Project Manager:

- Reporting of an environmental incident to the Project Manager or alternatively to Environmental Department.
- Attendance at all SHE meetings, toolbox talks and induction programmes.
- Litter control and ensuring the Contractor clears litter from the Site and Working Areas; and
- Ensuring that environmental signage and barriers are correctly placed.

The CSHEO submits daily, weekly, and monthly checklists to the SHEC.

- 6.7.4. The Contractor employs a CIRP as a key person under ECC Clause 24.1.
- 6.7.5. The CIRP is based on the Site and ensures that all reports and IR requests are submitted accurately and in a timely manner to the Project Manager.
- 6.7.6. The CIRP tasks are:
- Dedicated to human resources, industrial relations, and any other Contractor employee related function;
 - Resolve all human resources and industrial relations matters arising from the Contractor's employees;
 - Represent the Contractor at all industrial relations meetings [state specific details within paragraph 6.1 management meetings of the Works Information];
 - Represent the Contractor on the IRCC.
- 6.7.7. The Contractor employs an HSR as a key person under ECC Clause 24.1
- 6.7.8. The HSR tasks are:
- N/A
- 6.7.9. The Contractor provides an Organogram of all his key people (both as required by the Employer and as independently stated by the Contractor under Contract Data Part Two) and how such key people communicate with the Project Manager and the Supervisor and their delegates all as stated at paragraph 6.5 of C3.1 Employer's Works Information.

6.8. Training workshops and technology transfer

- 6.8.1. The Contractor facilitates the following requirements for training workshops:
- Maintenance of the pipework's and other elements in the Employer's work information.

6.8.2. The Contractor arranges for the following technology transfer to the Employer:

- N/A

6.9. Insurance Provided by the Employer.

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

6.10. Contract Change Management.

6.10.1. No additional requirements apply to ECC Clause 60 series.

6.11. Provision of Bonds and Guarantees.

6.11.1. The form in which a bond or guarantee required by the conditions of contract (if any) is to be provided by the Contractor is given in Part 1 Agreements and Contract Data, document C1.3, Sureties.

6.11.2. The Contractor provides a bond or guarantee as required by the conditions of contract concurrently with the execution by the Parties of the form of agreement for the ECC contract.

6.12. Records Of Defined Cost, Payments & Assessments of Compensation Events Kept by Contractor.

6.12.1. The Contractor keeps the following records available for the Project Manager to inspect:

- Records of design employee's location of work (if appropriate).

6.12.2. The Contractor keeps the following records available for the Project Manager to inspect:

- Records of design employee's location of work
- Records of Equipment used, and people employed outside the Working Areas

6.13. The Contractor's Invoices

- 6.13.1. When the Project Manager certifies payment (see ECC Clause 51.1) following an assessment date, the Contractor complies with the Employer's procedure for invoice submission.
- 6.13.2. The invoice must correspond to the Project Manager's assessment of the amount due to the Contractor as stated in the payment certificate.
- 6.13.3. The invoice states the following:
- Invoice addressed to Transnet SOC Ltd.
 - Transnet SOC Limited's VAT No: 4720103177.
 - Invoice number.
 - The Contractor's VAT Number; and
 - The Contract number

The invoice contains the supporting detail:

- The invoice shall be signed by a TNPA personnel and accompanied by work breakdown.
 - The amount paid to date
 - Settlement account
 - Any other information required by the Project Manager to enable hm/her to approve the invoice.
- 6.13.4. The invoice is presented either by post or by hand delivery.
- 6.13.5. Invoices submitted by post are addressed to:

Transnet SOC Ltd

P O Box 612054

Bluewater Bay, Port Elizabeth

6212

South Africa

For the attention of Project Manager and Finance Department

The project manager should be notified whenever the above method is considered and every time each invoice is posted to prevent payment delays. It remains a service provider's responsibility to ensure that all documents reach the Project Manager in time and receipt acknowledged to allow immediate processing of payment. TNPA will not be held liable for delayed payments through post.

Invoices submitted by hand are presented to:

Transnet National Ports Authority

1st Floor, East Wing, eMendi Admin Building, Port of Ngqura

Neptune Road, Coega, Port Elizabeth, 6001

For the attention of Project Manager and Finance Department The invoice is presented as an original.

6.14. People

6.14.1. Minimum requirements of people employed on the Site:

- As per service provider's organogram and those that will be indirectly involved in the work conducted by the service provider.
- Whenever possible, general labour shall be recruited from the communities that are local to the Port of Ngqura
- No recruitment on site and around site should take place.
- Recruitment of personnel already employed within the Port of Ngqura is expressly prohibited.
- All persons employed shall provide proof of competency appropriate to their appointments.
- All persons employed to work in TNPA premises shall undergo medical examination prior undergoing site induction and certified fit to work on site.
- All persons working onsite shall have the correct PPE, training, and relevant certification.

6.14.2. The Contractor complies with the following PIRPMP.

- **CONTRACTOR LIABILITY**

- The Contractor warrants that it will be liable to Transnet for any loss or damage caused by strikes, riots, lockouts, or any labour disputes by and/or confined to the Contractor's employees, which loss will include any indirect or consequential damages.
- a) The Contractor warrants that no negotiations or feedback meetings by the Contractor's employees shall take place on Transnet premises, whether owned or rented by Transnet.
 - b) The Contractor shall give notice to Transnet of any industrial action by the Contractor's employees immediately upon becoming aware of any actual or contemplated action that is or may be carried out on Transnet's premises, whether owned or rented, and shall notify Transnet of all matters associated with such action that may potentially affect Transnet.
 - c) The Contractor is responsible for educating its employees on relevant provisions of the Labour Relations Act which deal with industrial action processes, and the risks of non-compliance.
 - The Contractor is required to develop a Contingency Strike Handling Plan, which plan the Contractor is obliged to update on a three-monthly basis. The Contractor must provide Transnet with this plan and all updates to the Plan. The Contractor is responsible to communicate with its employees on site details of the plan.

- **INDUSTRIAL ACTION BY CONTRACTOR EMPLOYEES**

- a) In the event of any industrial action by the Contractor's employees, the Contractor is required to provide competent contingency resources permitted in law to carry out any of the duties that are or could potentially be interrupted by industrial action in delivering the Service.
- b) The Contractor warrants that it will compensate Transnet for any costs Transnet incurs in providing additional security to deal with any industrial action by the Contractor's employees.
- c) In the event of any industrial action by the Contractor's employees, the Contractor is obliged:
 - To prepare and deliver to Transnet, within two (2) hours of the commencement of industrial action an Industrial Action Report. If the

industrial action persists the Contractor is required to deliver the report at 8h30 each day.

- The Industrial Action Report must provide at least the following information:

- I. Industrial incident report,
- II. Attendance register,
- III. Productivity / progress to schedule reports,
- IV. Operational contingency plan,
- V. Site security report,
- VI. Industrial action intelligence gathered.

- The final Industrial Action Report is to be delivered 24 hours after finalization of the industrial action.
- The final Industrial Action Report is to be delivered 24 hours after finalization of the industrial action.
- The management of the Contractor is required to hold a daily industrial action teleconference with personnel identified by Transnet to discuss the industrial action, settlement of the industrial action, security issues and the impact on delivery under the contract.

- d) The resolution of any disputes or industrial action by the Contractor's employees is the sole responsibility of the Contractor.
- e) Access to Transnet premises by the Contractor and its employees is only provided for purposes of the Contractor delivering its services to Transnet. Should the Contractor and its employees not, for any reason, be capable of delivering its services Transnet is entitled to restrict or deny access onto its premises and unless otherwise authorized; such person will deem to be trespassing.

6.14.3. The Contractor complies with the requirements of the IRCC involving the engineering construction Contractors engaged (including all future Contractors) by the Employer.

6.14.4. The roles and responsibilities of the various personnel acting on behalf of the Project Manager with respect to IR issues are stated in the paragraphs following:

- The PIRM is responsible for ensuring that the Contractor complies with the PIRPMP.
- The PIRM acts on behalf of the Project Manager.

6.14.5. The PIRM specific tasks are:

- To complete the PLA prior to the Contract Date; and
- To assign specific duties to the PSIRM.

6.14.6. The SIRM is responsible, inter alia, for day-to-day IR on the Site and Working Areas through the implementation of the PIRPMP. The SIRM reports directly to the PSIRM and the Project Manager.

6.14.7. The SIRM specific tasks are:

- To liaise with the Contractor prior to the commencement of construction activities (as per the Contractor's programme accepted by the Project Manager) with respect to IR issues under the SIP.

6.15. Plant and Materials

6.15.1. Quality

6.15.2. Quality is specified in the technical specifications, works information as referred to in section 2.4 and section 6 of this Works Information.

6.15.3. This covers repairs carried out after a Defect has been notified where in the opinion of the Project manager the damaged item be fixed up or replaced by a new one. See also SANS 1200A, sub-paragraph 2.1.

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

6.15.5. Where Plant and Materials for inclusion in the works originate from outside the Republic of South Africa, all such Plant and Materials are new and of merchantable quality, to a

recognised national standard, with all proprietary products installed to manufacturers' instructions.

- 6.15.6. The Contractor replaces any Plant and Materials subject to breakages (whether in the Working Areas or not) or any Plant and Materials not conforming to standards or specifications stated and notifies the Project Manager and the Supervisor on each occasion where replacement is required.
- 6.15.7. Plant & Materials provided "free issue" by the Employer.
- None
- 6.15.8. The Employer provides the following Plant and Materials for the Contractor to use in the works:
- None
- 6.15.9. The Plant and Materials provided by the Employer are solely at the risk of the Contractor for inclusion in the works. The Contractor takes responsibility for ensuring the Plant and Materials do not contain a Defect(s) and are in compliance with the standards stated elsewhere in the Works Information.
- 6.15.10. The Contractor takes receipt of the Plant and Materials from the Employer in accordance with the following procedure:
- None
- 6.15.11. The Contractor provides all other Plant and Materials necessary for the works not specifically stated to be provided "free issue" by the Employer.
- 6.15.12. Contractor's procurement of Plant and Materials
- The Contractor shall keep regular records of their Equipment used on site and the Working areas (distinguishing between owned and hired equipment) with access to such records available for inspection by the Project Manager at all reasonable times.
 - All Plant and Equipment used by the Contractor on site shall be properly maintained and operated. All vehicles on public roads shall be roadworthy, with the necessary licenses and safety requirements. A checklist shall be implemented which lists the operator's qualifications and medical records.
 - It is the service provider's responsibility to transport plants and materials to, from and around the site.

The Contractor complies with the following:

- The Contractor shall supply all necessary material, tools, labour, plant, PPE, demarcating signage, as per the latest maintenance regulation and transport required for proper completion of the works.
- The Contractor shall submit a comprehensive list of Plant and Equipment intended for use on this contract.
- The use of all such Plant and Equipment shall be subject to approval by the Project Manager, though such approval shall not relieve the Contractor of any of their responsibilities under the contract.

6.15.13. The Contractor performs the following with respect to Plant and Materials procured for the works:

- As per section 2.5 of C3.1 Employer's Works Information

6.15.14. Spares and consumables

- As per section 2.5 of C3.1 Employer's Works Information

6.15.15. The Contractor provides the following spares and consumables to the Employer:

6.16. Tests and Inspections Before Delivery

6.16.1. The Contractor submits to the Supervisor details to certify that tests and inspections have been carried out on Plant and Materials by others which include:

- AIA [All pressure and lifting equipment. Additional to that is for all pipes and other mechanical/structural items imported from outside Africa to be stamped with ASME code of standards]
- Verification certificate by a welding inspector for all welds and joints.
- Apart from the above, all tests and inspections to adhere to section 2.5, section 3.2, and section 6.5 of C3.1 Employer's Works Information.

6.17. Marking Plant and Materials Outside the Working Areas

6.17.1. The Contractor prepares and marks items of Plant and Materials outside the Working Areas with 'Property of Transnet SOC Ltd' and contract number.

- Plant and Equipment outside the Working Areas are to be clearly and indelibly marked using hard stamping, or security tags. The Contractor provides designated areas

sealed off from the rest of the manufacturers production run in which to store Plant and Material that is complete and is waiting delivery to site.

- The Contractor delivers digital photographs to the Supervisor as proof of marking and storage in designated areas.

6.18. Contractor's Equipment (Including Temporary Works).

6.18.1. The Contractor provides the Project Manager with a list of all equipment, plant, and machinery of the category of Equipment (or similar) for the execution of the works:

6.18.2. The Equipment category is subject to the acceptance tests and inspections documentation provided to the Project Manager confirming fit for purpose prior to using the Equipment on the Site and/or Working Areas, also:

- The Contractor shall notify the PSSM 24 hours before bringing new mobile equipment on site. All required documentation and a certificate of fitness (COF) issued by a competent person shall accompany the equipment.
- The Contractor shall inspect the Equipment daily prior to use in accordance with statutory regulations and legislation.
- The Contractor shall ensure that all Equipment complies with statutory requirements (Construction Regulations / Occupational Health and Safety Act) and with the Health and Safety standards.

6.19. Preparation Of Post Completion Contracts

6.19.1. The Contractor provides the following assistance to the Employer post Completion:

- Consumables and spares in connection with the works as a PM may advise.
- As per section 2.5, section 3.2, and section 6.5 of C3.1 Employer's Works Information

SECTION 3

C3.2 CONTRACTOR'S WORKS INFORMATION

This section of the Works Information will always be contract specific depending on the nature of the works.

It is most likely to be required for design and construct contracts where the tendering contractor will have proposed specifications and schedules for items of Plant and Materials and workmanship, which once accepted by the Employer prior to award of contract now become obligations of the Contractor per core clause 20.1.

Typical subheadings could be:

- a) Contractor's design
- b) Plant and Materials specifications and schedules
- c) Other

This section could also be compiled as a separate file.

It is recommended that C3.2 Contractor's Works Information should always be a separate file.

NEVER design the works for the Contractor and then refer to such design as "Works Information provided by the Contractor". Either leave alone altogether for the Contractor to create its own authorship, or do the minimum as stated above and include sub-headings only for the Contractor to fill out itself.

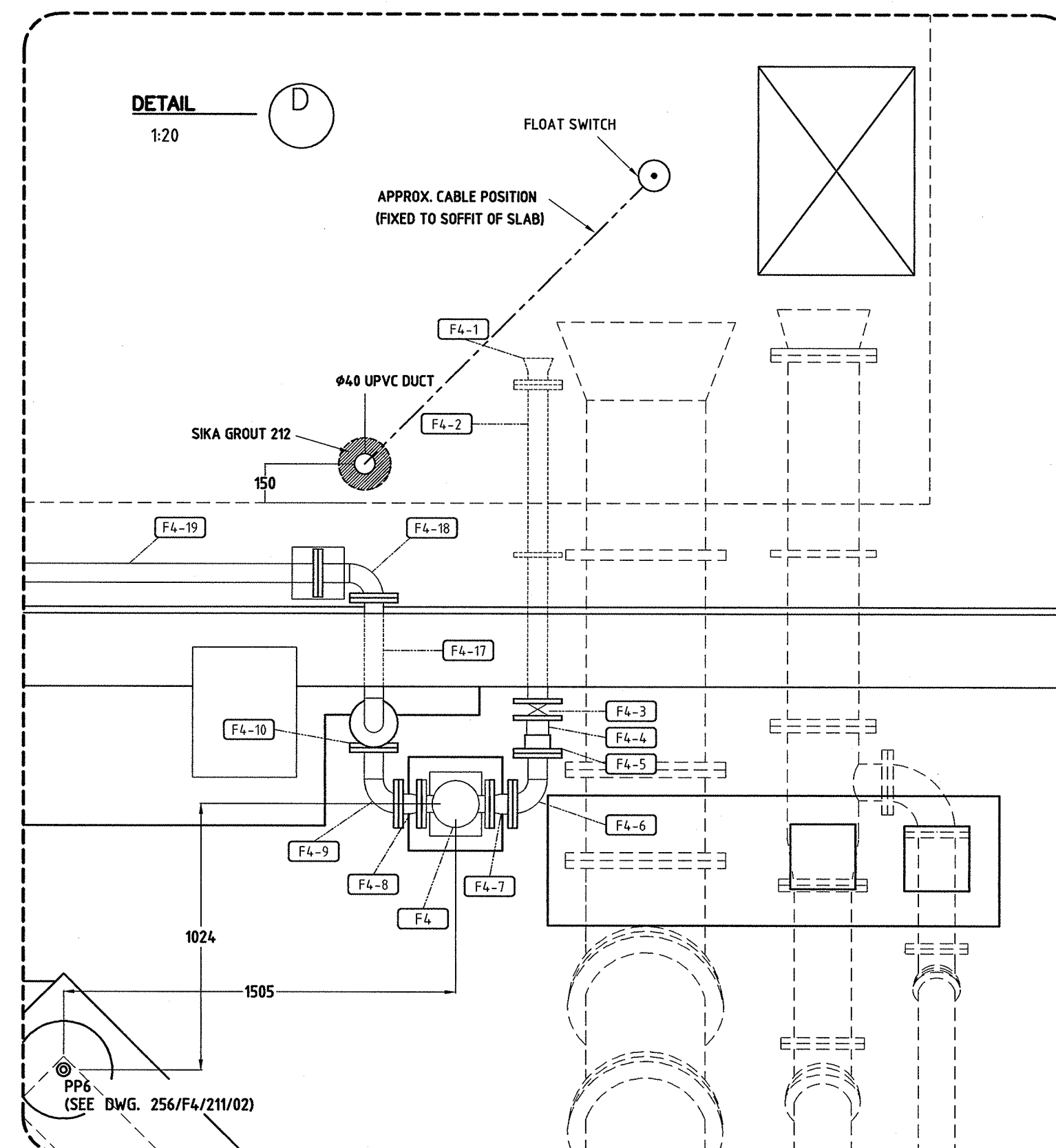
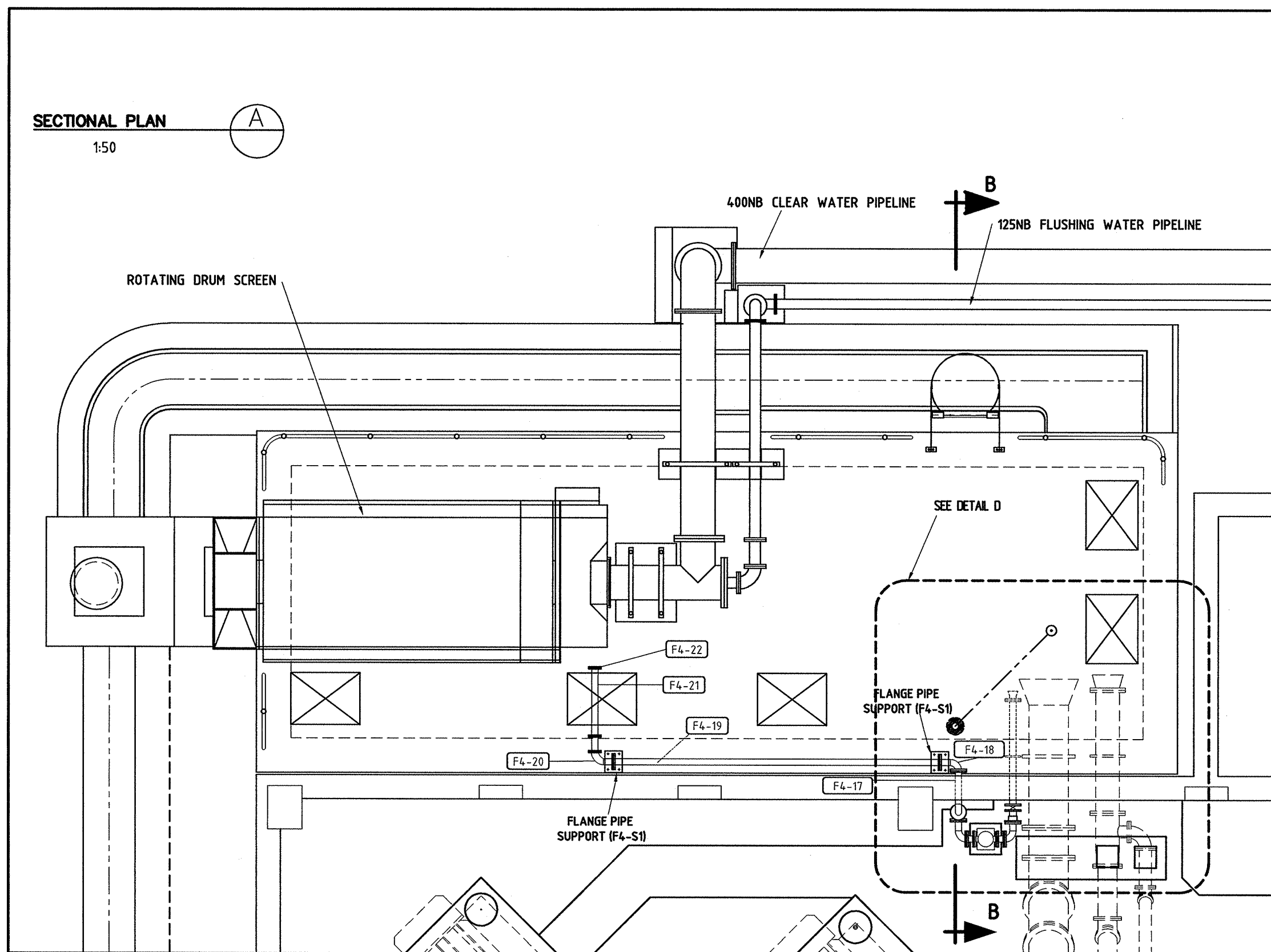
See Contract Data - Part 2 optional statement:


If the Contractor is to provide Works Information for his design

- The Works Information for the Contractor's design is in.

NB, it is a quality decision (involving, inter alia, available programme) as to whether or not the ECC tender document compiler includes the optional statement in Contract Data - Part 2 (with corresponding statements in the tender document 'Instructions to Tenderers') for the Contractor to provide design solutions (and to what extent) at tender return via Contract Data insertions (for inclusion in the Contract) at tender return. The reason for including the optional statement at Contract Data - Part 2 is to undertake appraisal of the (tendering) Contractor's design solutions at tender return, for comparison of solutions by tenderers, which might form the basis of tender evaluation criteria (and to ensure there are no surprises or wacky design solutions on offer).

If the Contract Data - Part 2 optional statement is not used by the ECC tender document compiler, then the Project Manager is in receipt of the Contractor's design post Contract and has to accept or otherwise under ECC Clauses 21.2 and 21.3.



APPROVAL		SIGNED	DATE
TASKLEADER			24/5/08
SUB-TASK LEADER			
CLIENT			

DETAILS		
DRAWN	RCJ	
DESIGNED	KVP	
	SIGNED	DATE
DRAWING CHECKED	<i>Kyler</i>	30/05/08
DESIGN CHECKED		

[illegible]

NOTES

ALL CONTOURS AND LEVELS TO MEAN SEA LEVEL
UNLESS OTHERWISE NOTED.

SUB-TASK CONSULTANTS


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VICTORIA & ALFRED WATERFRONT
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LEAD CONSULTANTS


PRESTEDGE RETIEF DRESNER WIJNBERG

CONSULTING COASTAL, OCEAN
AND ENVIRONMENTAL ENGINEERS



CLIENT

National Ports Authority of South Africa



PROJECT
COEGA PORT
MARITIME GROUP

TASK

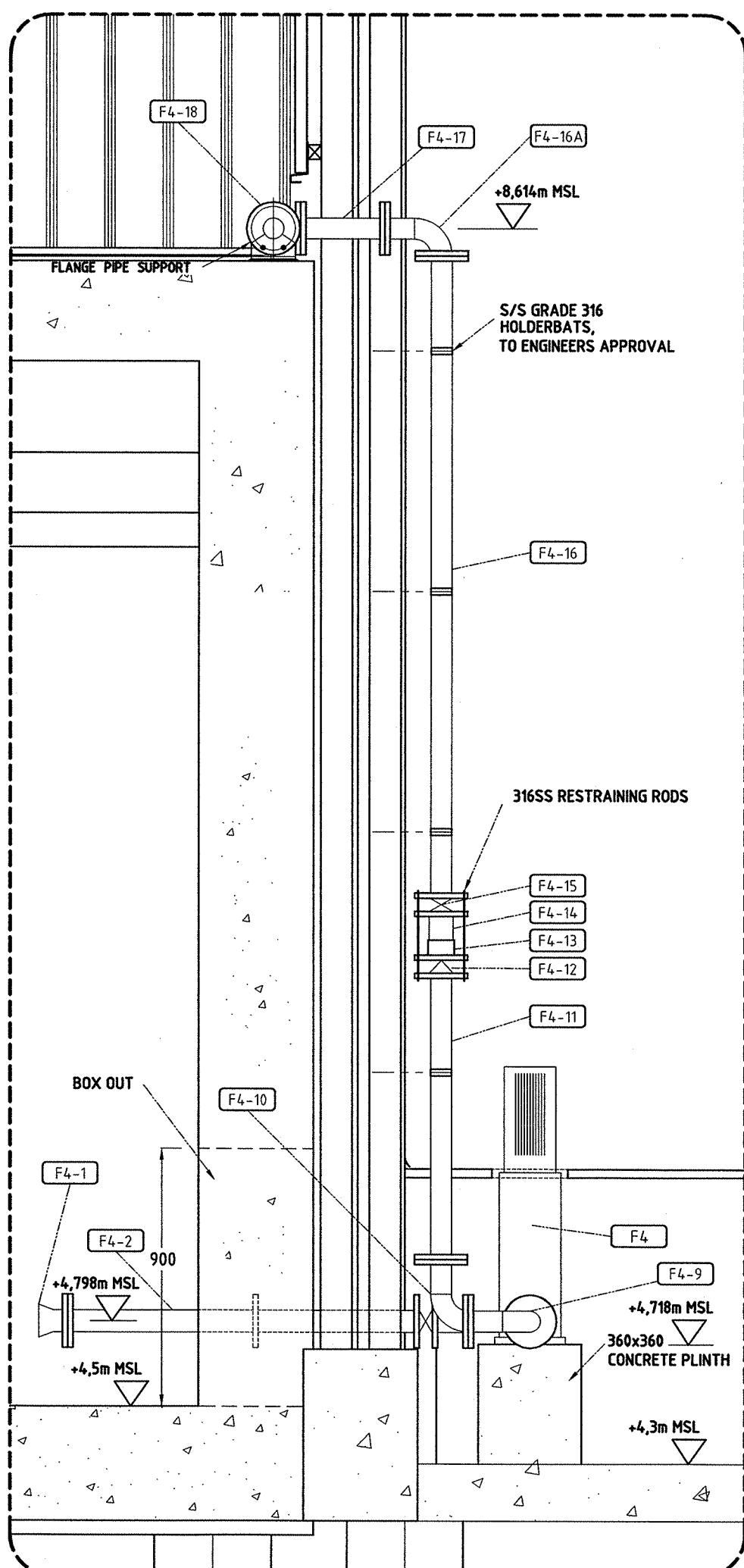
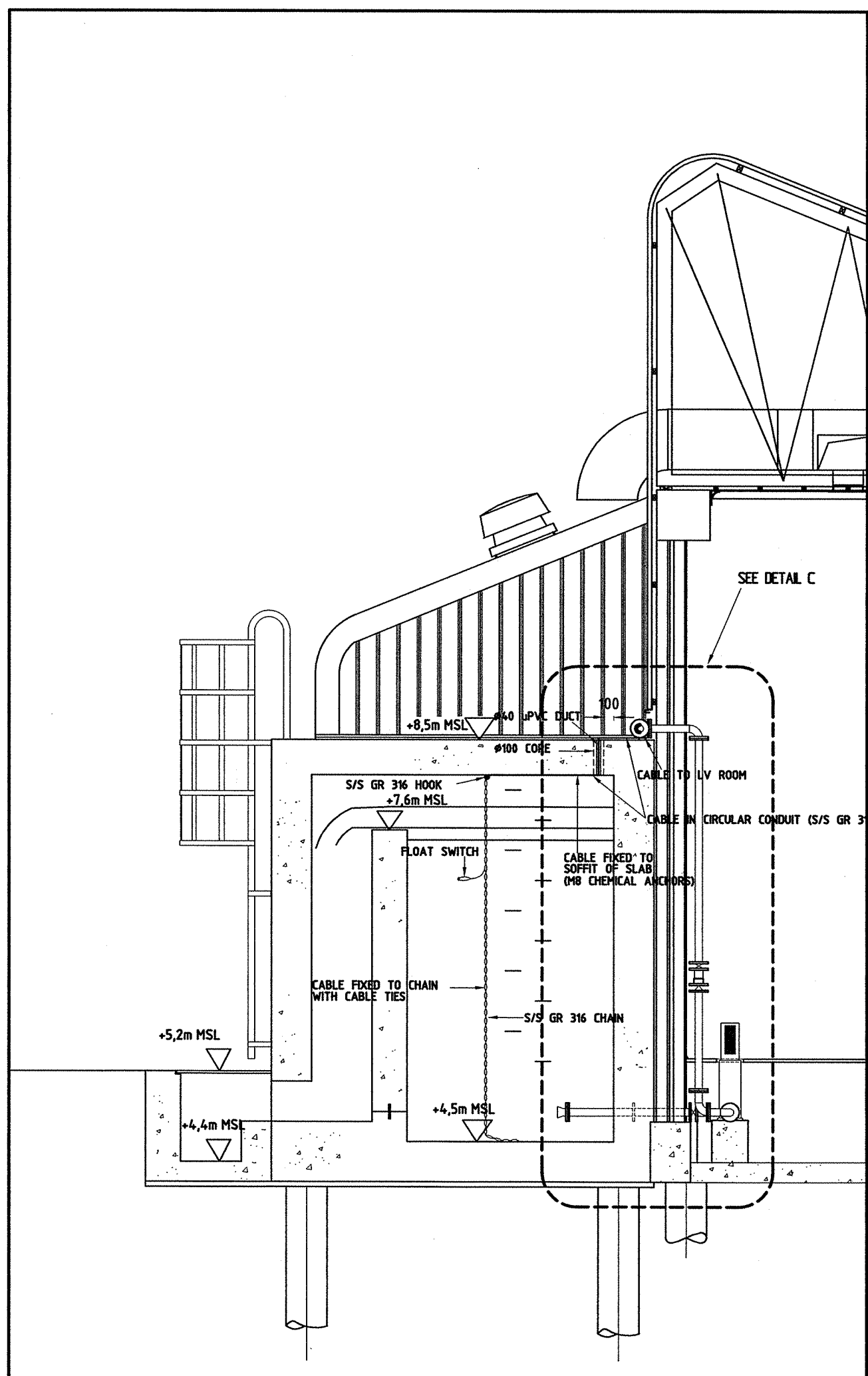
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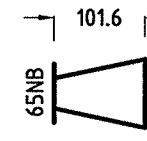
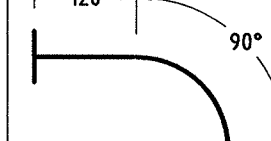
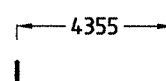
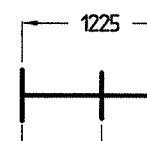
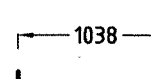
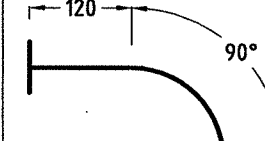


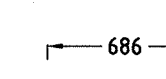
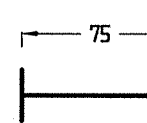

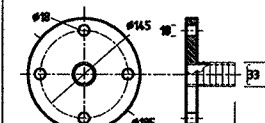

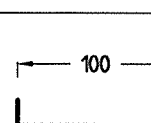
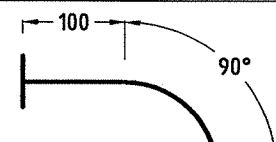

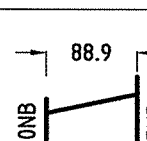
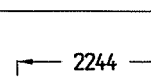

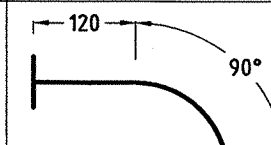
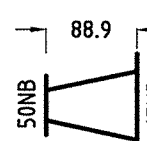
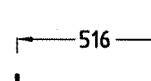
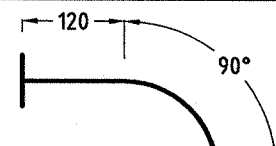
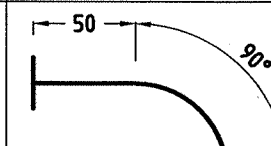
SAND BYPASSING

DRAWING TITLE

**MAIN PUMP STATION
SPRAYWATER (F4)
PIPE SCHEDULE**

DWG No: 256/F4/215/05 Rev. ZZ



ITEM No.	SCH. No.	DESCRIPTION	DIMENSIONS	ITEM No.	SCH. No.	DESCRIPTION	DIMENSIONS	ITEM No.	SCH. No.	DESCRIPTION	DIMENSIONS
F4-1	STD	100NB/65NB STD CONCENTRIC REDUCER, 100NB END FLANGE ENDED, 65NB END FLANGED		F4-10	STD	65NB LONG RADIUS 90° ELBOW WELDED TO 120mm 65 NB STRAIGHT STUB ANSI B16.9 FLANGED BOTH ENDS		F4-19	STD	65NB STRAIGHT, BOTH ENDS FLANGED;	
F4-2	STD	65NB STD STRAIGHT WITH PUDDLE FLANGE; FLANGED BOTH ENDS;		F4-11	STD	65NB STRAIGHT; BOTH ENDS FLANGED;		F4-20	STD	65NB LONG RADIUS 90° ELBOW WELDED TO 120mm 65 NB STRAIGHT STUB ANSI B16.9 FLANGED BOTH ENDS	
F4-3	STD	65NB WAFER TYPE AQUASORA BUTTERFLY ISOLATING VALVE		F4-12	STD	50NB WAFER TYPE SPRING-LOADED NON RETURN VALVE		F4-21	STD	65NB STRAIGHT; BOTH ENDS FLANGED;	
F4-4	STD	65NB STRAIGHT; ONE END FLANGED TO SUIT 65NB, OTHER END FLANGE ENDED;		F4-13	STD	65NB VIKING JOHNSON FLANGE ADAPTOR		F4-22	STD	FLANGE WITH NIPPLE FOR SPRAY WATER CONNECTION TO RUBBER HOSE (MH: 316 SS)	
F4-5	STD	65NB VIKING JOHNSON FLANGE ADAPTOR		F4-14	STD	65NB STRAIGHT; ONE END FLANGED TO SUIT 65NB, OTHER END FLANGE ENDED;		<p>NOTES:</p> <p>1) <u>FLANGE DRILLING.</u></p> <p>1.1) ALL FLANGES MUST COMPLY WITH AND DRILLED TO BS 4594 OF 1969. (PN 10/3) UNLESS NOTED OTHERWISE</p> <p>1.2) IF VALVES AND PUMPS ARE SUPPLIED WITH FLANGE DRILLING DIFFERENT TO ABOVE, ADJACENT FLANGES SHALL BE DRILLED TO SUIT.</p> <p>1.3) VALVE AND PUMP FLANGES SHALL BE SIZED TO SUIT ADJACENT PIPEWORK FLANGES.</p> <p>2) <u>PIPE DIMENSIONS</u></p> <p>2.1) DIMENSIONS OF PIPE ITEMS ARE FACE TO FACE MEASUREMENTS.</p> <p>2.2) THE CONTRACTOR MUST ALLOW FOR ANY VARIATION IN DIMENSIONS OF PIPE ITEMS, FOR LINGS, GASKETS AND ALLOWABLE GAP AT FLEXIBLE COUPLING.</p> <p>3) <u>PIPE SPECIFICATION</u></p> <p>3.1) ALL PIPEWORK SHALL BE SEAMLESS STEEL PIPE TO ASTM A106 GRADE B STANDARD SCHEDULE UNLESS NOTED OTHERWISE.</p> <p>3.2) NON-STANDARD REDUCERS SHALL BE LONGITUDINAL WELDED IN ACCORDANCE WITH SABS 719 GRADE B.</p> <p>4) <u>BOLTS, NUTS AND WASHERS.</u></p> <p>4.1) ALL BOLTS, NUTS AND WASHERS SHALL BE STAINLESS STEEL GRADE 316.</p> <p>5) ALL PIPEWORK SHOWN DIAGMATICALLY.</p> <p>6) <u>ABBREVIATIONS</u></p> <p>SS = STAINLESS STEEL GRADE 316</p> <p>HDPE = HIGH DENSITY POLYETHYLENE</p> <p>PVC = UNPLASTICISED POLY(VINYL)CHLORIDE</p> <p>RR = REINFORCED RUBBER HOSE</p> <p>PU = POLYURETHANE</p> <p>OD = OUTSIDE DIAMETER</p> <p>ID = INSIDE DIAMETER</p> <p>NB = NOMINAL BORE</p> <p>7) ALL BOLTS, NUTS, WASHERS AND GASKETS TO BE SUPPLIED BY CONTRACTOR.</p>			
F4-6	STD	65NB LONG RADIUS 90° ELBOW WELDED TO 100mm 65 NB STRAIGHT STUB ANSI B16.9 FLANGED BOTH ENDS		F4-15	STD	65NB WAFER TYPE AQUASORA BUTTERFLY ISOLATING VALVE					
F4-7	STD	65NB/50NB STD REDUCER, 65NB END FLANGED, 50NB END TO SUIT P/E FLANGE CONNECTION TO PUMP		F4-16	STD	65NB STRAIGHT; BOTH ENDS FLANGED; BOTH ENDS ANSI A106					
F4	STD	SPRAY WATER PUMP; GRUNDOS CRN-100/9 WITH P/E FLANGE CONNECTIONS		F4-6A	STD	65NB LONG RADIUS 90° ELBOW WELDED TO 120mm 65 NB STRAIGHT STUB ANSI B16.9 FLANGED BOTH ENDS					
F4-8	STD	65NB/50NB STD REDUCER, 65NB END FLANGED, 50NB END TO SUIT P/E FLANGE CONNECTION TO PUMP		F4-17	STD	65NB STRAIGHT STUB FLANGED BOTH ENDS					
F4-9	STD	65NB LONG RADIUS 90° ELBOW WELDED TO 120mm 65 NB STRAIGHT STUB ANSI B16.9 FLANGED BOTH ENDS		F4-18	STD	65NB LONG RADIUS 90° ELBOW WELDED TO 50mm 65 NB STRAIGHT STUB ANSI B16.9 FLANGED BOTH ENDS					

Port of Ngqura		TRANSFER	
Port Engineer			
Drawing number:			
NH	72	T	0304
Sheet	019	Revision	ZZ
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NOTES:

- 1) FLANGE DRILLING.
- 1.1) ALL FLANGES MUST COMPLY WITH AND ORILLED TO BS 454 OF 1969. (PN 10/3) UNLESS NOTED OTHERWISE
- 1.2) IF VALVES AND PUMPS ARE SUPPLIED WITH FLANGE DRILLING DIFFERENT TO ABOVE, ADJACENT FLANGES SHALL BE DRILLED TO SUIT
- 1.3) VALVE AND PUMP FLANGES SHALL BE SIZED TO SUIT ADJACENT PIPEWORK FLANGES.
- 2) PIPE DIMENSIONS
- 2.1) DIMENSIONS OF PIPE ITEMS ARE FACE TO FACE MEASUREMENTS.
- 2.2) THE CONTRACTOR MUST ALLOW FOR ANY VARIATION IN DIMENSIONS OF PIPE ITEMS, FOR LINGS, GASKETS AND ALLOWABLE GAP AT FLEXIBLE COUPLING.
- 3) PIPE SPECIFICATION
- 3.1) ALL PIPEWORK SHALL BE SEAMLESS STEEL PIPE TO ASTM A106 GRADE B STANDARD SCHEDULE UNLESS NOTED OTHERWISE.
- 3.2) NON-STANDARD REDUCERS SHALL BE LONGITUDINAL WELDED IN ACCORDANCE WITH SABS 719 GRADE B.
- 4) BOLTS, NUTS AND WASHERS.
- 4.1) ALL BOLTS, NUTS AND WASHERS SHALL BE STAINLESS STEEL GRADE 316.
- 5.1) ALL PIPEWORK SHOWN DIAGRAMMATICALLY.
- 6) ABBREVIATIONS
- SS = STAINLESS STEEL GRADE 316
- HDPE = HIGH DENSITY POLYETHYLENE
- PVC = UNPLASTICIZED POLYVINYLCHLORIDE
- RR = REINFORCED RUBBER HOSE
- PU = POLYURETHANE
- OD = OUTSIDE DIAMETER
- ID = INSIDE DIAMETER
- NB = NOMINAL BORE
- 7.1) ALL BOLTS, NUTS, WASHERS AND GASKETS TO BE SUPPLIED BY CONTRACTOR.
- 8.1) TEMPORARY COVERS TO BE PROVIDED FOR PROTECTION OF FLANGES, PREPARED ENDS OF PLAIN ENDED PIPES AND FITTINGS, AND THREADS TO PREVENT DAMAGE TO INTERNAL LINGS DURING TRANSPORTATION AND HANDLING.
- 9) VALVES
- 9.1) SPECIFICATIONS FOR ALL VALVES MAKE, MODEL, SIZE ETC.) TO BE CONFORMED WITH T.D. PRIOR TO ORDERING.
- 9.2) SPECIFICATIONS FOR ALL VALVE ACTUATORS TO BE CONFORMED WITH T.D. PRIOR TO ORDERING.
- 9.3.1) ALL CHANGES TO PIPE DIMENSIONS WHICH MAY BE NECESSARY AFTER VALVE SUBMISSION AND APPROVAL ARE TO BE INCORPORATED IN THE CONTRACTOR'S WORKSHOP DRAWINGS FOR ALL PIPE ITEMS (REFER TO ITEM 12 BELOW)
- 10) PIPEWORK LINKING
- 10.1) ALL PIPEWORK INCLUDING ELBOWS, TEES, LATERAL TEES & REDUCERS, BE LINED WITH POLYETHYLENE IN ACCORDANCE WITH PROJECT SPECIFICATION CCL 3.1 TO A THICKNESS OF 15mm UNLESS NOTED OTHERWISE. PIPE LING (3mm THICK) SHALL EXTEND OVER FLANGE FACES.
- 10.2) WHERE PU LINED STEEL PIPE BUTTS WITH COMPOUNDED IRG VALVES, FLEXIBLE COUPLINGS ETC.) OR HDPE PIPE THE PU LING SHALL BE PROVIDED WITH A 1:10 TRANSITION SLOPE TO ENSURE MATCHING INTERNAL DIAMETERS OF ADJOINING PIPE SECTIONS OR COMPONENTS TO WITHIN ±1mm
- 11) CORROSION PROTECTION OF PIPEWORK
- 11.1) ALL STEEL PIPEWORK SHALL HAVE EXTERNAL CORROSION PROTECTION SYSTEM "SYSTEM C" IN ACCORDANCE WITH PROJECT SPECIFICATION PS1C.
- 11.2) DISSIMILAR METALS TO BE SUITABLY INSULATED FROM EACH OTHER
- 12) APPROVALS REQUIRED TO MANUFACTURE
- 12.1) THE CONTRACTOR SHALL SUBMIT FULLY DIMENSIONED WORKSHOP DRAWINGS FOR ALL PIPE ITEMS AND FULL DETAILS (INCLUDING INTERNAL DIAMETERS) FOR ALL VALVES, PUMPS, FLEXIBLE COUPLINGS ETC. FOR T.O.'S APPROVAL PRIOR TO MANUFACTURE.

PIPE SCHEDULE

NH 72 T0304-019-22

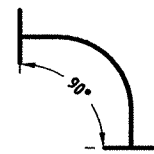
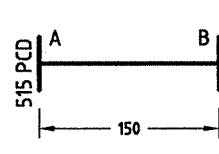
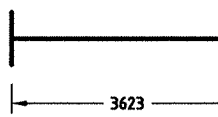
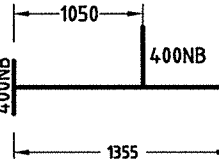
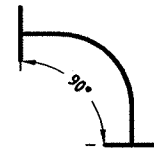
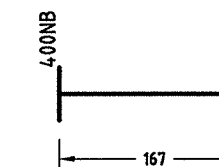
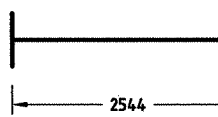
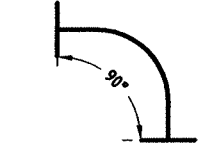
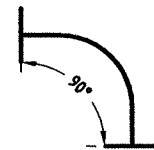

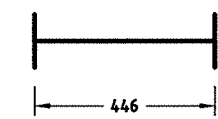
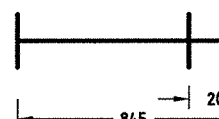
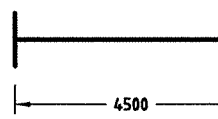
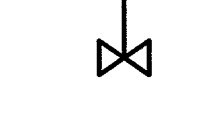
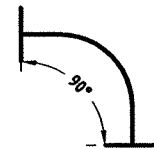

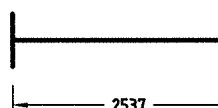
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The drawing consists of two parts: a plan view (top) and an elevation view (bottom).

PLAN View: This view shows the horizontal layout of the structure. It features a central horizontal pipe with several vertical connections. On the left, there are two circular structures labeled ST-1 and ST-2. The central pipe has labels ST-3, ST-4, ST-5, and ST-6. On the right, there is a vertical stack of pipes with labels ST-7, ST-8, ST-9, ST-10, ST-11, and ST-12. A large circular structure, likely a tank or clarifier, is shown on the right side, with a label ST-13. The drawing includes a grid of lines and a cross-section symbol (a square with an 'X') indicating the location of the elevation view.


ELEVATION View: This view shows the vertical profile of the structure. It features a large circular structure on the right, labeled ST-13, which is a tank or clarifier. To the left of the tank, there is a vertical pipe with a curved section at the top, labeled ST-1. The pipe has several horizontal connections labeled ST-2, ST-3, ST-4, ST-5, ST-6, ST-7, ST-8, ST-9, ST-10, ST-11, and ST-12. The drawing includes a grid of lines and a cross-section symbol (a square with an 'X') indicating the location of the plan view.


Labels: The labels ST-1 through ST-13 are used to identify specific components or structures. The elevation view also includes elevation markers: +9.12mMSL (Mean Sea Level) and +8.50mMSL.

ITEM No.	SCM No.	DESCRIPTION	DIMENSIONS	ITEM No.	SCM No.	DESCRIPTION	DIMENSIONS
ST-1	STD 30	400 NB 90° LONG RADIUS ELBOW TO ASTM A106 (5mm PU LINING)		ST-1-1	STD	400 NB STD PIPE TO ASTM A106 FLANGE DRILLING A - 10/3 B - 40/3 (15mm PU LINING)	
ST-2	STD 30	400 NB STD PIPE TO ASTM A106 (5mm PU LINING)		ST-9	STD	400 NB STD PIPE MANIFOLD TO ASTM A106 510mm STUB TO BE PLAIN ENDED, PU LINING TO OVERLAP OUTER PIPE WALL BY 100mm (5mm PU LINING)	
ST-3	STD 30	400 NB 90° LONG RADIUS ELBOW TO ASTM A106 (5mm PU LINING)		ST-101	STD 30	125 NB STD PIPE TO ASTM A106 (5mm PU LINING)	
ST-4	STD 30	400 NB STD PIPE TO ASTM A106 (5mm PU LINING)		ST-102	STD 30	125 NB 90° LONG RADIUS ELBOW TO ASTM A106 (5mm PU LINING)	
ST-5	STD 40	125 NB 90° LONG RADIUS ELBOW TO ASTM A106 (5mm PU LINING)		ST-103	STD 30	125 NB STD PIPE TO ASTM A106 (5mm PU LINING)	
ST-4A	STD 40	125 NB PIPE STD TO ASTM A106 (5mm PU LINING)		ST-104	CLASS 4	100mm DIA CL 4 HDPE PIPE WITH STUB PUDDLE, ONE END PLAIN, OTHER END FLANGED TO SUIT 100mm DIA AQUASORIA BUTTERFLY VALVE	
ST-6	STD 40	125 NB STD PIPE TO ASTM A106 (5mm PU LINING)		ST-105		100mm DIA AQUASORIA BUTTERFLY VALVE WITH EXTENDED REMOVABLE VALVE KEY	
ST-7	STD 40	125 NB 90° LONG RADIUS ELBOW TO ASTM A106 (5mm PU LINING)		ST-106		100mm NB COUNTERFLANGE FLANGE DRILLED TO SUIT STUB FLANGE OF 100NB HDPE	
ST-8	STD 40	125 NB STD PIPE TO ASTM A106 (5mm PU LINING)					

NOTES:

- 1.) FLANGE DRILLING:
 - 1.1) ALL FLANGES MUST COMPLY WITH AND DRILLED TO BS 4504 OF 1969 (PN 10/3) UNLESS NOTED OTHERWISE
 - 1.2) IF VALVES AND PUMPS ARE SUPPLIED WITH FLANGE DRILLING DIFFERENT TO ABOVE, ADJOINING FLANGES SHALL BE DRILLED TO SUIT
 - 1.3) VALVE AND PUMP FLANGES SHALL BE SIZED TO SUIT ADJACENT PIPEWORK FLANGES.
- 2.) PIPE DIMENSIONS
 - 2.1) DIMENSIONS OF PIPE ITEMS ARE FACE TO FACE MEASUREMENTS.
 - 2.2) THE CONTRACTOR MUST ALLOW FOR ANY VARIATION IN DIMENSIONS OF PIPE ITEMS, FOR LININGS, GASKETS AND ADJACENT GAP AT FLEXIBLE COUPLING.
- 3.) PIPE SPECIFICATION
 - 3.1) ALL PIPEWORK SHALL BE SEAMLESS STEEL PIPE TO ASTM A106 GRADE B STANDARD SCHEDULE UNLESS NOTED OTHERWISE.
 - 3.2) NON-STANDARD REDUCERS SHALL BE LONGITUDINAL WELDED IN ACCORDANCE WITH SABS T19 GRADE B.
- 4.) BOLTS, NUTS AND WASHERS.
 - 4.1) ALL BOLTS, NUTS AND WASHERS SHALL BE STAINLESS STEEL GRADE 316.
- 5.) ALL PIPEWORK SHOWN DIAGRAMMATICALLY.
- 6.) ABBREVIATIONS
 - SS = STAINLESS STEEL GRADE 316
 - HDP = HIGH DENSITY POLYETHYLENE
 - PVC = UNPLASTICISED POLYVINYLCHLORIDE
 - RR = REINFORCED RUBBER HOSE
 - PU = POLYURETHANE
 - OD = OUTSIDE DIAMETER
 - ID = INSIDE DIAMETER
 - NB = NOMINAL BORE
- 7.) ALL BOLTS, NUTS, WASHERS AND GASKETS TO BE SUPPLIED BY CONTRACTOR.
- 8.) TEMPORARY COVERS TO BE PROVIDED FOR PROTECTION OF FLANGES, PREPARED ENDS OF PLAIN ENDS PIPES AND FITTINGS, AND THREADS TO PREVENT DAMAGE TO INTERNAL LININGS DURING TRANSPORTATION AND HANDLING.
- 9.) VALVES
 - 9.1) SPECIFICATIONS FOR ALL VALVES [MAKE, MODEL, SIZE ETC.] TO BE CONFIRMED WITH T.O. PRIOR TO ORDERING.
 - 9.2) SPECIFICATIONS FOR ALL VALVE ACTUATORS TO BE CONFIRMED WITH T.O. PRIOR TO ORDERING.
- 10.) PIPEWORK LINING
 - 10.1) ALL PREWORK INCLUDING ELBOWS, TEES, LATERAL TEES & REDUCERS BE LINED WITH POLYURETHANE IN ACCORDANCE WITH PROJECT SPECIFICATION CL 3.1 TO A THICKNESS OF 15mm UNLESS NOTED OTHERWISE. PU LINING (3mm THICK) SHALL EXTEND OVER FLANGE FACES.
 - 10.2) WHERE PU LINED STEEL PIPE BUTTS WITH COMPONENTS (EG. VALVES, FLEXIBLE COUPLINGS ETC.) OR HOPE PIPE THE PU LINING SHALL BE PROVIDED WITH A 1:10 TRANSITION SLOPE TO ENSURE MATCHING INTERNAL DIAMETERS OF ADJOINING PIPE SECTIONS OR COMPONENTS TO WITHIN $\pm 1mm$
 - 10.3) CORROSION PROTECTION OF PIPEWORK.
 - 11.1) ALL STEEL PIPEWORK SHALL HAVE EXTERNAL CORROSION PROTECTION SYSTEM, "SYSTEM C", IN ACCORDANCE WITH PROJECT SPECIFICATION PSHC.
 - 12.) APPROVAL'S PRIOR TO MANUFACTURE.
 - 12.1) THE CONTRACTOR SHALL SUBMIT FULLY DIMENSIONED WORKSHOP DRAWINGS FOR ALL PIPE ITEMS AND FULL DETAILS INCLUDING INTERNAL DIAMETERS FOR ALL VALVES, PUMPS, FLEXIBLE COUPLINGS ETC. FOR T.O.'S APPROVAL PRIOR TO MANUFACTURE.

Port of Ngqura		TRANSE	
Port Engineer		 national ports authority	
Drawing number:			
NH	72	T	0304
Sheet	018	Revision	ZZ
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APPROVAL		SIGNED	DATE
TASKLEADER			3/5/18
SUB-TASK LEADER			
CLIENT			

DETAILS		
DRAWN	RCJ	
DESIGNED	KVP	
SIGNED		DATE
DRAWING CHECKED	<i>P. G. Hansen</i>	3/2/05/08
DESIGN CHECKED		

[illegible]


REFERENCES

SUB-TASK CONSULTANTS
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LEAD CONSULTANTS

PRESTEDGE RETIEF DRESNER WIJNBERG

CONSULTING COASTAL, OCEAN
AND ENVIRONMENTAL ENGINEERS



CLIENT

National Ports Authority of South Africa



PROJECT	COEGA PORT MARITIME GROUP
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TASK	5000 F SAND BYPASSING
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DRAWING TITLE

MAIN PUMP STATION
SETTLING TANK
PIPE SCHEDULE

DWG No: 256/F4/215/04 Rev. ZZ

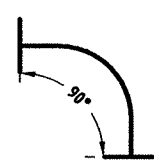
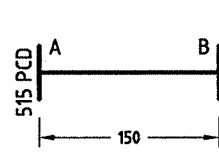
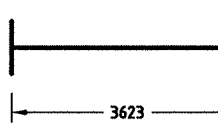
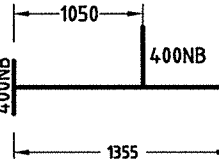
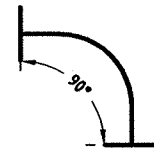
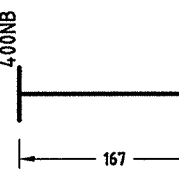
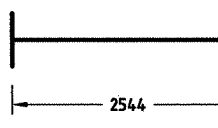
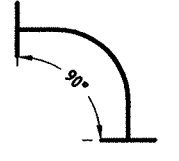
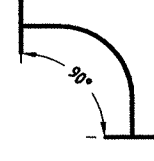
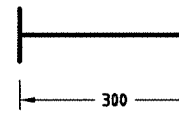
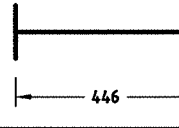
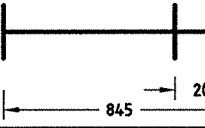
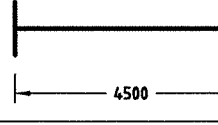
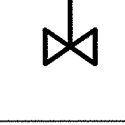
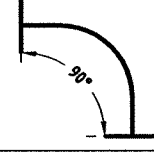

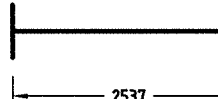
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The drawing consists of two views of a wastewater treatment plant component, likely a pump station or aeration tank.


PLAN View: This view shows the top-down layout of the structure. It features a central rectangular area with a grid pattern, possibly representing a floor or a base. To the left, there are two large circular structures, likely manholes or access points, labeled ST-1 and ST-2. A horizontal pipe or channel runs across the middle, with several smaller pipes branching off. Labels ST-3, ST-4, ST-5, and ST-6 are placed along these pipes. On the right side, there is a large circular structure labeled ST-7, with a smaller circular structure labeled ST-8 below it. A vertical pipe labeled ST-9 is also shown. The entire structure is enclosed within a rectangular boundary.


ELEVATION View: This view shows the side profile of the structure. It features a large circular structure on the left, labeled ST-1, which is connected to a horizontal pipe. The pipe has a vertical section labeled ST-2. To the right, there is a large rectangular structure, possibly a tank or a building, with a sloped roof. The roof is labeled ST-3. The structure has several vertical pipes or columns. Labels ST-4, ST-5, ST-6, ST-7, ST-8, and ST-9 are placed along the structure. The elevation view also shows a staircase on the right side of the structure. The drawing includes various technical details such as dimensions, material specifications, and structural elements.

ITEM No.	SCM No.	DESCRIPTION	DIMENSIONS	ITEM No.	SCM No.	DESCRIPTION	DIMENSIONS
ST-1	STD 30	400 NB 90° LONG RADIUS ELBOW TO ASTM A106 (5mm PU LINING)		ST-1-1	STD	400 NB STD PIPE TO ASTM A106 FLANGE DRILLING A - 10/3 B - 40/3 (15mm PU LINING)	
ST-2	STD 30	400 NB STD PIPE TO ASTM A106 (5mm PU LINING)		ST-9	STD	400 NB STD PIPE MANIFOLD TO ASTM A106 510mm STUB TO BE PLAIN ENDED, PU LINING TO OVERLAP OUTER PIPE WALL BY 100mm (5mm PU LINING)	
ST-3	STD 30	400 NB 90° LONG RADIUS ELBOW TO ASTM A106 (5mm PU LINING)		ST-101	STD 30	125 NB STD PIPE TO ASTM A106 (5mm PU LINING)	
ST-4	STD 30	400 NB STD PIPE TO ASTM A106 (5mm PU LINING)		ST-102	STD 30	125 NB 90° LONG RADIUS ELBOW TO ASTM A106 (5mm PU LINING)	
ST-5	STD 40	125 NB 90° LONG RADIUS ELBOW TO ASTM A106 (5mm PU LINING)		ST-103	STD 30	125 NB STD PIPE TO ASTM A106 (5mm PU LINING)	
ST-4A	STD 40	125 NB PIPE STD TO ASTM A106 (5mm PU LINING)		ST-104	CLASS 4	100mm DIA CL4 HDPE PIPE WITH STUB PUDDLE, ONE END PLAIN, OTHER END FLANGED TO SUIT 100mm DIA AQUASORIA BUTTERFLY VALVE	
ST-6	STD 40	125 NB STD PIPE TO ASTM A106 (5mm PU LINING)		ST-105		100mm DIA AQUASORIA BUTTERFLY VALVE WITH EXTENDED REMOVABLE VALVE KEY	
ST-7	STD 40	125 NB 90° LONG RADIUS ELBOW TO ASTM A106 (5mm PU LINING)		ST-106		100mm NB COUNTERFLANGE FLANGE DRILLED TO SUIT STUB FLANGE OF 100NB HDPE	
ST-8	STD 40	125 NB STD PIPE TO ASTM A106 (5mm PU LINING)					

NOTES:

- 1.) FLANGE DRILLING:
 - 1.1) ALL FLANGES MUST COMPLY WITH AND DRILLED TO BS 4504 OF 1969 (PN 10/3) UNLESS NOTED OTHERWISE
 - 1.2) IF VALVES AND PUMPS ARE SUPPLIED WITH FLANGE DRILLING DIFFERENT TO ABOVE, ADJOINING FLANGES SHALL BE DRILLED TO SUIT
 - 1.3) VALVE AND PUMP FLANGES SHALL BE SIZED TO SUIT ADJACENT PIPEWORK FLANGES.
- 2.) PIPE DIMENSIONS
 - 2.1) DIMENSIONS OF PIPE ITEMS ARE FACE TO FACE MEASUREMENTS.
 - 2.2) THE CONTRACTOR MUST ALLOW FOR ANY VARIATION IN DIMENSIONS OF PIPE ITEMS, FOR LININGS, GASKETS AND ADJACENT GAP AT FLEXIBLE COUPLING.
- 3.) PIPE SPECIFICATION
 - 3.1) ALL PIPEWORK SHALL BE SEAMLESS STEEL PIPE TO ASTM A106 GRADE B STANDARD SCHEDULE UNLESS NOTED OTHERWISE.
 - 3.2) NON-STANDARD REDUCERS SHALL BE LONGITUDINAL WELDED IN ACCORDANCE WITH SABS 719 GRADE B.
- 4.) BOLTS, NUTS AND WASHERS.
 - 4.1) ALL BOLTS, NUTS AND WASHERS SHALL BE STAINLESS STEEL GRADE 316.
- 5.) ALL PIPEWORK SHOWN DIAGRAMMATICALLY.
- 6.) ABBREVIATIONS
 - SS = STAINLESS STEEL GRADE 316
 - HDP = HIGH DENSITY POLYETHYLENE
 - PVC = UNPLASTICISED POLYVINYLCHLORIDE
 - RR = REINFORCED RUBBER HOSE
 - PU = POLYURETHANE
 - OD = OUTSIDE DIAMETER
 - ID = INSIDE DIAMETER
 - NB = NOMINAL BORE
- 7.) ALL BOLTS, NUTS, WASHERS AND GASKETS TO BE SUPPLIED BY CONTRACTOR.
- 8.) TEMPORARY COVERS TO BE PROVIDED FOR PROTECTION OF FLANGES, PREPARED ENDS OF PLAIN ENDS PIPES AND FITTINGS, AND THREADS TO PREVENT DAMAGE TO INTERNAL LININGS DURING TRANSPORTATION AND HANDLING.
- 9.) VALVES
 - 9.1) SPECIFICATIONS FOR ALL VALVES [MAKE, MODEL, SIZE ETC.] TO BE CONFIRMED WITH T.O. PRIOR TO ORDERING.
 - 9.2) SPECIFICATIONS FOR ALL VALVE ACTUATORS TO BE CONFIRMED WITH T.O. PRIOR TO ORDERING.
- 10.) PIPEWORK LINING
 - 10.1) ALL PREWORK INCLUDING ELBOWS, TEES, LATERAL TEES & REDUCERS BE LINED WITH POLYURETHANE IN ACCORDANCE WITH PROJECT SPECIFICATION CL 3.1 TO A THICKNESS OF 15mm UNLESS NOTED OTHERWISE. PU LINING (3mm THICK) SHALL EXTEND OVER FLANGE FACES.
 - 10.2) WHERE PU LINED STEEL PIPE BUTTS WITH COMPONENTS (EG. VALVES, FLEXIBLE COUPLINGS ETC.) OR HOPE PIPE THE PU LINING SHALL BE PROVIDED WITH A 1:10 TRANSITION SLOPE TO ENSURE MATCHING INTERNAL DIAMETERS OF ADJOINING PIPE SECTIONS OR COMPONENTS TO WITHIN $\pm 1mm$
 - 10.3) CORROSION PROTECTION OF PIPEWORK.
 - 11.1) ALL STEEL PIPEWORK SHALL HAVE EXTERNAL CORROSION PROTECTION SYSTEM, "SYSTEM C", IN ACCORDANCE WITH PROJECT SPECIFICATION PSHC.
 - 12.) APPROVAL'S PRIOR TO MANUFACTURE.
 - 12.1) THE CONTRACTOR SHALL SUBMIT FULLY DIMENSIONED WORKSHOP DRAWINGS FOR ALL PIPE ITEMS AND FULL DETAILS INCLUDING INTERNAL DIAMETERS FOR ALL VALVES, PUMPS, FLEXIBLE COUPLINGS ETC. FOR T.O.'S APPROVAL PRIOR TO MANUFACTURE.

Port of Ngqura		TRANSE	
Port Engineer		 national ports authority	
Drawing number:			
NH	72	T	0304
Sheet	018	Revision	ZZ
NH72T0304-018-7			

APPROVAL		SIGNED	DATE
TASKLEADER			3/5/18
SUB-TASK LEADER			
CLIENT			

DETAILS		
DRAWN	RCJ	
DESIGNED	KVP	
SIGNED		DATE
DRAWING CHECKED	<i>P. G. Hansen</i>	3/2/05/08
DESIGN CHECKED		

[illegible]


REFERENCES

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LEAD CONSULTANTS

PRESTEDGE RETIEF DRESNER WIJNBURG

CONSULTING COASTAL, OCEAN
AND ENVIRONMENTAL ENGINEERS



CLIENT

National Ports Authority of South Africa



PROJECT	COEGA PORT MARITIME GROUP
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TASK	5000 F SAND BYPASSING
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DRAWING TITLE

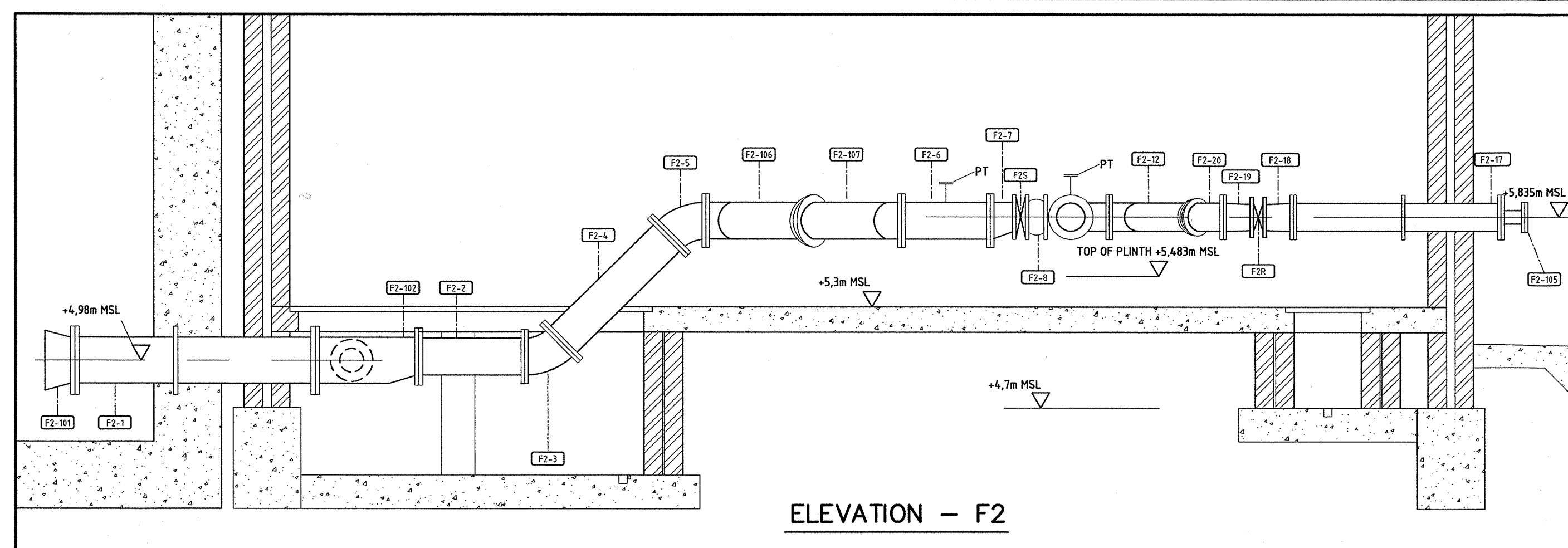
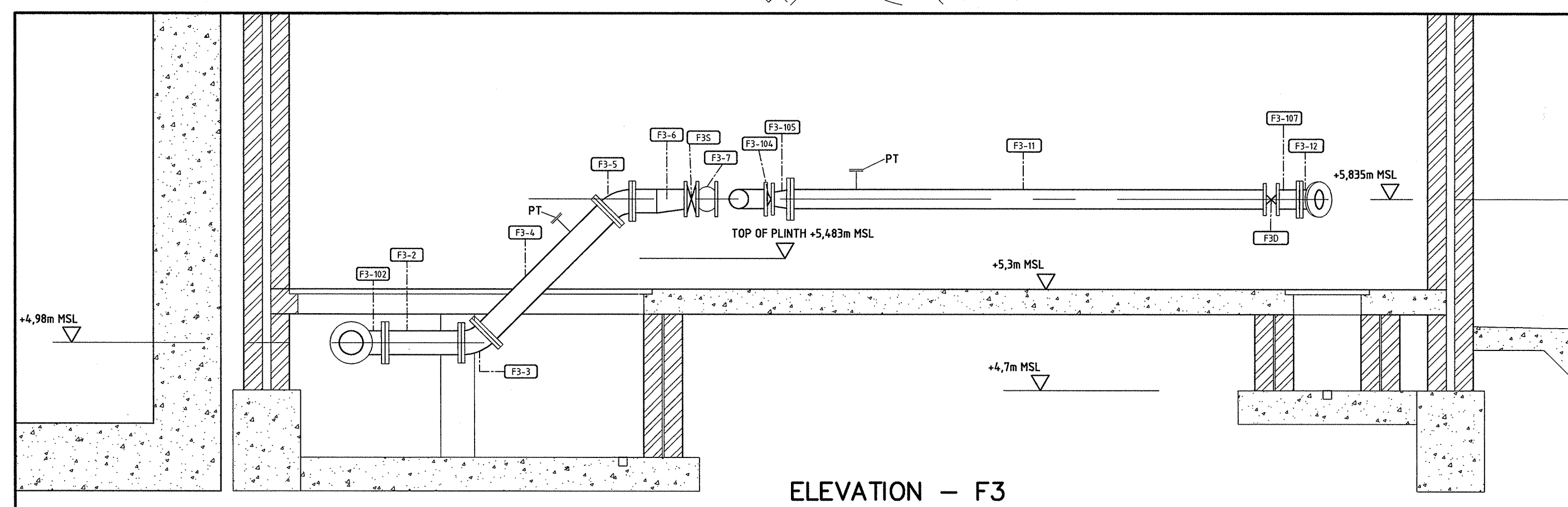
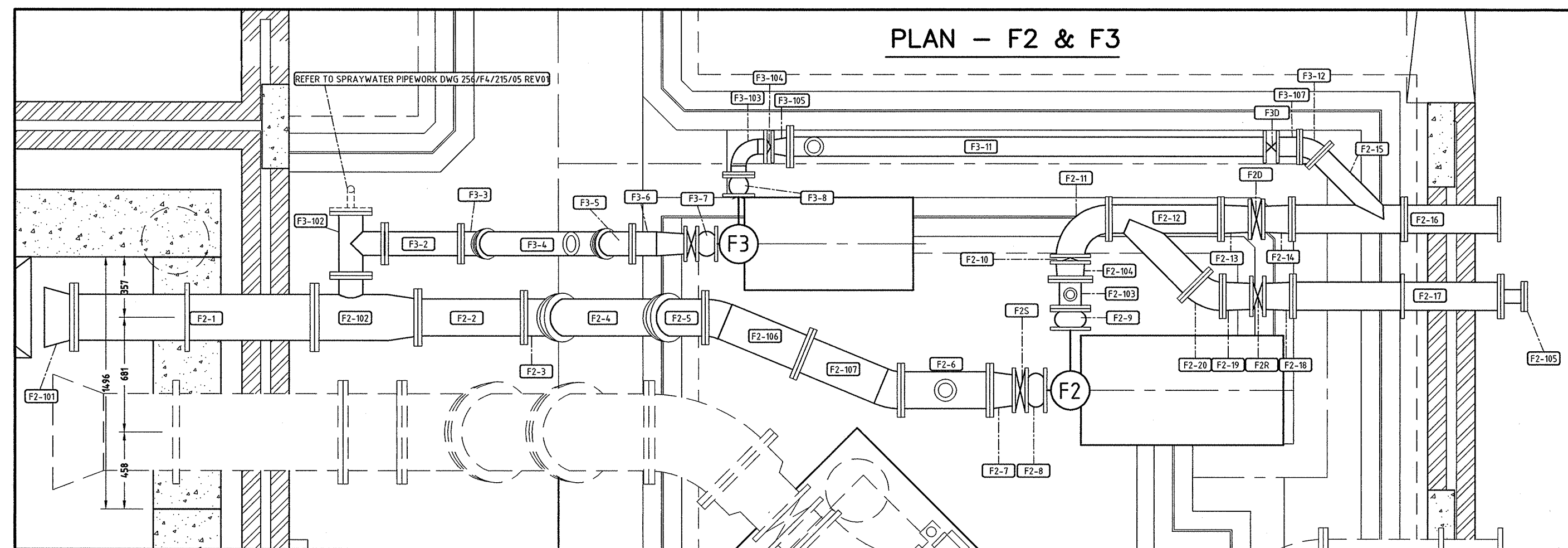
MAIN PUMP STATION
SETTLING TANK
PIPE SCHEDULE

DWG No: 256/F4/215/04 Rev. ZZ

NH72T0304-018-ZZ

NH-72-T-0304-018-ZZ

DO NOT SCALE



NOTES:

- 1) FLANGE DRILLING
- 1.1) ALL FLANGES MUST COMPLY WITH AND DRILLED TO BS 4564 OF 1969 (PN 10/3) UNLESS NOTED OTHERWISE
- 1.2) IF VALVES AND PUMPS ARE SUPPLIED WITH FLANGE DRILLING DIFFERENT TO ABOVE, ADJACENT FLANGES SHALL BE DRILLED TO SUIT.

2) PIPE DIMENSIONS

- 2.1) DIMENSIONS OF PIPE ITEMS ARE FACE TO FACE MEASUREMENTS.
- 2.2) THE CONTRACTOR MUST ALLOW FOR ANY VARIATION IN DIMENSIONS OF PIPE ITEMS, FOR LININGS, GASKETS AND ALLOWABLE GAP AT FLEXIBLE COUPLING.

3) PIPE SPECIFICATION

- 3.1) ALL PIPEWORK SHALL BE SEAMLESS STEEL PIPE TO ASTM A106 GRADE B STANDARD SCHEDULE UNLESS NOTED OTHERWISE.
- 3.2) NON-STANDARD REDUCERS SHALL BE LONGITUDINAL WELDED IN ACCORDANCE WITH SABS 719 GRADE B.

4) BOLTS, NUTS AND WASHERS

- 4.1) ALL BOLTS, NUTS AND WASHERS SHALL BE STAINLESS STEEL GRADE 316.

- 5) ALL PIPEWORK SHOWN DIAGRAMMATICALLY.

6) ABBREVIATIONS

- SS = STAINLESS STEEL GRADE 316
HDPE = HIGH DENSITY POLYETHYLENE
PVC = UNPLASTICISED POLYVINYLCHLORIDE
RR = REINFORCED RUBBER HOSE
PU = POLYURETHANE
OD = OUTSIDE DIAMETER
ID = INSIDE DIAMETER
NB = NOMINAL BORE

7) ALL BOLTS, NUTS, WASHERS AND GASKETS TO BE SUPPLIED BY CONTRACTOR

- 8) TEMPORARY COVERS TO BE PROVIDED FOR PROTECTION OF FLANGES, PREPARED ENDS OF PLAIN ENDED PIPES AND FITTINGS, AND THREADS TO PREVENT DAMAGE TO INTERNAL LININGS DURING TRANSPORTATION AND HANDLING.

9) VALVES

- 9.1) SPECIFICATIONS FOR ALL VALVES (MAKE, MODEL, SIZE ETC.) TO BE CONFIRMED WITH T.O. PRIOR TO ORDERING.
- 9.2) SPECIFICATIONS FOR ALL VALVE ACTUATORS TO BE CONFIRMED WITH T.O. PRIOR TO ORDERING.

10) PIPEWORK LINING

- 10.1) ALL PIPEWORK INCLUDING ELBOWS, TEES, LATERAL TEES & REDUCERS BE LINED WITH POLYURETHANE IN ACCORDANCE WITH PROJECT SPECIFICATION CCL 3.1 TO A THICKNESS OF 15mm UNLESS NOTED OTHERWISE. PU LINING (3mm THICK) SHALL EXTEND OVER FLANGE FACES.

- 10.2) WHERE PU LINED STEEL PIPE BUTTS WITH COMPONENTS (E.G. VALVES, FLEXIBLE COUPLINGS ETC.) OR HOPE PIPE THE PU LINING SHALL BE PROVIDED WITH A 1:10 TRANSITION SLOPE TO ENSURE MATCHING INTERNAL DIAMETERS OF ADJOINING PIPE SECTIONS OR COMPONENTS TO WITHIN ± 5mm.

11) CORROSION PROTECTION OF PIPEWORK

- 11.1) ALL STEEL PIPEWORK SHALL HAVE EXTERNAL CORROSION PROTECTION SYSTEM, "SYSTEM C", IN ACCORDANCE WITH PROJECT SPECIFICATION PSHC.

12) APPROVALS PRIOR TO MANUFACTURE

- 12.1) THE CONTRACTOR SHALL SUBMIT FULLY DIMENSIONED WORKSHOP DRAWINGS FOR ALL PIPE ITEMS AND FULL DETAILS (INCLUDING INTERNAL DIAMETERS) FOR ALL VALVES, PUMPS, FLEXIBLE COUPLINGS ETC. FOR T.O.'S APPROVAL PRIOR TO MANUFACTURE.

ITEM No.	SCH. No.	DESCRIPTION	DIMENSIONS	ITEM No.	SCH. No.	DESCRIPTION	DIMENSIONS	ITEM No.	SCH. No.	DESCRIPTION	DIMENSIONS
F2-101	1	CONCENTRIC REDUCER A = FLANGE ENDED B = FLANGED (5mm PU LINING)		F2-5	25	150NB AQUISORIA H2 3g6k2XA BUTTERFLY VALVE MANUAL CONTROL WITH MA 25 REDUCER OR SIMILAR APPROVED		F2-15	15	150NB 45° LATERAL TEE WITH 100NB BRANCH TO ASTM A106 (5mm PU LINING)	
F2-1	STD 40	250 NB STD PIPE WITH PUDDLE FLANGE TO ASTM A106 (5mm PU LINING)		F2-8	8	150 NB BELLOW WITH AXIAL RESISTANCE RODS		F2-16	16	150 NB STD PIPE TO ASTM A106 (5mm PU LINING)	
F2-102	STD 40	250 NB STD PIPE WITH 125 NB STUB & ECCENTRIC REDUCER TO 200 NB ONE END TO ASTM A106 (5mm PU LINING)		F2-9	9	125 NB BELLOW WITH AXIAL RESISTANCE RODS		F2-105	105	150NB FLANGE WITH 100mm 80NB STUB, FLANGED & BLANKED, TO ASTM A106 (5mm PU LINING)	
F2-2	STD 40	200 NB STD PIPE TO ASTM A106 (5mm PU LINING)		F2-103	103	1 ONLY 125NB ASTM A106 SCHD 40 FBE PIPE C/W 50NB SCHD 40 FLDG BRANCH AND 50NB 316 SS BLK WITH 1/2" 316 BSP SOCKET FOR PRESSURE TRANSDUCER (5mm PU LINING)		F2-17	17	150 NB STD PIPE AND SINGLE FLANGE TO ASTM A106 (5mm PU LINING)	
F2-3	STD 40	200 NB 45° LONG RADIUS ELBOW TO ANSI B16.9 (5mm PU LINING)		F2-104	104	CONCENTRIC REDUCER (5mm PU LINING)		F2-18	18	CONCENTRIC REDUCER (5mm PU LINING)	
F2-4	STD 40	200 NB STD PIPE TO ASTM A106 (5mm PU LINING)		F2-10	10	125 NB HATTERSLEY WATER TIGHT CHECK VALVE DN125 FIG 5870		F2-19	19	150NB AQUISORIA H2 3g6k2XA BUTTERFLY VALVE MANUAL CONTROL WITH MA12 REDUCER	
F2-5	STD 40	200 NB 45° LONG RADIUS ELBOW TO ANSI B16.9 (5mm PU LINING)		F2-11	11	150 NB 90° LONG RADIUS ELBOW TO ANSI B16.9 (5mm PU LINING)		F2-20	20	150 NB 45° LONG RADIUS ELBOW TO ANSI B16.9 (5mm PU LINING)	
F2-106	STD 40	200 NB 22.5° LONG RADIUS ELBOW TO ANSI B16.9 FLANGED ONE END - OTHER END WELDED TO 200 NB STD PIPE, FLANGED ON END CONNECTING TO F2-97 TO ASTM A106 (5mm PU LINING)		F2-12	12	150 NB 45° LATERAL TEE TO ASTM A106 (5mm PU LINING)					
F2-107	STD 40	200 NB 22.5° LONG RADIUS ELBOW TO ANSI B16.9 FLANGED ONE END - OTHER END WELDED TO 200 NB STD PIPE, FLANGED ON END CONNECTING TO F2-106 TO ASTM A106 (5mm PU LINING)		F2-13	13	CONCENTRIC REDUCER (5mm PU LINING)					
F2-6	STD 40	200NB ASTM A106 SCHD 40 FBE PIPE C/W 50NB SCHD 40 FLDG BRANCH AND 50NB 316 SS BLK WITH 1/2" 316 BSP SOCKET FOR PRESSURE TRANSDUCER (5mm PU LINING)		F2-14	14	CONCENTRIC REDUCER (5mm PU LINING)					
F2-7	1/8-18	ECCENTRIC REDUCER A = FLANGED TO SUIT 150NB BELLOW (5mm PU LINING)									

FLUIDISER PUMP F2 PIPE SCHEDULE.

ITEM No.	SCH. No.	DESCRIPTION	DIMENSIONS	ITEM No.	SCH. No.	DESCRIPTION	DIMENSIONS	ITEM No.	SCH. No.	DESCRIPTION	DIMENSIONS
F3-102	STD 40	125 NB EQUAL TEE TO ANSI B16.9 (5mm PU LINING)		F3-5	5	100NB AQUISORIA H2 3g6k2XA BUTTERFLY VALVE MANUAL CONTROL WITH MA 12 REDUCER OR SIMILAR APPROVED		F3-11	11	100NB ASTM A106 SCHD 40 FBE PIPE C/W 50NB SCHD 40 FLDG BRANCH AND 50NB 316 SS BLK WITH 1/2" 316 BSP SOCKET FOR PRESSURE TRANSDUCER (5mm PU LINING)	
F3-2	STD 40	125 NB STD PIPE TO ASTM A106 (5mm PU LINING)		F3-7	7	100 NB BELLOW SIMILAR TO DELTA-T BELLOW TYPE 49B BLACK		F3-10	10	100NB AQUISORIA H2 3g6k2XA BUTTERFLY VALVE PLUS ACTUATOR (MAKE & MODEL NO. ON HOLD)	
F3-3	STD 40	125 NB 45° LONG RADIUS ELBOW TO ANSI B16.9 (5mm PU LINING)		F3-8	8	80 NB BELLOW SIMILAR TO DELTA-T BELLOW TYPE 49B BLACK		F3-107	107	100 NB STD PIPE TO ASTM A106 (5mm PU LINING)	
F3-4	STD 40	125NB ASTM A106 SCHD 40 FBE PIPE C/W 50NB SCHD 40 FLDG BRANCH AND 50NB 316 SS BLK WITH 1/2" 316 BSP SOCKET FOR PRESSURE TRANSDUCER (5mm PU LINING)		F3-103	103	80 NB 90° LONG RADIUS ELBOW WITH EXTENSION WELDED EITHER SIDE TO ANSI B16.9 (5mm PU LINING)		F3-12	12	100 NB 45° LONG RADIUS ELBOW TO ANSI B16.9 (5mm PU LINING)	
F3-5	STD 40	125 NB 45° LONG RADIUS ELBOW TO ANSI B16.9 (5mm PU LINING)		F3-12	12	65NB WAFER TYPE SPRING LOADED NON RETURN VALVE					
F3-6	STD 40 & 1/4-65	125 NB STD PIPE WELDED TO ECCENTRIC REDUCER TO ASTM A106 (5mm PU LINING)		F3-105	105	CONCENTRIC REDUCER (5mm PU LINING)					

FLUSHING PUMP F3 PIPE SCHEDULE.

Port of Ngqura
Port Engineer
Drawing number:
NH 72 T 0304
Sheet 015 Revision 22
NH72T0304-015-22

LEGEND
T PRESURE TRANSDUCER

ORIGINAL SCALE
1:25
0 10 20 30 40
ON ORIGINAL (mm)

APPROVAL

TASKLEADER	SIGNED	DATE
		20/5/08
SUB-TASK LEADER		
CLIENT		

DETAILS

DRAWN	RCJ	
DESIGNED	KVP	
SIGNED		DATE
DRAWING CHECKED	<i>K. K. K. K.</i>	30/05/08
DESIGN CHECKED		

REVISIONS

NO.	DATE	DESCRIPTION
00		ISSUED FOR TENDER
01	09/09/2002	ISSUED FOR CONSTRUCTION (draft)
02	05/11/2002	GENERAL PIPEWORK CHANGES
03		F3 PIPEWORK CHANGE
04		F2 & F3 PIPEWORK CHANGE
ZZ		AS BUILT

REFERENCES

PIPE SUPPORTS
DWG . NO. 256/F4/260/01
DWG . NO. 256/F4/260/02

SUB-TASK CONSULTANTS

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AND ENVIRONMENTAL ENGINEERS

CLIENT

National Ports
Authority
of South Africa

PROJECT

COEGA PORT
MARITIME GROUP

TASK

5000 F
SAND BYPASSING

DRAWING TITLE

MAIN PUMP STATION
FLUIDISER (F2 & F3)
PIPE SCHEDULE

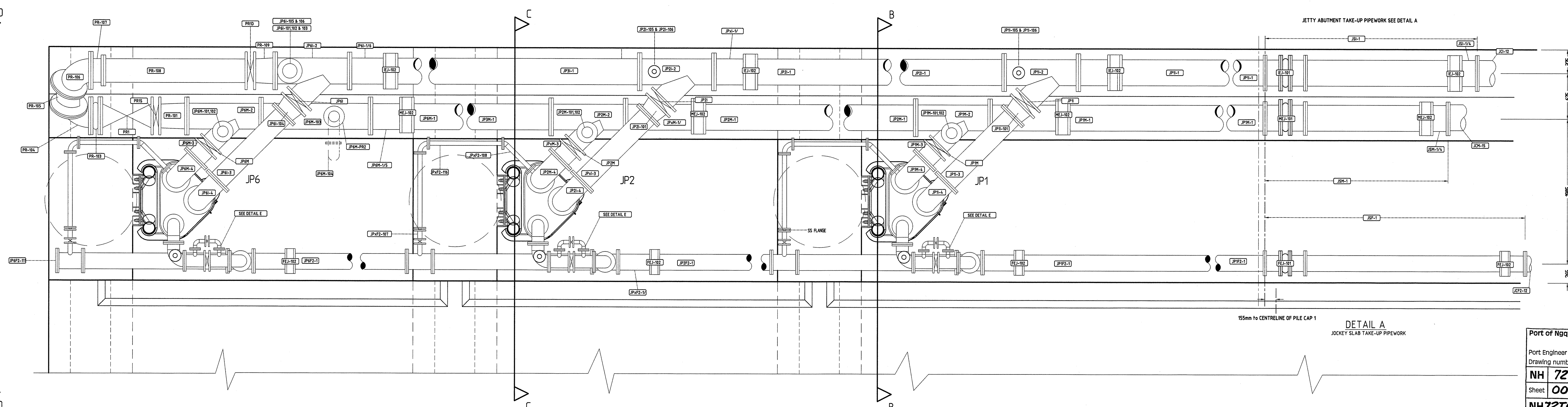
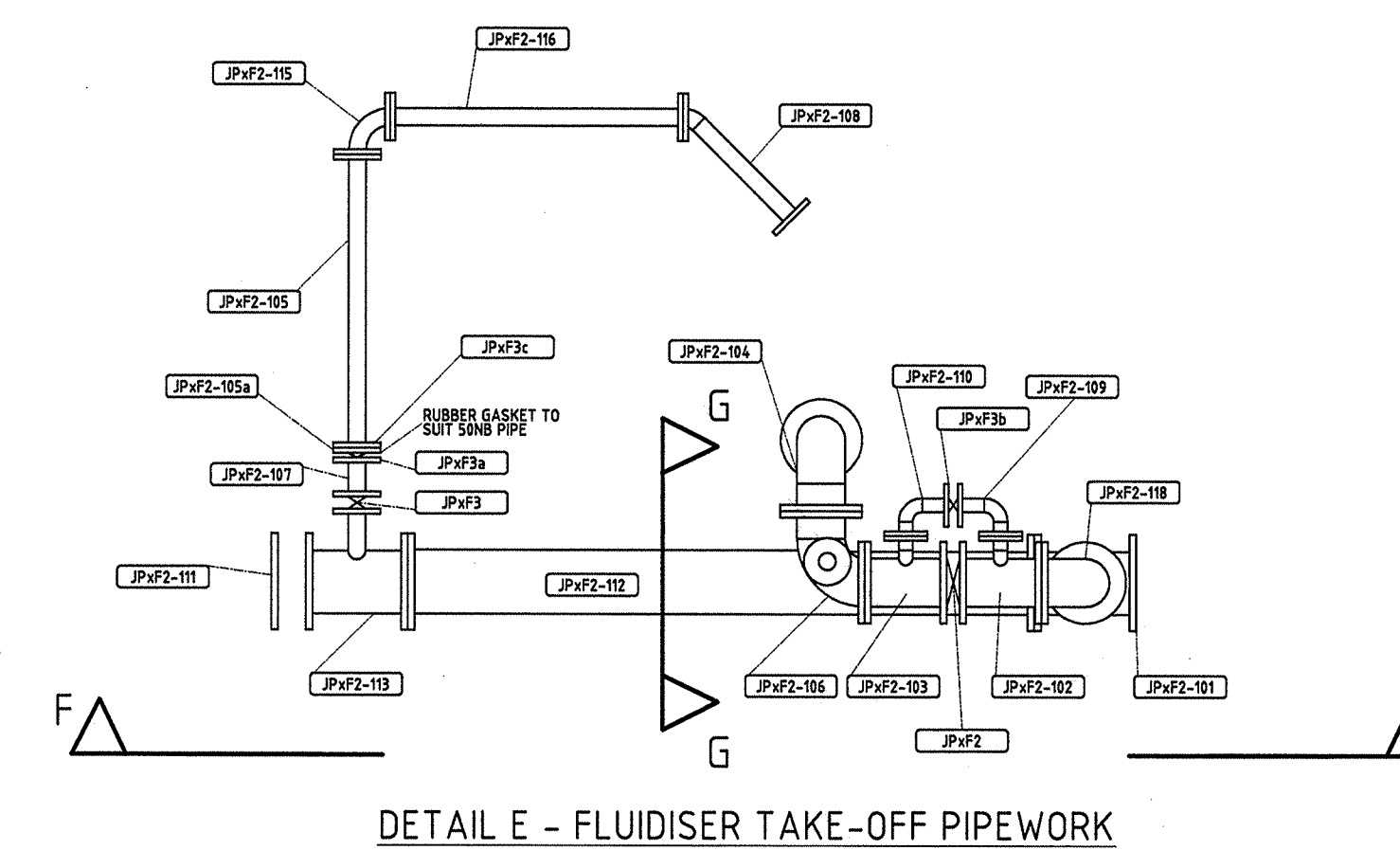
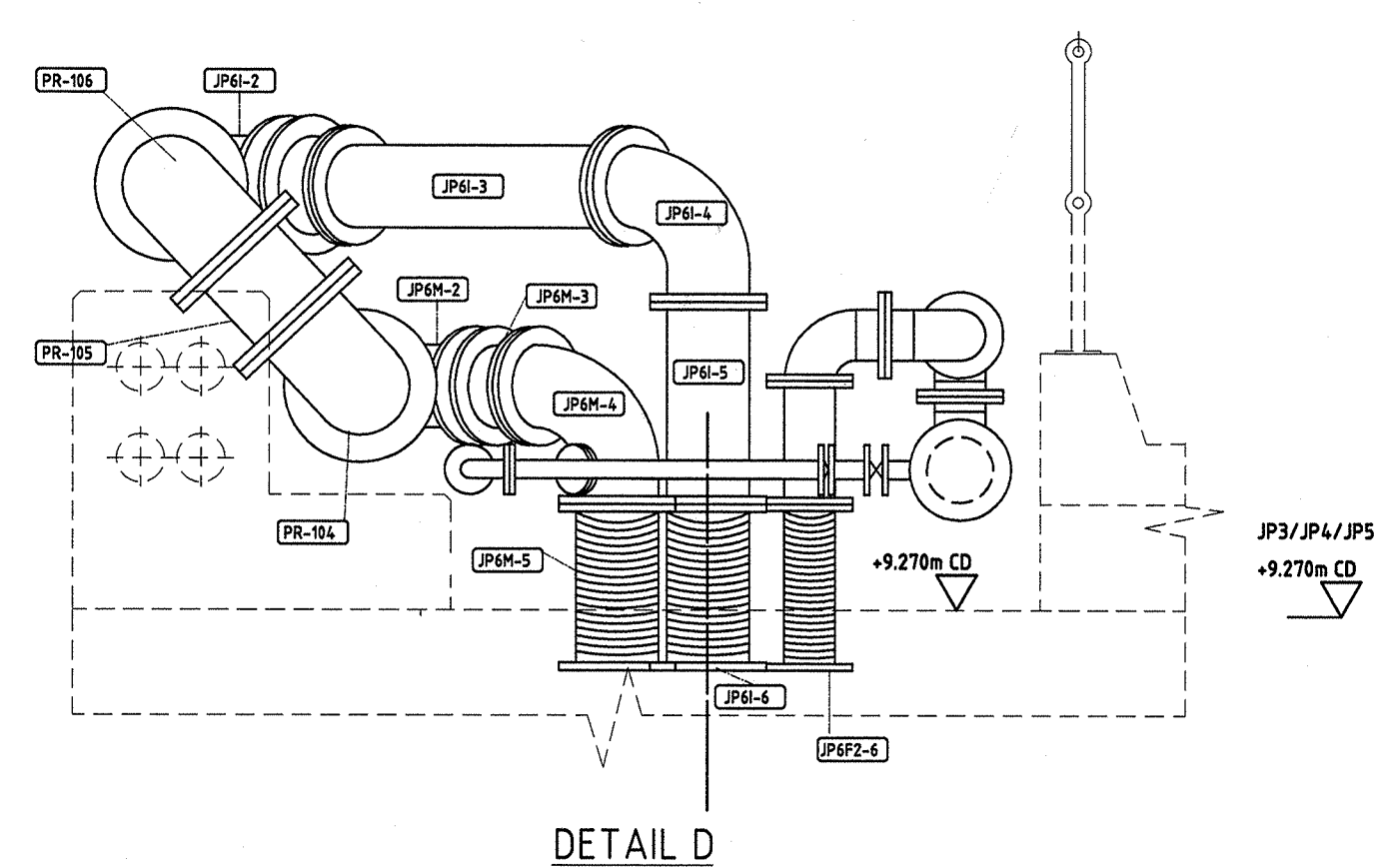
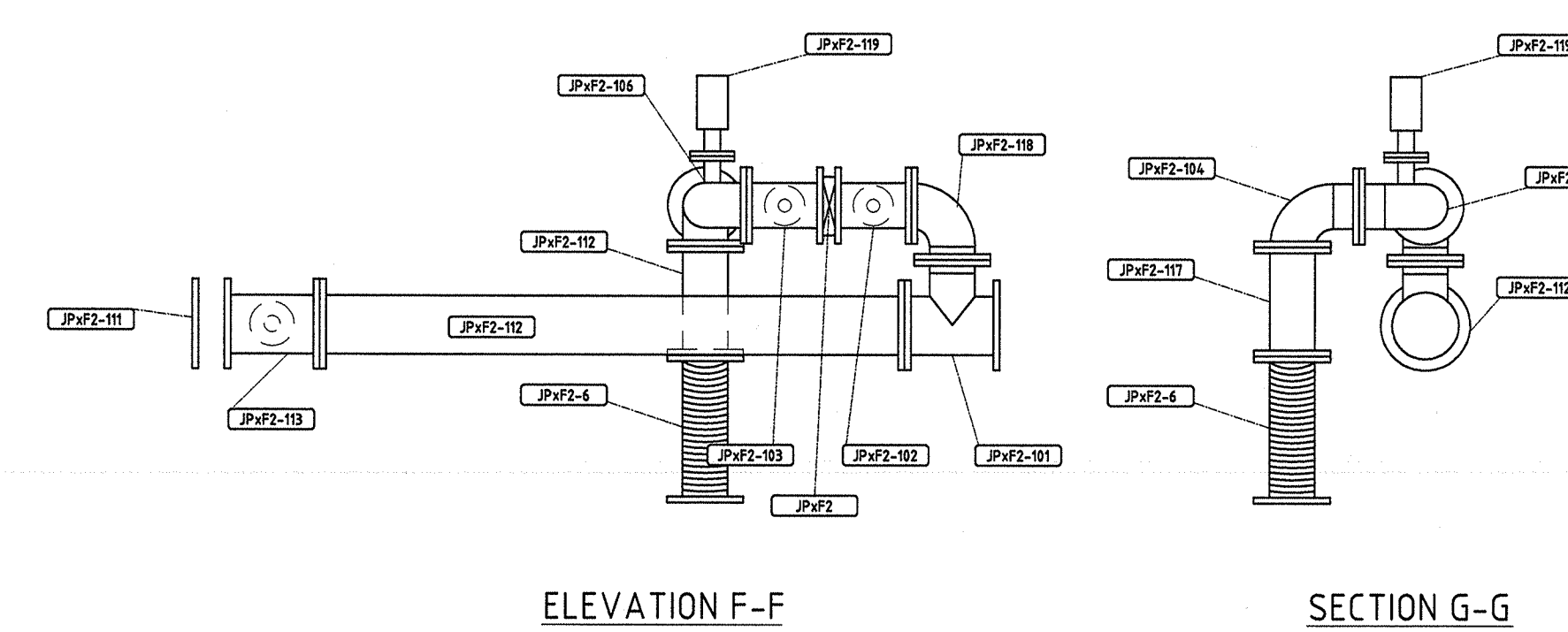
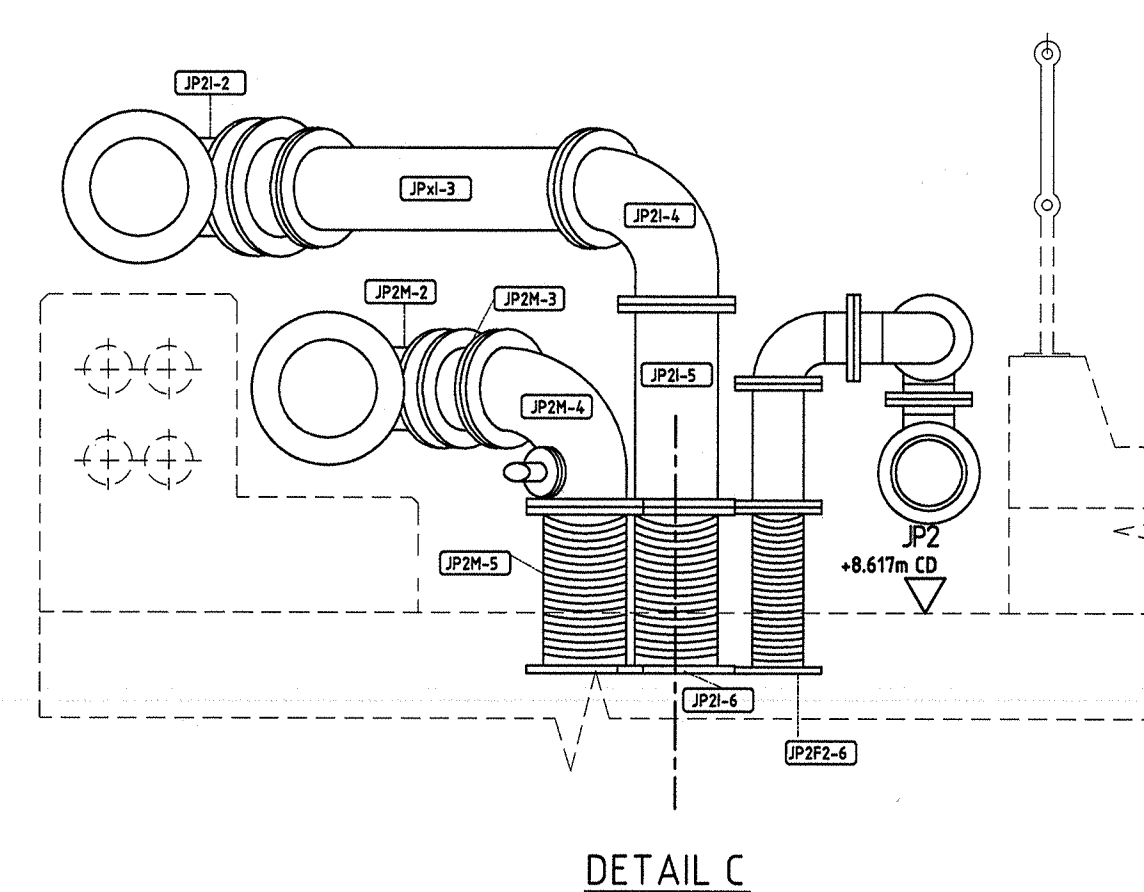
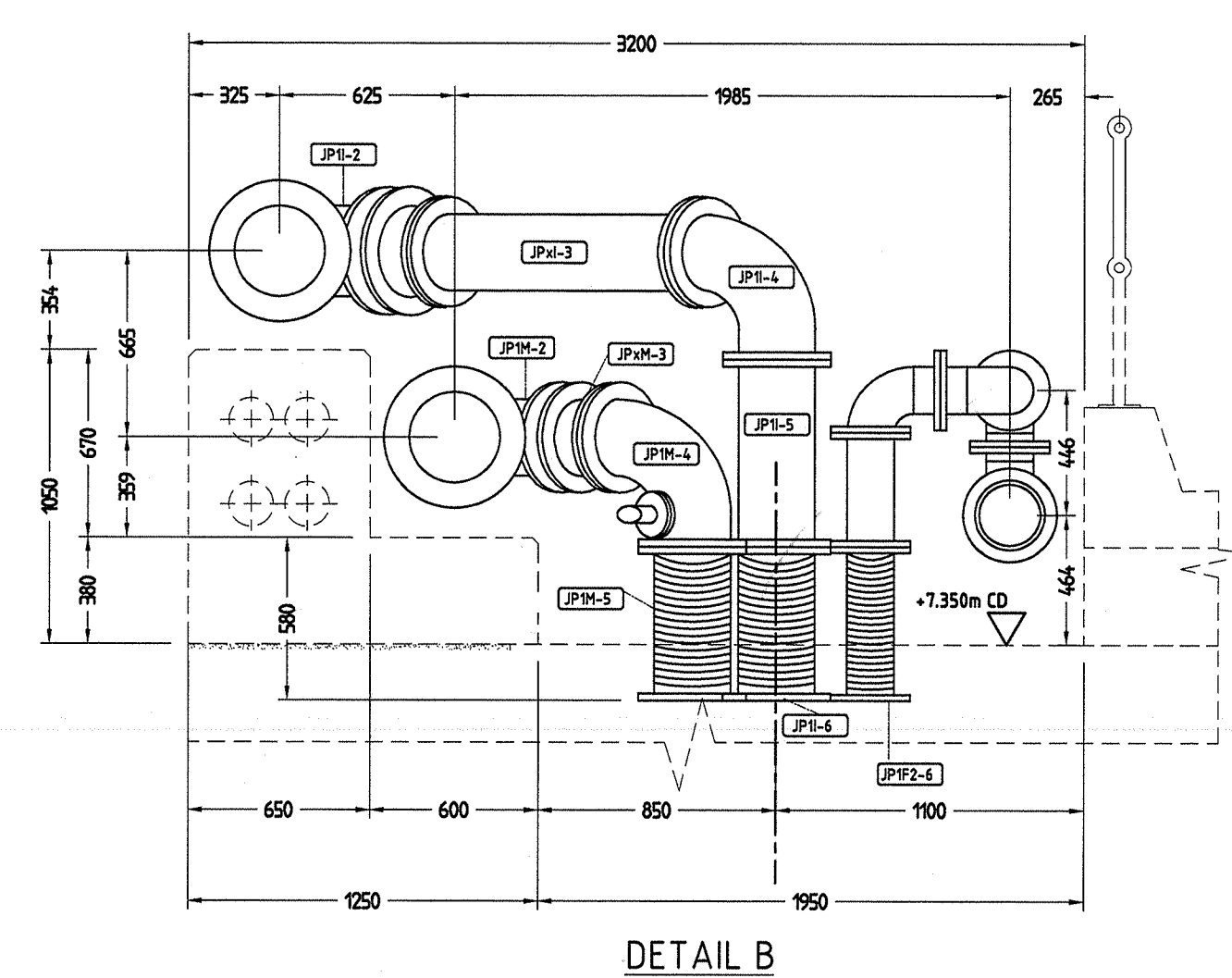
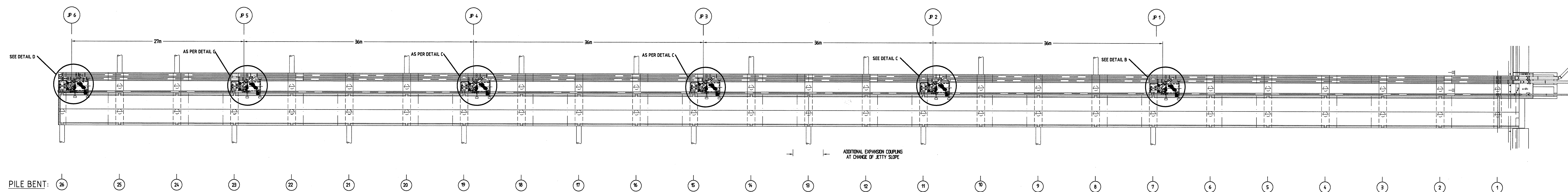
DWG No:

256/F4/215/01 Rev. ZZ

ALL LEVELS TO MEAN SEA LEVELS (MSL).


NH72T0304-015-22

DO NOT SCALE – PIPE SCHEDULE ON 256/225/04



ORIGINAL SCALE
1:250 & 1:25

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ON ORIGINAL (mm)

APPROVAL		SIGNED	DATE
TASKLEADER			3/0/20
SUB-TASK LEADER			
CLIENT			

DETAILS	
DRAWN	RCJ
DESIGNED	A McClARTY
SIGNED	
DATE	
DRAWING CHECKED	<i>AME</i> 30/05/08
DESIGN CHECKED	

[illegible]

REFERENCES
DWG . NO. 256/F4/260/03
DWG . NO. 256/F4/225/04 FOR SCHEDULE
& 256/F4/225/03 FOR EXPANSION JOINTS

SUB-TASK CONSULTANTS


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CONSULTING COASTAL, OCEAN
AND ENVIRONMENTAL ENGINEERS



CLIENT

National Ports Authority of South Africa




PROJECT	COEGA PORT MARITIME GROUP
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TASK	5000 F SAND BYPASSING
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DRAWING TITLE

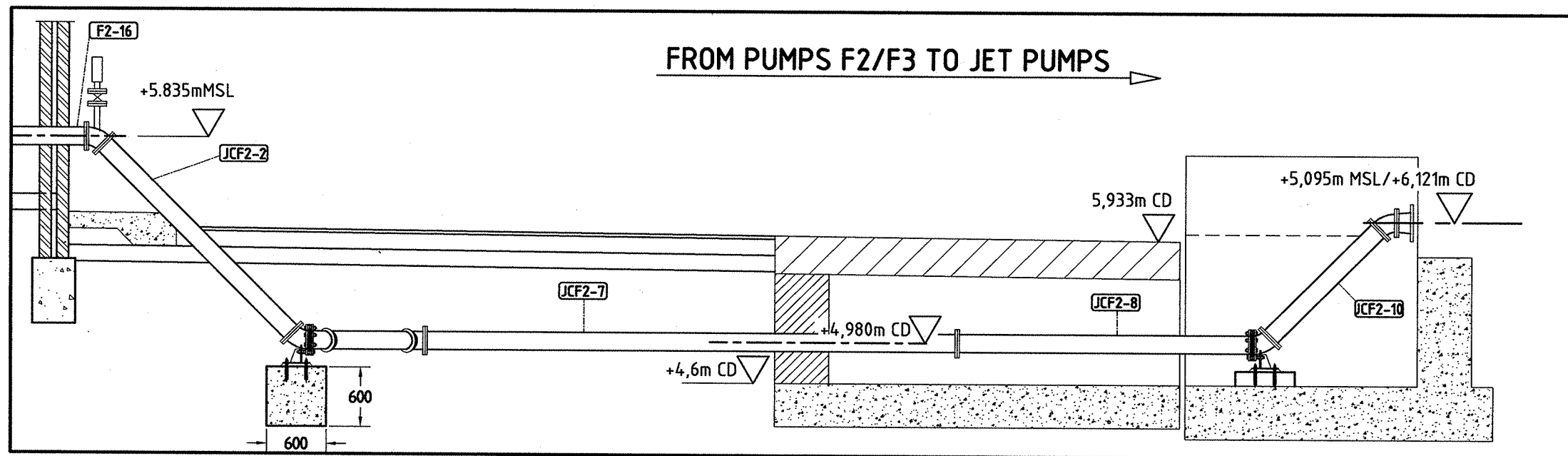
JETTY
PIPEWORK

DWG No: 256/F4/225/02 Rev. Z

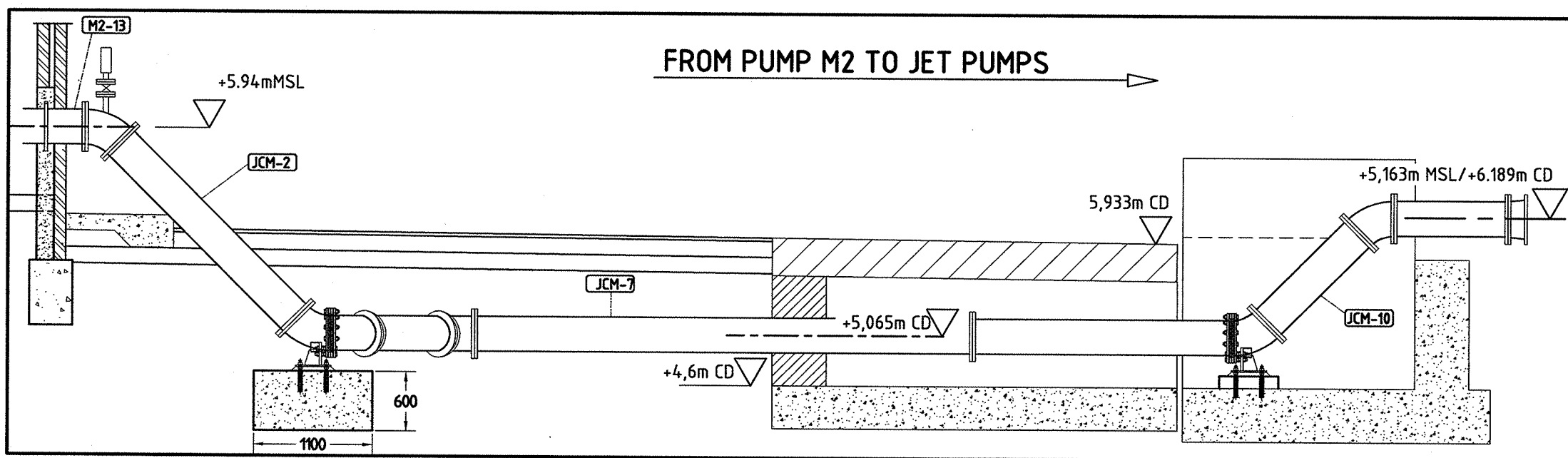
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Port Engineer		 national ports authority	
Drawing number:			
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Sheet	002	Revision	ZZ
NH72T03/2-002-ZZ			

NH:72-T-0312-002-ZZ

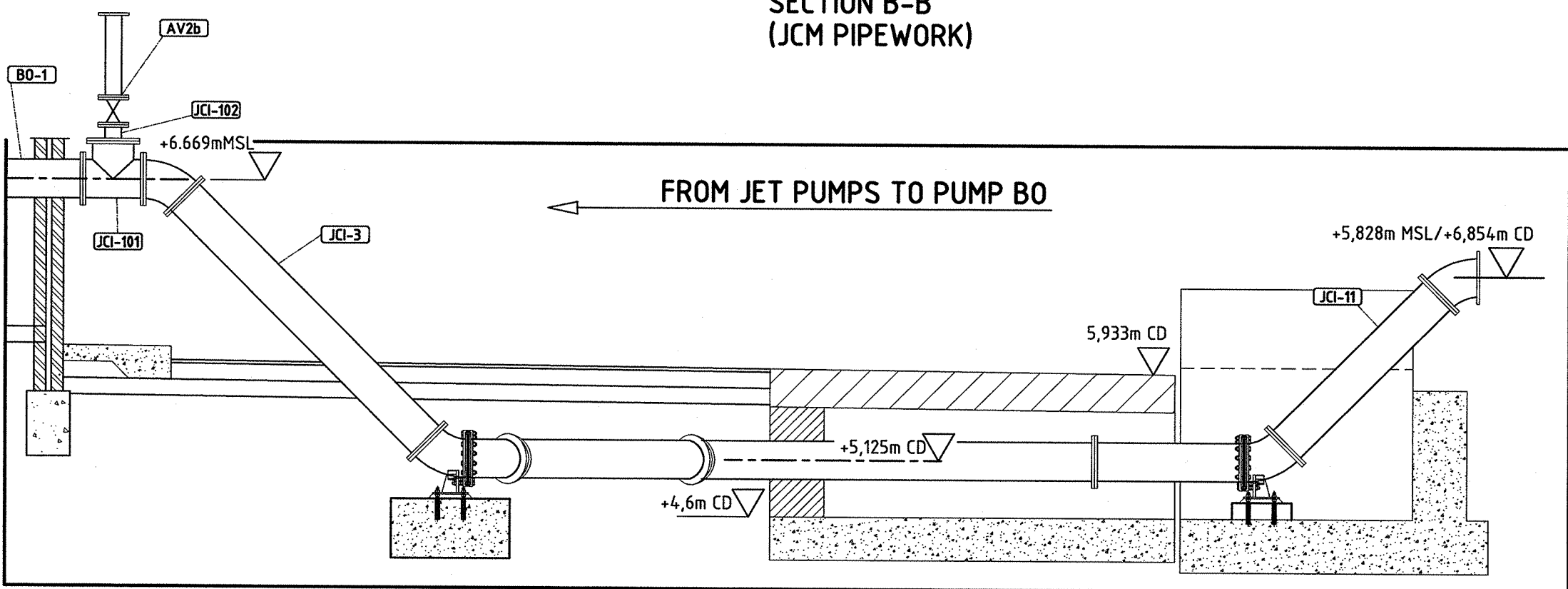
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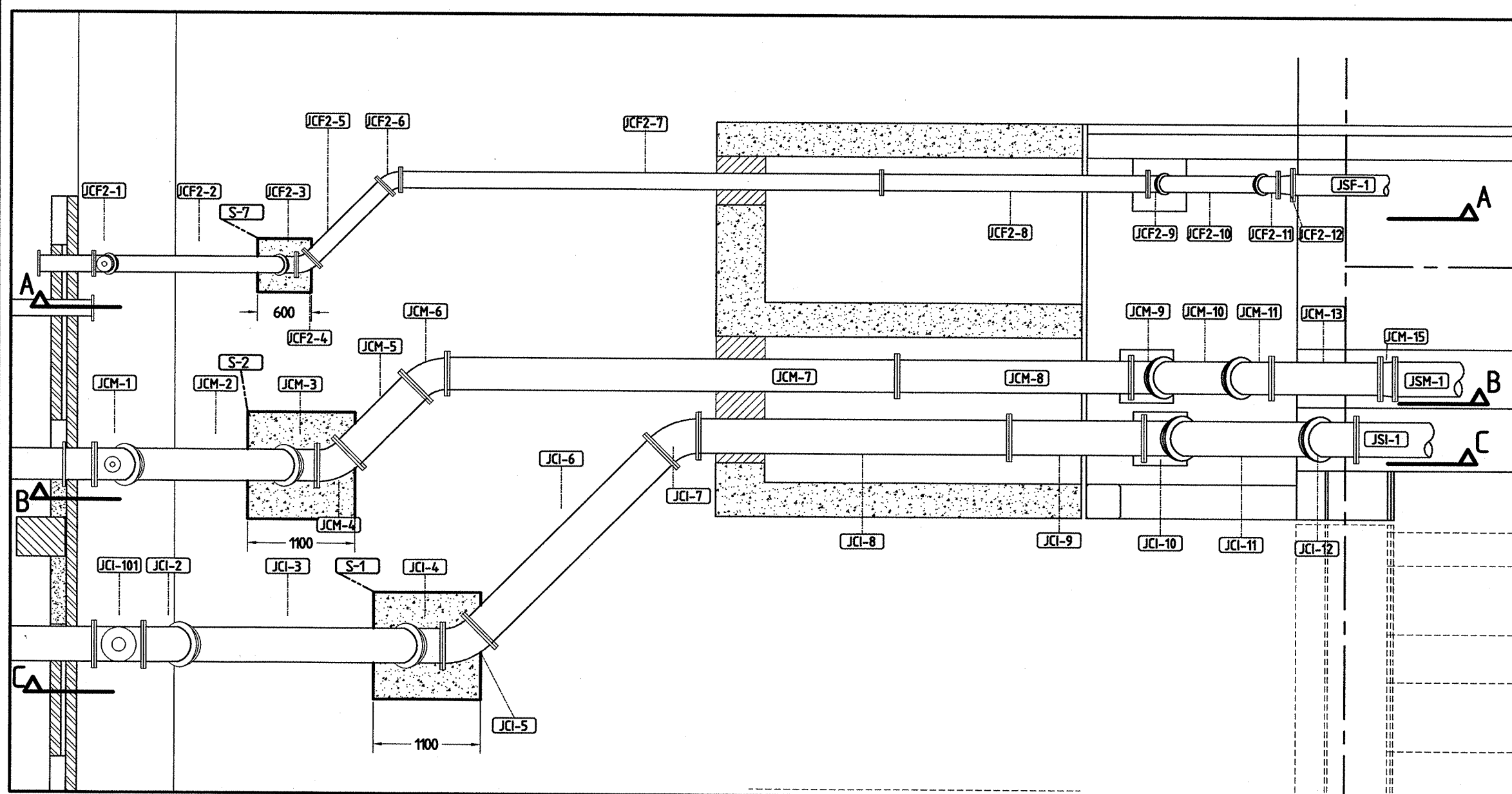
SECTION A-A
(JCF2 PIPEWORK)



SECTION B-B
(JCM PIPEWORK)



SECTION C-C
(JCI PIPEWORK)



PLAN OF JETTY CONNECTING PIPEWORK

ITEM No.	SCH. No.	DESCRIPTION	DIMENSIONS	ITEM No.	SCH. No.	DESCRIPTION	DIMENSIONS	ITEM No.	SCH. No.	DESCRIPTION	DIMENSIONS	ITEM No.	SCH. No.	DESCRIPTION	DIMENSIONS
JCF2-1	STD 40	150 NB 45° LONG RADIUS ELBOW TO ANSI B16.9	50NB 300 191 45°	JCF2-2	STD 40	150 NB STD PIPE TO ASTM A106	2389	JCF2-6	STD 40	150 NB 45° LONG RADIUS ELBOW TO ANSI B16.9	45°	JCF2-10	STD 40	150 NB STD PIPE TO ASTM A106	833
JCF2-101		VENT-O-MAT 050 RBX 2511 AIR RELEASE & VACUUM BREAK VALVE WITH FLANGED CONNECTION. THREADED 2" BSP MALE SOCKET OF AIR VALVE CONNECTED TO 2" BSP FEMALE SOCKET OF 100mm LONG STUB. 50NB FLANGE ON OTHER END. ASSEMBLY & CORROSION PROTECTION TO BE CARRIED OUT IN FACTORY.	2" BSP MALE 50NB 2" BSP FEMALE	JCF2-3	STD 40	150 NB 45° LONG RADIUS ELBOW TO ANSI B16.9	45°	JCF2-7	STD 40	150 NB STD PIPE TO ASTM A106	4931	JCF2-11	STD 40	150 NB 45° LONG RADIUS ELBOW TO ANSI B16.9	45°
JCF2-102		50 NB AVK RSV ISOLATING VALVE MANUAL CONTROL WITH HANDWHEEL		JCF2-4	STD 40	150 NB 45° LONG RADIUS ELBOW TO ANSI B16.9	45°	JCF2-8	STD 40	150 NB STD PIPE TO ASTM A106	2758	JCF2-12	STD	CONCENTRIC REDUCER	291 163 54
JCF2-103		50 NB STD PIPE TO ASTM A106	1081	JCF2-5	STD 40	150 NB STD PIPE TO ASTM A106	1081	JCF2-9	STD 40	150 NB 45° LONG RADIUS ELBOW TO ANSI B16.9	45°				

ITEM No.	SCH. No.	DESCRIPTION	DIMENSIONS	ITEM No.	SCH. No.	DESCRIPTION	DIMENSIONS	ITEM No.	SCH. No.	DESCRIPTION	DIMENSIONS	ITEM No.	SCH. No.	DESCRIPTION	DIMENSIONS
JCM-1	STD 40	300 NB 45° LONG RADIUS ELBOW WITH 50NB STD FLANGED PIPE STUB TO ANSI B16.9	50NB 300 191 45°	JCM-2	STD 40	300 NB STD PIPE TO ASTM A106	2091	JCM-6	STD 40	300 NB 45° LONG RADIUS ELBOW TO ANSI B16.9	45°	JCM-10	STD 40	300 NB STD PIPE TO ASTM A106	961
JCM-101		VENT-O-MAT 050 RBX 2511 AIR RELEASE & VACUUM BREAK VALVE WITH FLANGED CONNECTION. THREADED 2" BSP 2" BSP MALE SOCKET OF AIR VALVE CONNECTED TO 2" BSP FEMALE SOCKET OF 100mm LONG STUB. 50NB FLANGE ON OTHER END. ASSEMBLY & CORROSION PROTECTION TO BE CARRIED OUT IN FACTORY.	2" BSP MALE 50NB 2" BSP FEMALE	JCM-3	STD 40	300 NB 45° LONG RADIUS ELBOW TO ANSI B16.9	45°	JCM-7	STD 40	300 NB STD PIPE TO ASTM A106	4613	JCM-11	STD 40	300 NB 45° LONG RADIUS ELBOW TO ANSI B16.9	45°
JCM-102		50 NB AVK RSV ISOLATING VALVE MANUAL CONTROL WITH HANDWHEEL		JCM-4	STD 40	300 NB 45° LONG RADIUS ELBOW TO ANSI B16.9	45°	JCM-8	STD 40	300 NB STD PIPE TO ASTM A106	2555	JCM-13	STD 40	300 NB STD PIPE TO ASTM A106	1211
				JCM-5	STD 40	300 NB STD PIPE TO ASTM A106	1126	JCM-9	STD 40	300 NB 45° LONG RADIUS ELBOW TO ANSI B16.9	45°	JCM-15	STD	CONCENTRIC REDUCER	356 145 3238

ITEM No.	SCH. No.	DESCRIPTION	DIMENSIONS	ITEM No.	SCH. No.	DESCRIPTION	DIMENSIONS	ITEM No.	SCH. No.	DESCRIPTION	DIMENSIONS	ITEM No.	SCH. No.	DESCRIPTION	DIMENSIONS
JCI-101	STD 40	350 NB 90° LATERAL TEE WITH 350 NB BRANCH TO ASTM A106	280 350NB 350 560	JCI-3	STD 40	350 NB STD PIPE TO ASTM A106	2804	JCI-7	STD 40	350 NB 45° LONG RADIUS ELBOW TO ANSI B16.9	45°	JCI-11	STD 40	350 NB STD PIPE TO ASTM A106	1570
JCI-102	STD 40	100NB STD PIPE TO ASTM A106. FLANGED/DRILLED ONE SIDE TO SUIT 100NB ISOLATING VALVE. OTHER SIDE 50NB BLANK FLANGE WITH 100NB DIAMETER HOLE & 100 NB AVK T0157 DRILLED TO SUIT JCI-1.	100NB 350NB 150	JCI-4	STD 40	350 NB 45° LONG RADIUS ELBOW TO ANSI B16.9	45°	JCI-8	STD 40	350 NB STD PIPE TO ASTM A106	3186	JCI-12	STD 40	350 NB 45° LONG RADIUS ELBOW TO ANSI B16.9	45°
AV2b		AIR RELEASE & VACUUM BREAK VALVE WITH 100NB AVK 43/60 ISOLATING GATE VALVE OR SIMILAR APPROVED		JCI-5	STD 40	350 NB 45° LONG RADIUS ELBOW TO ANSI B16.9	45°	JCI-9	STD 40	350 NB STD PIPE TO ASTM A106	1544				
JCI-2	STD 40	350 NB 45° LONG RADIUS ELBOW TO ANSI B16.9	45°	JCI-6	STD 40	350 NB STD PIPE TO ASTM A106	1996	JCI-10	STD 40	350 NB 45° LONG RADIUS ELBOW TO ANSI B16.9	45°				

NOTES:

- FLANGE DRILLING.
1.1) ALL FLANGES MUST COMPLY WITH AND DRILLED TO BS 4504 OF 1969. (PN 16/3) UNLESS NOTED OTHERWISE.
1.2) IF VALVES AND PUMPS ARE SUPPLIED WITH FLANGE DRILLING DIFFERENT TO ABOVE, ADJACENT FLANGES SHALL BE DRILLED TO SUIT.
- PIPE DIMENSIONS
2.1) DIMENSIONS OF PIPE ITEMS ARE FACE TO FACE MEASUREMENTS.
2.2) THE CONTRACTOR MUST ALLOW FOR ANY VARIATION IN DIMENSIONS OF PIPE ITEMS, FOR LININGS, GASKETS AND ALLOWABLE GAP AT FLEXIBLE COUPLING.
- PIPE SPECIFICATION
3.1) ALL PIPEWORK SHALL BE SEAMLESS STEEL PIPE TO ASTM A106 GRADE B STANDARD SCHEDULE UNLESS NOTED OTHERWISE.
3.2) NON-STANDARD REDUCERS SHALL BE LONGITUDINAL WELDED IN ACCORDANCE WITH SABS 719 GRADE B.
- BOLTS, NUTS AND WASHERS.
4.1) ALL BOLTS, NUTS AND WASHERS SHALL BE STAINLESS STEEL GRADE 316.
5) ALL PIPEWORK SHOWN DIAGRAMMATICALLY.
- ABBREVIATIONS
SS = STAINLESS STEEL GRADE 316
HDPE = HIGH DENSITY POLYETHYLENE
PVC = UNPLASTICISED POLYVINYLCHLORIDE
RR = REINFORCED RUBBER HOSE
PU = POLYURETHANE
OD = OUTSIDE DIAMETER
ID = INSIDE DIAMETER
NB = NOMINAL BORE
- 7) ALL BOLTS, NUTS, WASHERS AND GASKETS TO BE SUPPLIED BY CONTRACTOR.
- TEMPORARY COVERS TO BE PROVIDED FOR PROTECTION OF FLANGES, PREPARED ENDS OF PLAIN ENDED PIPES AND FITTINGS, AND THREADS TO PREVENT DAMAGE TO INTERNAL LININGS DURING TRANSPORTATION AND HANDLING.
- VALVES
9.1) SPECIFICATIONS FOR ALL VALVES (MAKE, MODEL, SIZE ETC.) TO BE CONFIRMED WITH T.O. PRIOR TO ORDERING.
9.2) SPECIFICATIONS FOR ALL VALVE ACTUATORS TO BE CONFIRMED WITH T.O. PRIOR TO ORDERING.
- PIPEWORK LINING
10.1) ALL PIPEWORK INCLUDING ELBOWS, TEES, LATERAL TEES & REDUCERS TO BE LINED WITH POLYURETHANE IN ACCORDANCE WITH PROJECT SPECIFICATION CCL 3.1 TO A THICKNESS OF 5mm UNLESS NOTED OTHERWISE. PU LINING (3mm THICK) SHALL EXTEND OVER FLANGE FACES.
10.2) WHERE PU LINED STEEL PIPE BUTTS WITH COMPONENTS (EG. VALVES, FLEXIBLE COUPLINGS ETC.) OR HDPE PIPE THE PU LINING SHALL BE PROVIDED WITH A 1:10 TRANSITION SLOPE TO ENSURE MATCHING INTERNAL DIAMETERS OF ADJOINING PIPE SECTIONS OR COMPONENTS TO WITHIN ± 1mm.
- CORROSION PROTECTION OF PIPEWORK
11.1) ALL STEEL PIPEWORK SHALL HAVE EXTERNAL CORROSION PROTECTION SYSTEM, "SYSTEM C", IN ACCORDANCE WITH PROJECT SPECIFICATION PSHC.
- APPROVALS PRIOR TO MANUFACTURE
12.1) THE CONTRACTOR SHALL SUBMIT FULLY DIMENSIONED WORKSHOP DRAWINGS FOR ALL PIPE ITEMS AND FULL DETAILS (INCLUDING INTERNAL DIAMETERS) FOR ALL VALVES, PUMPS, FLEXIBLE COUPLINGS ETC. FOR T.O.'S APPROVAL PRIOR TO MANUFACTURE.

Port of Ngqura	TRANSNET
Port Engineer	
Drawing number:	
NH 72 T 0312	
Sheet 001	Revision ZZ
NH72T0312-001-ZZ	

ORIGINAL SCALE
1:50
0 10 20 30 40
ON ORIGINAL (mm)

APPROVAL

TASKLEADER	SIGNED	DATE
		20/05/08
SUB-TASK LEADER		
CLIENT		

DETAILS

DRAWN	RCJ
DESIGNED	A McCLARTY
SIGNED DATE	
DRAWING CHECKED	20/05/08
DESIGN CHECKED	

REVISIONS

NO.	DATE	DESCRIPTION
00		ISSUED FOR TENDER
01		ISSUED FOR CONSTRUCTION
02		PIPE LINING & PUTS
03		REFLECTS ROAMING UNIT PIPEWORK CHANGE
		PIPES FOR MOTIVE & INTERMEDIATE HAVE BEEN MOVED TO NEW POSITIONS (REFLECTING CHANGES IN JETTY PIPEWORK, & CULVERT CHANGES)
04		REFLECTS LEVEL CHANGE @ PUMPSTATION CONNECTION & CORRESPONDING PIPEWORK CHANGE
05		REFLECTS ADDITION OF AIR VALVES (F2/M2)
ZZ		AS BUILT

REFERENCES

DWG . NO. 256/F4/260/01

SUB-TASK CONSULTANTS

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VICTORIA & ALFRED WATERFRONT
CAPE TOWN
8001
TEL. (021) 418 3830 FAX. (021) 418 3834
EMAIL. info@prdw.co.za

LEAD CONSULTANTS

PRESTEDGE RETIEF DRESNER WIJNBORG

CONSULTING COASTAL, OCEAN
AND ENVIRONMENTAL ENGINEERS

CLIENT

National Ports
Authority of South Africa

PROJECT

COEGA PORT
MARITIME GROUP

TASK

5000 F
SAND BYPASSING

DRAWING TITLE

JETTY
CONNECTING PIPEWORK

DWG No: 256/F4/225/01 Rev. ZZ

NH72T0312-001-ZZ

A detailed technical drawing showing the plan view of a complex mechanical assembly. The central component is a large rectangular plate labeled "M2". Attached to it are several other parts, including a cylindrical component at the top left, a series of pipes or conduits running horizontally across the middle, and a vertical pipe on the right side. Numerous smaller components, likely bolts or fasteners, are indicated by labels such as M2-107, M2-108, M2-109, M2-110, M2-111, M2-112, M2-113, M2-114, M2-115, M2-116, M2-117, M2-118, M2-119, M2-120, M2-121, M2-122, M2-123, M2-124, M2-125, M2-126, M2-127, M2-128, M2-129, M2-130, M2-131, M2-132, M2-133, M2-134, M2-135, M2-136, M2-137, M2-138, M2-139, M2-140, M2-141, M2-142, M2-143, M2-144, M2-145, M2-146, M2-147, M2-148, M2-149, M2-150, M2-151, M2-152, M2-153, M2-154, M2-155, M2-156, M2-157, M2-158, M2-159, M2-160, M2-161, M2-162, M2-163, M2-164, M2-165, M2-166, M2-167, M2-168, M2-169, M2-170, M2-171, M2-172, M2-173, M2-174, M2-175, M2-176, M2-177, M2-178, M2-179, M2-180, M2-181, M2-182, M2-183, M2-184, M2-185, M2-186, M2-187, M2-188, M2-189, M2-190, M2-191, M2-192, M2-193, M2-194, M2-195, M2-196, M2-197, M2-198, M2-199, M2-200, M2-201, M2-202, M2-203, M2-204, M2-205, M2-206, M2-207, M2-208, M2-209, M2-210, M2-211, M2-212, M2-213, M2-214, M2-215, M2-216, M2-217, M2-218, M2-219, M2-220, M2-221, M2-222, M2-223, M2-224, M2-225, M2-226, M2-227, M2-228, M2-229, M2-230, M2-231, M2-232, M2-233, M2-234, M2-235, M2-236, M2-237, M2-238, M2-239, M2-240, M2-241, M2-242, M2-243, M2-244, M2-245, M2-246, M2-247, M2-248, M2-249, M2-250, M2-251, M2-252, M2-253, M2-254, M2-255, M2-256, M2-257, M2-258, M2-259, M2-260, M2-261, M2-262, M2-263, M2-264, M2-265, M2-266, M2-267, M2-268, M2-269, M2-270, M2-271, M2-272, M2-273, M2-274, M2-275, M2-276, M2-277, M2-278, M2-279, M2-280, M2-281, M2-282, M2-283, M2-284, M2-285, M2-286, M2-287, M2-288, M2-289, M2-290, M2-291, M2-292, M2-293, M2-294, M2-295, M2-296, M2-297, M2-298, M2-299, M2-300, M2-301, M2-302, M2-303, M2-304, M2-305, M2-306, M2-307, M2-308, M2-309, M2-310, M2-311, M2-312, M2-313, M2-314, M2-315, M2-316, M2-317, M2-318, M2-319, M2-320, M2-321, M2-322, M2-323, M2-324, M2-325, M2-326, M2-327, M2-328, M2-329, M2-330, M2-331, M2-332, M2-333, M2-334, M2-335, M2-336, M2-337, M2-338, M2-339, M2-340, M2-341, M2-342, M2-343, M2-344, M2-345, M2-346, M2-347, M2-348, M2-349, M2-350, M2-351, M2-352, M2-353, M2-354, M2-355, M2-356, M2-357, M2-358, M2-359, M2-360, M2-361, M2-362, M2-363, M2-364, M2-365, M2-366, M2-367, M2-368, M2-369, M2-370, M2-371, M2-372, M2-373, M2-374, M2-375, M2-376, M2-377, M2-378, M2-379, M2-380, M2-381, M2-382, M2-383, M2-384, M2-385, M2-386, M2-387, M2-388, M2-389, M2-390, M2-391, M2-392, M2-393, M2-394, M2-395, M2-396, M2-397, M2-398, M2-399, M2-400, M2-401, M2-402, M2-403, M2-404, M2-405, M2-406, M2-407, M2-408, M2-409, M2-410, M2-411, M2-412, M2-413, M2-414, M2-415, M2-416, M2-417, M2-418, M2-419, M2-420, M2-421, M2-422, M2-423, M2-424, M2-425, M2-426, M2-427, M2-428, M2-429, M2-430, M2-431, M2-432, M2-433, M2-434, M2-435, M2-436, M2-437, M2-438, M2-439, M2-440, M2-441, M2-442, M2-443, M2-444, M2-445, M2-446, M2-447, M2-448, M2-449, M2-450, M2-451, M2-452, M2-453, M2-454, M2-455, M2-456, M2-457, M2-458, M2-459, M2-460, M2-461, M2-462, M2-463, M2-464, M2-465, M2-466, M2-467, M2-468, M2-469, M2-470, M2-471, M2-472, M2-473, M2-474, M2-475, M2-476, M2-477, M2-478, M2-479, M2-480, M2-481, M2-482, M2-483, M2-484, M2-485, M2-486, M2-487, M2-488, M2-489, M2-490, M2-491, M2-492, M2-493, M2-494, M2-495, M2-496, M2-497, M2-498, M2-499, M2-500, M2-501, M2-502, M2-503, M2-504, M2-505, M2-506, M2-507, M2-508, M2-509, M2-510, M2-511, M2-512, M2-513, M2-514, M2-515, M2-516, M2-517, M2-518, M2-519, M2-520, M2-521, M2-522, M2-523, M2-524, M2-525, M2-526, M2-527, M2-528, M2-529, M2-530, M2-531, M2-532, M2-533, M2-534, M2-535, M2-536, M2-537, M2-538, M2-539, M2-540, M2-541, M2-542, M2-543, M2-544, M2-545, M2-546, M2-547, M2-548, M2-549, M2-550, M2-551, M2-552, M2-553, M2-554, M2-555, M2-556, M2-557, M2-558, M2-559, M2-560, M2-561, M2-562, M2-563, M2-564, M2-565, M2-566, M2-567, M2-568, M2-569, M2-570, M2-571, M2-572, M2-573, M2-574, M2-575, M2-576, M2-577, M2-578, M2-579, M2-580, M2-581, M2-582, M2-583, M2-584, M2-585, M2-586, M2-587, M2-588, M2-589, M2-590, M2-591, M2-592, M2-593, M2-594, M2-595, M2-596, M2-597, M2-598, M2-599, M2-600, M2-601, M2-602, M2-603, M2-604, M2-605, M2-606, M2-607, M2-608, M2-609, M2-610, M2-611, M2-612, M2-613, M2-614, M2-615, M2-616, M2-617, M2-618, M2-619, M2-620, M2-621, M2-622, M2-623, M2-624, M2-625, M2-626, M2-627, M2-628, M2-629, M2-630, M2-631, M2-632, M2-633, M2-634, M2-635, M2-636, M2-637, M2-638, M2-639, M2-640, M2-641, M2-642, M2-643, M2-644, M2-645, M2-646, M2-647, M2-648, M2-649, M2-650, M2-651, M2-652, M2-653, M2-654, M2-655, M2-656, M2-657, M2-658, M2-659, M2-660, M2-661, M2-662, M2-663, M2-664, M2-665, M2-666, M2-667, M2-668, M2-669, M2-670, M2-671, M2-672, M2-673, M2-674, M2-675, M2-67

		<u>ELEVATION</u>
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NOTES:

1.) FLANGE DRILLING.
1.1) ALL FLANGES MUST COMPLY WITH AND DRILLED TO BS 4504, OF 1969, (PN 16/3) UNLESS NOTED OTHERWISE
1.2) IF VALVES AND PUMPS ARE SUPPLIED WITH FLANGE DRILLING DIFFERENT TO ABOVE, ADJACENT FLANGES SHALL BE DRILLED TO SUIT.
1.3) VALVE AND PUMP FLANGES SHALL BE SIZED TO SUIT ADJACENT PIPEWORK FLANGES.

2.) PIPE DIMENSIONS
2.1) DIMENSIONS OF PIPE ITEMS ARE FACE TO FACE MEASUREMENTS.
2.2) THE CONTRACTOR MUST ALLOW FOR ANY VARIATION IN DIMENSIONS OF PIPE ITEMS, FOR LININGS, GASKETS AND ALLOWABLE GAP AT FLEXIBLE COUPLING.

3.) PIPE SPECIFICATION
3.1) ALL PIPEWORK SHALL BE SEAMLESS STEEL PIPE TO ASTM A106 GRADE B STANDARD SCHEDULE UNLESS NOTED OTHERWISE
3.2) NON-STANDARD REDUCERS SHALL BE LONGITUDINAL WELDED IN ACCORDANCE WITH SABS 719 GRADE B.

4.) BOLTS, NUTS AND WASHERS.
4.1) ALL BOLTS, NUTS AND WASHERS SHALL BE STAINLESS STEEL GRADE 316.
5) ALL PIPEWORK SHOWN DIAGRAMMATICALLY.

6.) ABBREVIATIONS
SS = STAINLESS STEEL GRADE 316
HDPE = HIGH DENSITY POLYETHYLENE
PVC = UNPLASTICISED POLYVINYLCHLORIDE
RR = REINFORCED RUBBER HOSE
PU = POLYURETHANE
OD = OUTSIDE DIAMETER
ID = INSIDE DIAMETER
NB = NOMINAL BORE

7.) ALL BOLTS, NUTS, WASHERS AND GASKETS TO BE SUPPLIED BY CONTRACTOR.

8.) TEMPORARY COVERS TO BE PROVIDED FOR PROTECTION OF FLANGES, PREPARED ENDS OF PLAIN ENDED PIPES AND FITTINGS, AND THREADS TO PREVENT DAMAGE TO INTERNAL LININGS DURING TRANSPORTATION AND HANDLING.

9.) VALVES
9.1) SPECIFICATIONS FOR ALL VALVES (MAKE, MODEL, SIZE ETC.) TO BE CONFORMED WITH T.O. PRIOR TO ORDERING.
9.2) SPECIFICATIONS FOR ALL VALVE ACTUATORS TO BE CONFORMED WITH T.O. PRIOR TO ORDERING.

9.3) ALL CHANGES TO PIPE DIMENSIONS WHICH MAY BE NECESSARY AFTER VALVE SUBMISSION AND APPROVAL ARE TO BE INCORPORATED IN THE CONTRACTOR'S WORKSHOP DRAWINGS FOR ALL PIPE ITEMS (REFER TO ITEM 12 BELOW)

10.) PIPEWORK LINING
10.1) ALL PIPEWORK INCLUDING ELBOWS, TEES, LATERAL TEES & REDUCERS BE LINED WITH POLYURETHANE IN ACCORDANCE WITH PROJECT SPECIFICATION CELL 3.1 TO A THICKNESS OF 15mm UNLESS NOTED OTHERWISE. PU LINING (3mm THICK) SHALL EXTEND OVER FLANGE FACES.

10.2) WHERE PU LINED STEEL PIPE BUTTS WITH COMPONENTS (EE, VALVES, FLEXIBLE COUPLINGS ETC.) OR HOPE PIPE THE PU LINING SHALL BE PROVIDED WITH A 1:10 TRANSITION SLOPE TO ENSURE MATCHING INTERNAL DIAMETERS OF ADJOINING PIPE SECTIONS OR COMPONENTS TO WITHIN ± 1mm

11.) CORROSION PROTECTION OF PIPEWORK.
11.1) ALL STEEL PIPEWORK SHALL HAVE EXTERNAL CORROSION PROTECTION SYSTEM "SYSTEM T" IN ACCORDANCE WITH PROJECT SPECIFICATION PS1HC.

12.) APPROVALS PRIOR TO MANUFACTURE
12.1) THE CONTRACTOR SHALL SUBMIT FULLY DIMENSIONED WORKSHOP DRAWINGS FOR ALL PIPE ITEMS AND FULL DETAILS (INCLUDING INTERNAL DIAMETERS) FOR ALL VALVES, PUMPS, FLEXIBLE COUPLINGS ETC. FOR T.O.'S APPROVAL PRIOR TO MANUFACTURE.

LEGEND

PT


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PRESSURE TRANSDUCER

$\frac{PT}{T}$ PRESSURE TRANSDUCER

DWG No: 256/F4/215/02 Rev. ZZ

NH72T0304-016-22

Port of Ngqura		TRANSNET	
Port Engineer		 national ports authority	
Drawing number:			
NH	72	T	0304
Sheet	016	Revision	22
NH72T0304-016-22			

NH:72-T:0304-016-22

The drawing consists of two views: a Plan view (top) and an Elevation view (bottom).

Plan View: Shows the horizontal layout of the stormwater discharge system. It starts from a 100x100x600 DEEP CONCRETE PIPE ANCHOR on the left, connected to a 400NB HDPE DISCHARGE PIPELINE. The pipeline runs horizontally through a wall, with various pipe segments and fittings labeled (e.g., BO-105, BO-104, BO-103, BO-102, BO-101, BO-100, BO-99, BO-98, BO-97, BO-96, BO-95, BO-94, BO-93, BO-92, BO-91, BO-90, BO-89, BO-88, BO-87, BO-86, BO-85, BO-84, BO-83, BO-82, BO-81, BO-80, BO-79, BO-78, BO-77, BO-76, BO-75, BO-74, BO-73, BO-72, BO-71, BO-70, BO-69, BO-68, BO-67, BO-66, BO-65, BO-64, BO-63, BO-62, BO-61, BO-60, BO-59, BO-58, BO-57, BO-56, BO-55, BO-54, BO-53, BO-52, BO-51, BO-50, BO-49, BO-48, BO-47, BO-46, BO-45, BO-44, BO-43, BO-42, BO-41, BO-40, BO-39, BO-38, BO-37, BO-36, BO-35, BO-34, BO-33, BO-32, BO-31, BO-30, BO-29, BO-28, BO-27, BO-26, BO-25, BO-24, BO-23, BO-22, BO-21, BO-20, BO-19, BO-18, BO-17, BO-16, BO-15, BO-14, BO-13, BO-12, BO-11, BO-10, BO-9, BO-8, BO-7, BO-6, BO-5, BO-4, BO-3, BO-2, BO-1). The pipeline is supported by PIPE SUPPORT 'SY' and connects to a 400NB HDPE DISCHARGE PIPELINE. A note indicates: "FLANGE TO HAVE BOLT PCD @ 515mm TO SUIT CONNECTION TO 400NB HDPE DISCHARGE PIPELINE".


Elevation View: Shows the vertical profile of the stormwater discharge system. It starts from a 100x100x600 DEEP CONCRETE PIPE ANCHOR on the left, connected to a 400NB HDPE DISCHARGE PIPELINE. The pipeline runs horizontally through a wall, with various pipe segments and fittings labeled (e.g., BO-105, BO-104, BO-103, BO-102, BO-101, BO-100, BO-99, BO-98, BO-97, BO-96, BO-95, BO-94, BO-93, BO-92, BO-91, BO-90, BO-89, BO-88, BO-87, BO-86, BO-85, BO-84, BO-83, BO-82, BO-81, BO-80, BO-79, BO-78, BO-77, BO-76, BO-75, BO-74, BO-73, BO-72, BO-71, BO-70, BO-69, BO-68, BO-67, BO-66, BO-65, BO-64, BO-63, BO-62, BO-61, BO-60, BO-59, BO-58, BO-57, BO-56, BO-55, BO-54, BO-53, BO-52, BO-51, BO-50, BO-49, BO-48, BO-47, BO-46, BO-45, BO-44, BO-43, BO-42, BO-41, BO-40, BO-39, BO-38, BO-37, BO-36, BO-35, BO-34, BO-33, BO-32, BO-31, BO-30, BO-29, BO-28, BO-27, BO-26, BO-25, BO-24, BO-23, BO-22, BO-21, BO-20, BO-19, BO-18, BO-17, BO-16, BO-15, BO-14, BO-13, BO-12, BO-11, BO-10, BO-9, BO-8, BO-7, BO-6, BO-5, BO-4, BO-3, BO-2, BO-1). The pipeline is supported by PIPE SUPPORT 'SY' and connects to a 400NB HDPE DISCHARGE PIPELINE. A note indicates: "FLANGE TO HAVE BOLT PCD @ 515mm TO SUIT CONNECTION TO 400NB HDPE DISCHARGE PIPELINE".

ELEVATION

PuT POLYURETHANE
LINING TRANSITION

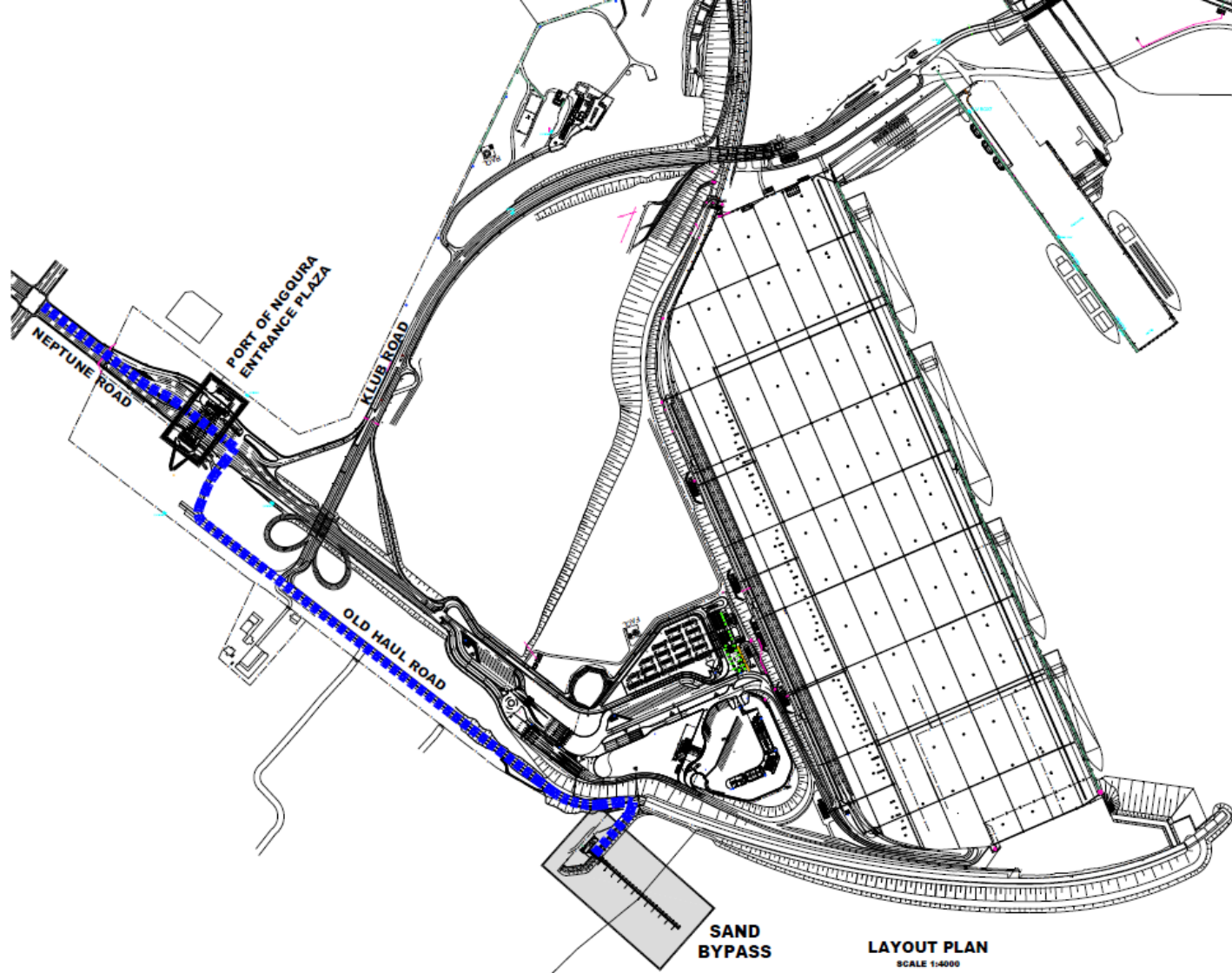
National Ports Authority of South Africa

NH 72 T 0304 - 017 - 22

Port of Ngqura		TRANSNET	
Port Engineer		 national ports authority	
Drawing number:			
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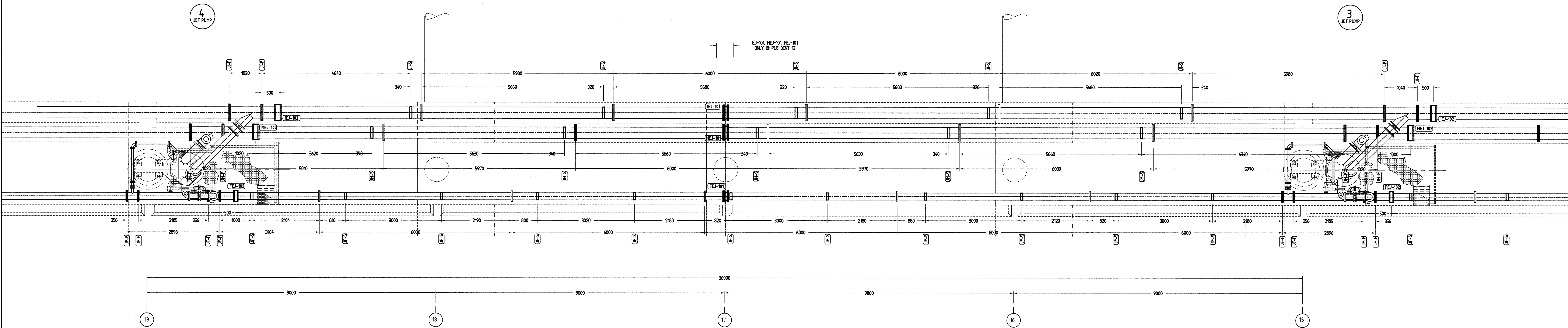
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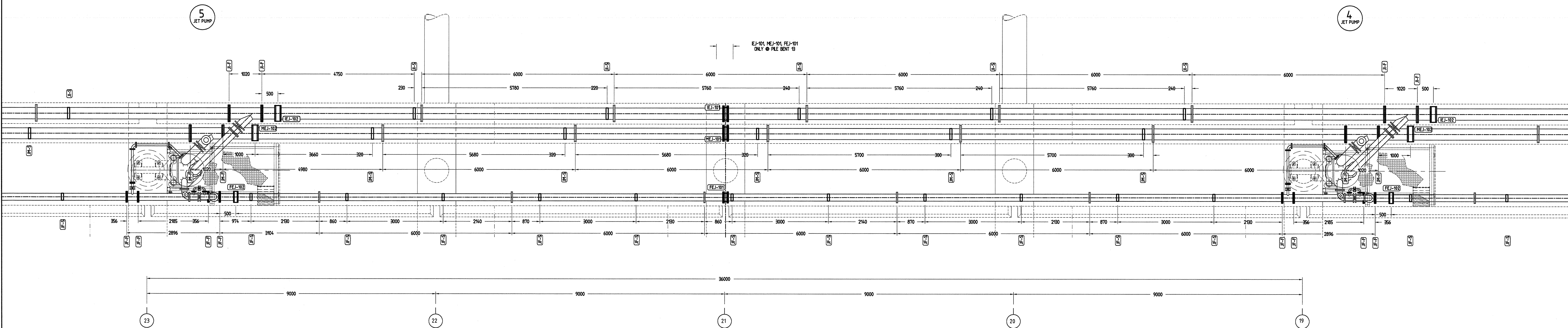


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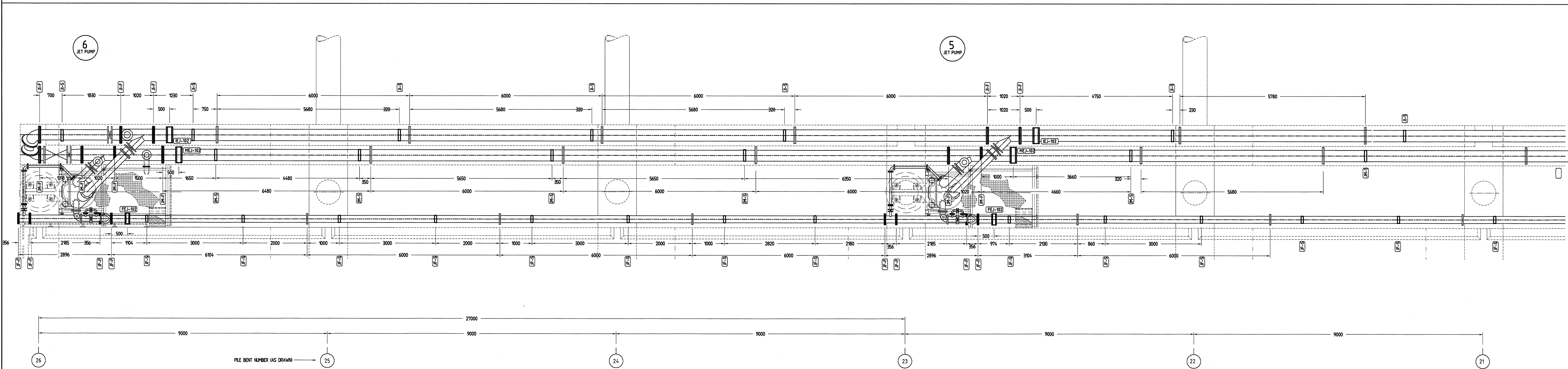
SCHEMATIC PLAN OF TYPICAL PIPEWORK SUPPORTS FROM JP3 TO JP4



SCHEMATIC PLAN OF TYPICAL PIPEWORK SUPPORTS FROM JP4 TO JP5



SCHEMATIC PLAN OF PIPEWORK SUPPORTS FROM JP5 TO END OF JETTY



ORIGINAL SCALE
1:50
ON ORIGINAL (mm)

APPROVAL		SIGNED	DATE
TASKLEADER			
SUB-TASK LEADER			
CLIENT			

DETAILS	
DRAWN	RCJ
DESIGNED	A McLARTY
DRAWING CHECKED	SIGNED DATE
DESIGN CHECKED	20/05/20

REVISIONS	
NO.	DESCRIPTION
00	ISSUED FOR TENDER
01	ISSUED FOR CONSTRUCTION - PIPEWORK CHANGES / POSITIONS
02	ISSUED FOR CONSTRUCTION
03	STRAUB SPEC CHANGED
ZZ	SLIDING SUPPORT SPEC CHANGED AS BUILT

REFERENCES
DWG. NO. 256/F4/250/03
DWG. NO. 256/F4/225/04 FOR SCHEDULE

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PROJECT
**COEGA PORT
MARITIME GROUP**

TASK
**5000 F
SAND BYPASSING**

DRAWING TITLE
**JETTY
PIPEWORK
SUPPORT DETAILS**

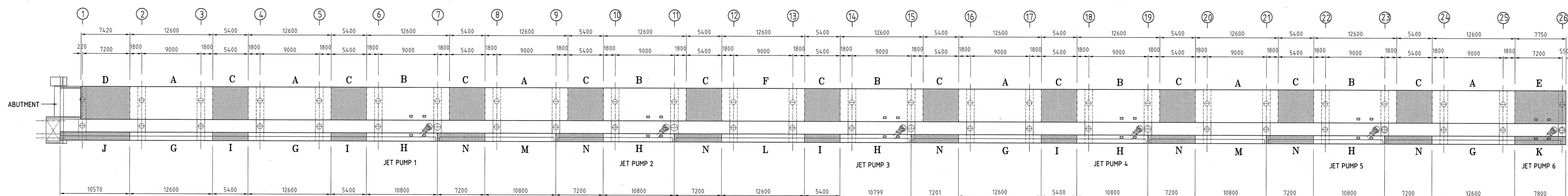
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Port of Ngqura
Port Engineer
Drawing number:
NH 72 T 0312
Sheet **004** Revision **ZZ**
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NATIONAL PORTS AUTHORITY

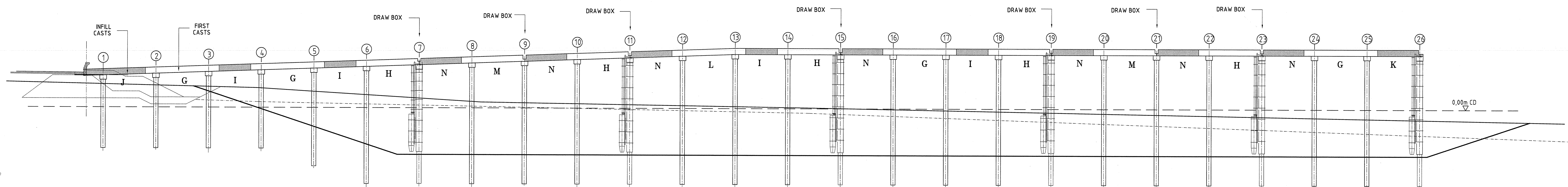
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PLAN - JETTY & PIPE BEAM

1:250



ELEVATION ON PIPE BEAM

1:250

NOTES

APPROVAL

TASK LEADER	SIGNED	DATE
	<i>[Signature]</i>	24/01/10
SUB-TASK LEADER		
CLIENT		

DETAILS

JETTY DECK	CD A
DRAWN	PES
DESIGNED	
DRAWING CHECKED	SIGNED DATE
DESIGN CHECKED	<i>[Signature]</i> 20/01/10

REVISIONS

NO.	DATE	DESCRIPTION
01		ISSUED FOR CONSTRUCTION
ZZ		AS-BUILT

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PROJECT
COEGA PORT
MARITIME GROUP

TASK
5000 F
SAND BYPASSING

DRAWING TITLE
JETTY
GENERAL ARRANGEMENT

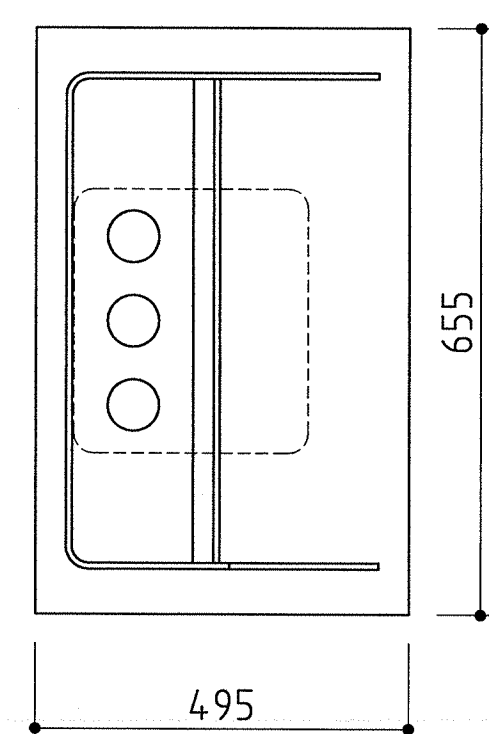
DWG No: 256/F4/223/15 Rev. ZZ

Port of Ngqura
 Port Engineer
 Drawing number:
 NH 72 T 0310
 Sheet 001 Revision 22
 NH72T0310-001-22

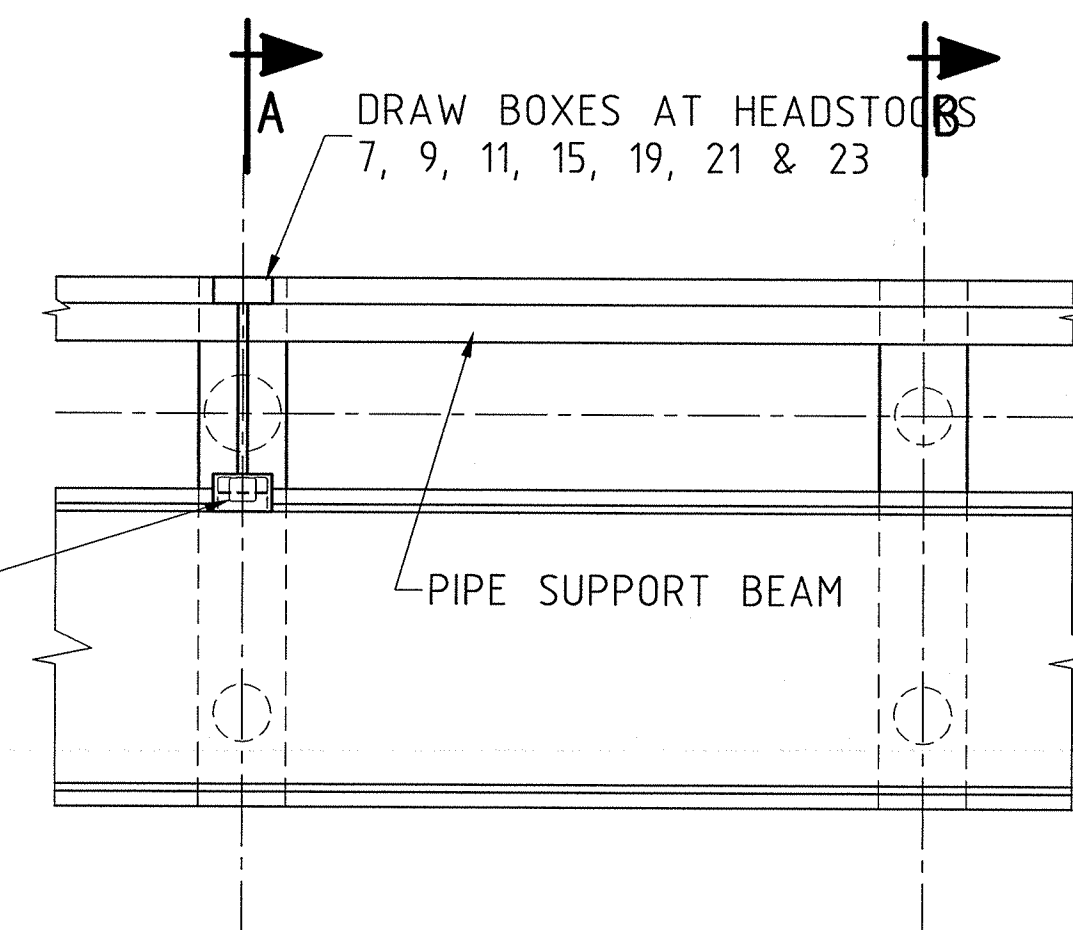
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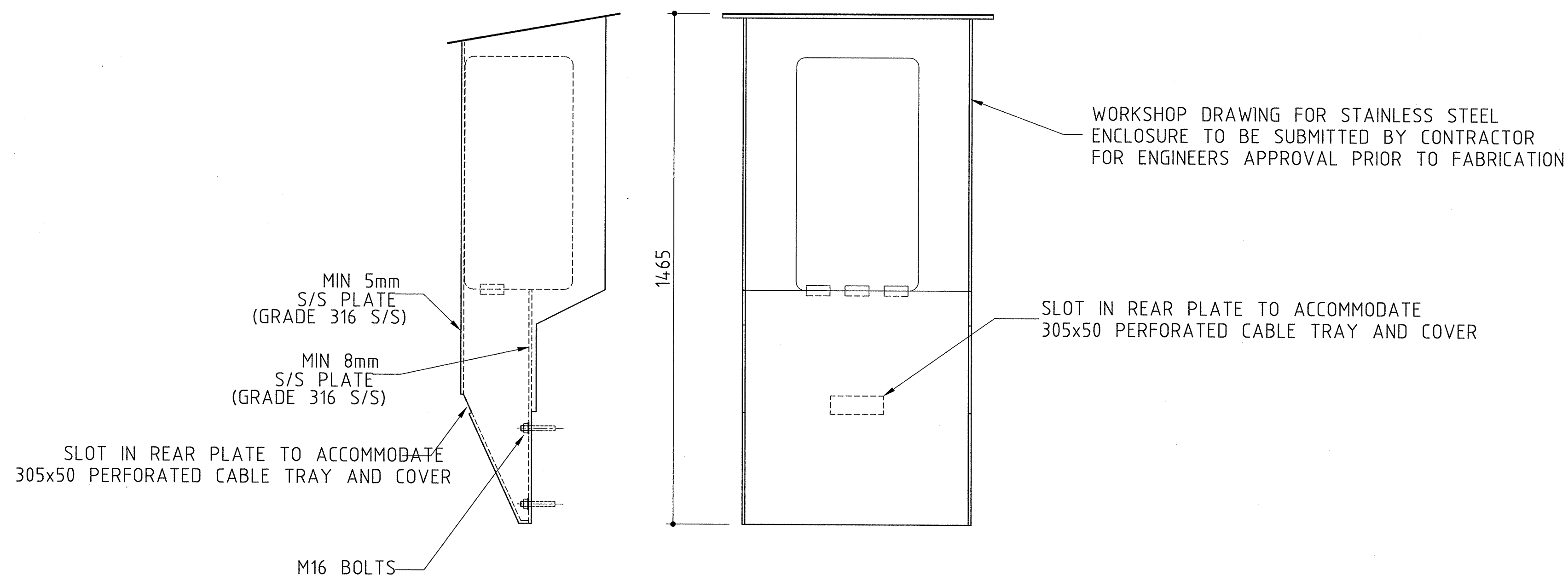
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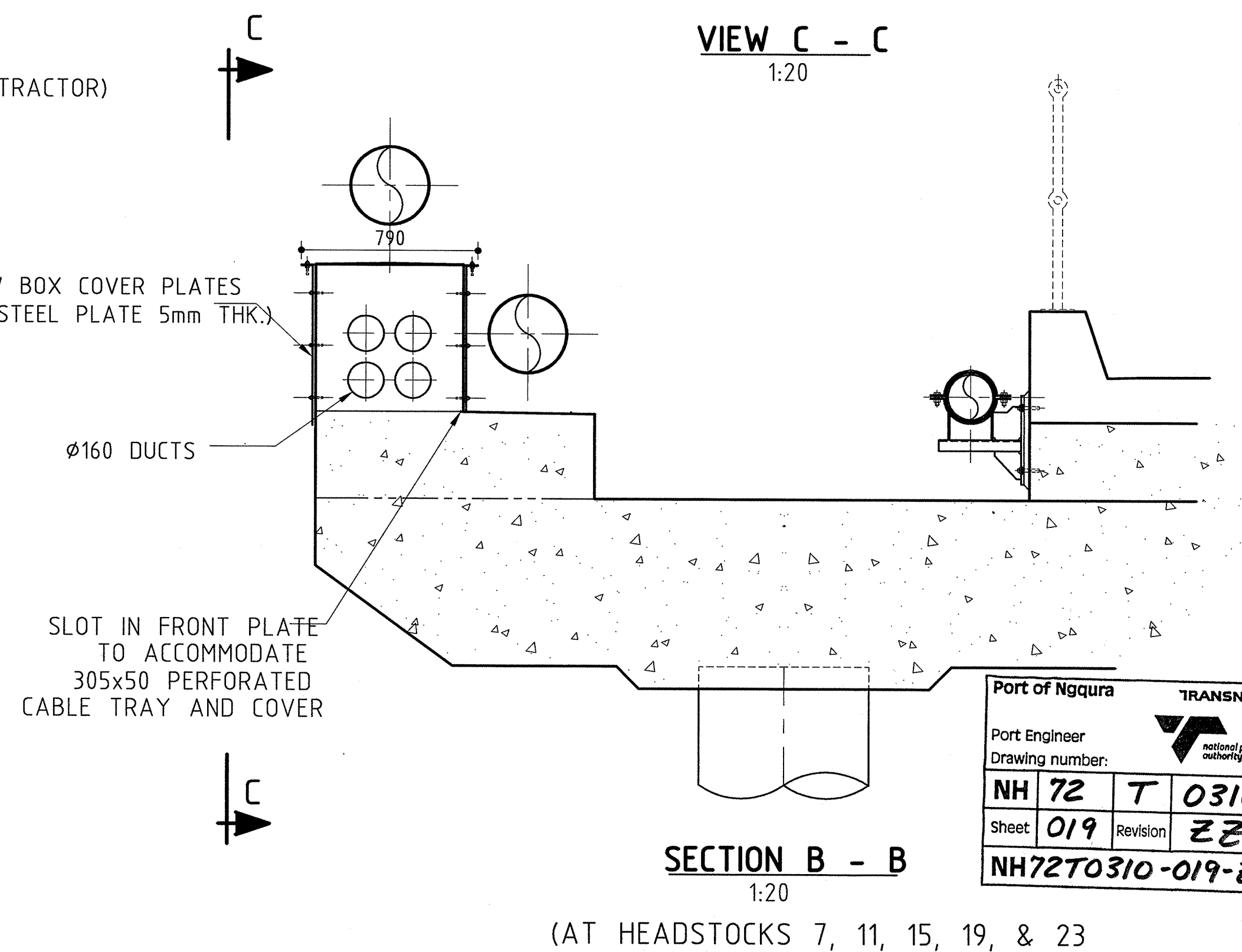
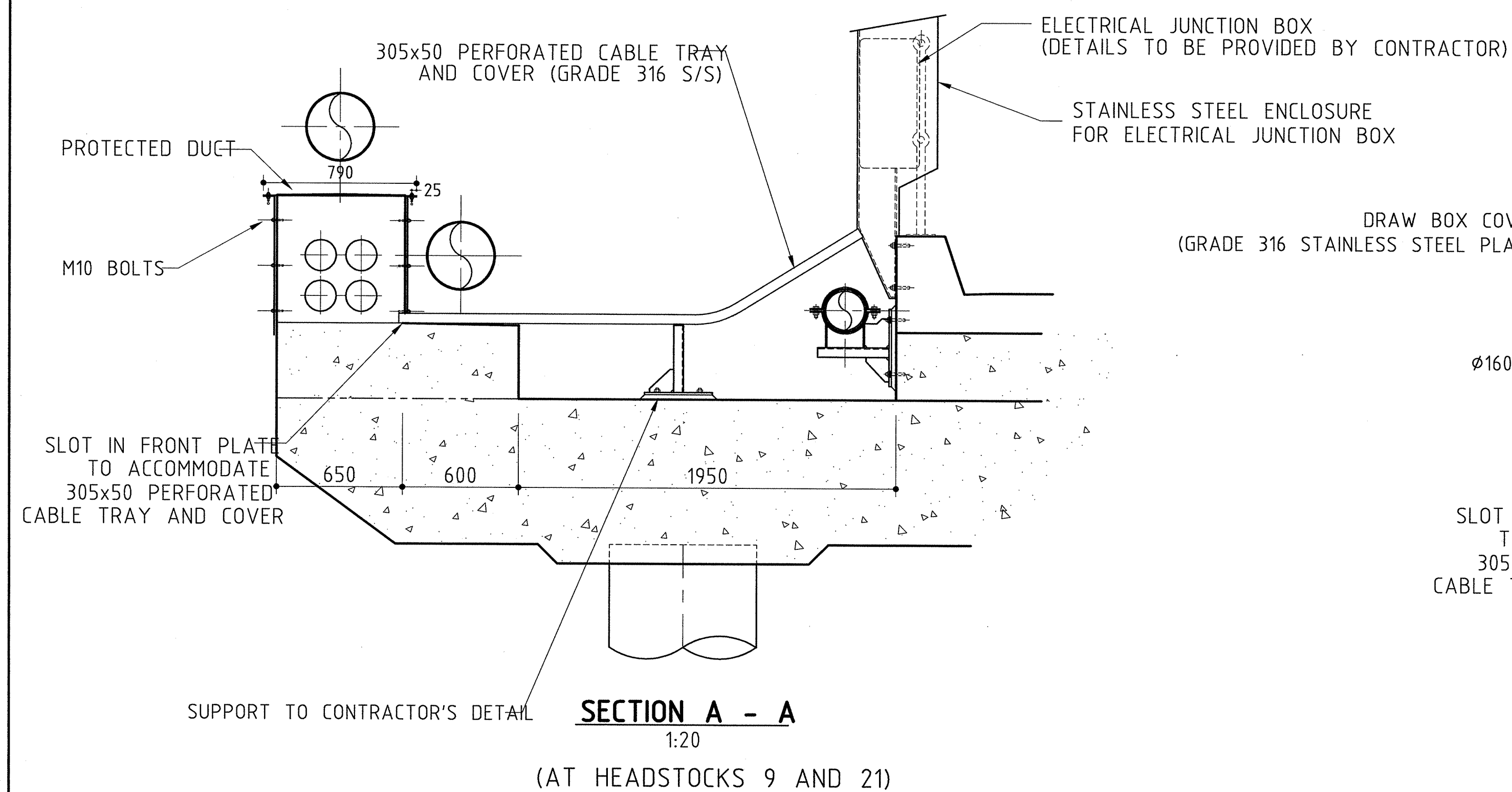
- NOTES:
- 1.) ALL STEEL GRADE 316L STAINLESS STEEL.
 - 2.) ALL STEEL TO BE PAINTED IN ACCORDANCE WITH SPECIFICATION PSHC.
 - 3.) ALL BOLTS TO BE GRADE 316 STAINLESS STEEL
 - 4.) ALL CHEMICAL ANCHORS TO BE GRADE 316 STAINLESS STEEL



KEY PLAN
1:100




CONNECTION BOX DETAIL
1:10



ORIGINAL SCALE
1:20

0 10 20 30 40
ON ORIGINAL (mm)

APPROVAL		
	SIGNED	DATE
TASKLEADER		30/5/20
SUB-TASK LEADER		
CLIENT		

DETAILS	
DRAWN	RCJ
DESIGNED	KP
	SIGNED
DRAWING CHECKED	DATE
DESIGN CHECKED	

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REFERENCES

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CLIENT

National Ports Authority of South Africa



PROJECT	COEGA PORT MARITIME GROUP
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TASK	5000 F SAND BYPASSING
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DRAWING TITLE

**JETTY ELECTRICAL
DRAW BOXES AND
ENCLOSURES**

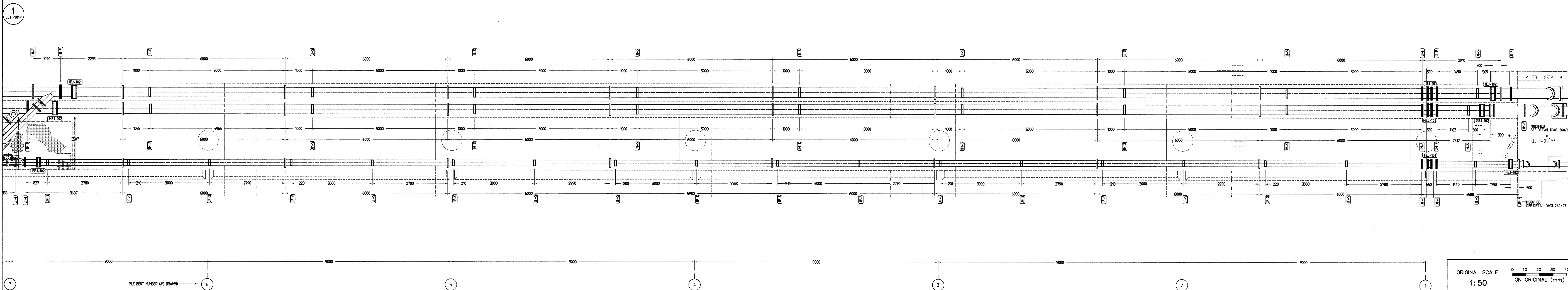
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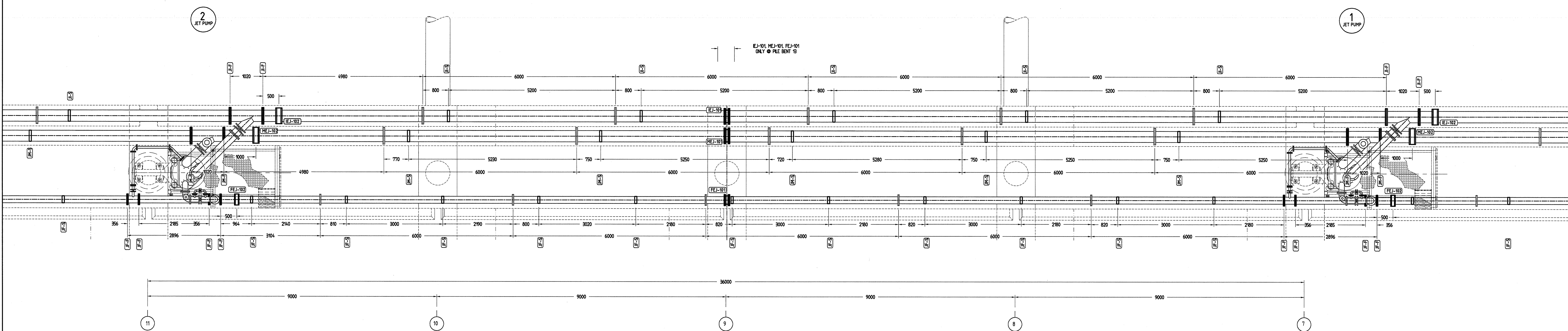
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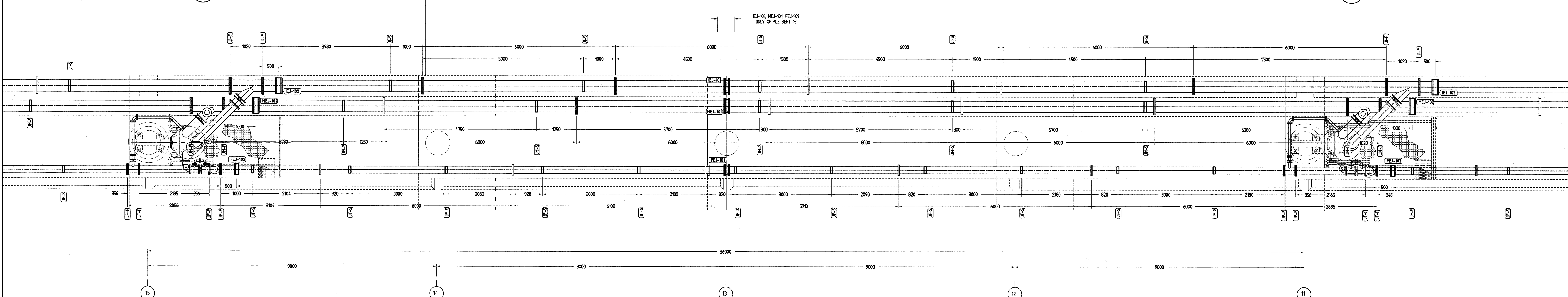
SCHEMATIC PLAN OF PIPEWORK SUPPORTS FROM PILE BENT 1 TO JP1.



SCHEMATIC PLAN OF TYPICAL PIPEWORK SUPPORTS FROM JP1 TO JP2



SCHEMATIC PLAN OF TYPICAL PIPEWORK SUPPORTS FROM JP2 TO JP3



ORIGINAL SCALE
1:50

ON ORIGINAL (mm)

APPROVAL

TASKLEADER	SIGNED	DATE
SUB-TASK LEADER		
CLIENT		

DETAILS

DRAWN	RCJ	
DESIGNED	A. McCLARTY	
DRAWING CHECKED	SIGNED	DATE
DESIGN CHECKED		

REVISIONS

NO.	DATE	DESCRIPTION
00		ISSUED FOR TENDER
01		ISSUED FOR CONSTRUCTION
02		PIPEWORK CHANGES / POSITION
03		ISSUED FOR CONSTRUCTION
ZZ		STRAUB SPEC CHANGED
		SLIDING SUPPORT SPEC CHANGED
		AS BUILT

REFERENCES

DWG - NO. 256/F4/280/03
DWG - NO. 256/F4/225/04 FOR SCHEDULE

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PROJECT

COEGA PORT MARITIME GROUP

TASK

5000 F SAND BYPASSING

DRAWING TITLE

JETTY PIPEWORK SUPPORT DETAILS

SHEET 1

DWG No: 256/F4/225/03 Rev. Z

Port of Ngqura
Port Engineer
Drawing number:
NH 72 T 0312
Sheet: **003** Revision: **ZZ**
NH72T0312-003-ZZ

NH-72-T-0312-003-ZZ

ANNEXURE-D

SHEQ Specification

Health and Safety Specification:

Sand Bypass Refurbishment project at the Port of Ngqura

SIGNATORIES:

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Sharifa Ahmed
Health and Safety Manager Date

Reviewed by: A. Dula 08/07/2025
Ayanda Dlula
Project Manager Date

Approved by: Christo Beukes 8 July 2025
Christo Beukes
Acting Principal Project Manager Date

00	06/2025	Issued for Review
Rev No	Date	Revision Details

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1. Project Description

Port of Ngqura's Sand Bypass system (as referred to System) was constructed between September 2002 to October 2005. The System was then commissioned with a completion certificate issued in July 2007.

As part of the Port's Record of Decision (RoD), this construction was to ensure the natural movement of sand that is interrupted due to the construction of the Port; therefore, the system is designed to mimic the natural movement of sand to prevent accretion on the Western Side (South) and erosion on the Eastern (North) side of the coastline.

The annual net long-shore transport rate within the Algoa Bay is 150 000 – 200 000m³/year and assuming a sand density of 1.6tons/m³ that equates between a minimum volume of 240 000 to a maximum volume of 320 000tons/year. This amount of sand is required to be bypassed by the system from the Jetty jet pumps and pipeline through the main booster pump (B0) and other three booster station (B1, B2 and B3) to the discharge point on the Eastern side as displayed by the Supervisory Control and Data Acquisition (SCADA) in figure 3.

From its inception, the system prides itself for its 16th year of operation from the day it was commissioned and handed over to Port of Ngqura (PoN) in 2007.

Over the period:

- Mechanical components have either corroded or worn-out due the harsh environment and abrasive nature of the sand slurry being pumped by the system,
- Electrical components have worn-out, some components are obsolete, with no spares available on the market for maintenance/ replacement,
- The PLC components and field instruments have reached their life span and requires replacements and software upgrades.

Replacement of corroded steel pipeline is critical to the system noting that most of the piping has become thin, unrepairable to an extent that sandblast and paint as part of maintenance is impossible.

Purchasing and refurbishment of components will increase the lifespan of the Sand Bypass system and further comply with the environmental requirement set by DFFE, thereby reducing the risk of penalties to TNPA by DFFE for noncompliance.

2. Scope and Purpose

This health and safety specification outlines the working behaviours and safe work practices that must be implemented and complied with by all Transnet employees, Contractors, Consultants, Visitors and Suppliers, that will be undertaking activities associated with the Sand Bypass Refurbishment project at the Port of Ngqura. The specification has been developed in accordance with the requirements of the Construction Regulation of 2014, Regulation 5(1)(b) as well as any other applicable legislation.

DESCRIPTION: SAND BYPASS REFURBISHMENT PROJECT

Appointed contractors must identify all requirements applicable to their scope of works and address these accordingly in their Contractor's Site Specific Health and Safety Management Plan. It is the contractor's responsibility to ensure that all sub-contractors comply fully with all legal requirements as well as the requirements of this Specification.

PoN is to ensure that the Sand Bypass System is always functional. Thus, the employer's objective is to appoint a potential service provider for the replacement of the 225m long Jetty pipeline and other exposed pipes entering and exiting the Sand Bypass main pump station through settling tank as well B1, B2 and B3 pipes.

The works that the Contractor is to perform involves construction of marine structural steel work with heavy lifting, electrical installation, and pressure equipment. Therefore safety, quality and professional accreditation in the built and construction industry is paramount.

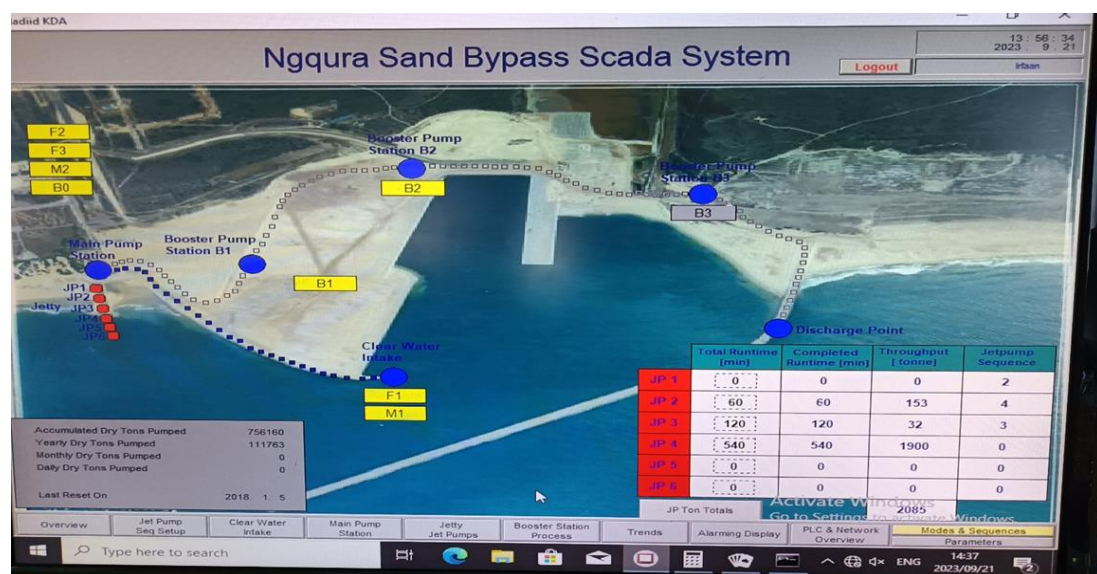


Figure 1: Sand Bypass overview as it appears on SCADA

It is important that the replacement of pipeline is done with minimal impact to operations, further commissioning of works is done to ensure that once the network is handed over to the Project Manager by the service provider.

The jetty comprises of concrete piles with a permanent steel casing, concrete headstocks, and a concrete deck of precast and in situ construction. All pipework and valves are supported at deck level by precast beams.

The steel pipes to be changed are installed above the ground from the jetty, entering and exiting the Sand Bypass main pump station.

DESCRIPTION: SAND BYPASS REFURBISHMENT PROJECT

The portion that sits on the jetty is 225m long and comprise of 3 pipes that work together with the Genflo Sandbag jet pumps to create the slurry (mixing beach sand with water) that is transported across the port to be discharged at the eastern breakwater.



Aerial view of Sand Bypass Jetty, showing the full length of pipeline including all Jet pumps (JP1 to JP6)

2.1 Pipeline Scope of Work

Service provider will supply, deliver pipes to the Sand Bypass at TNPA in PoN.

Remove the old pipeline above the ground across the 225m plus long jetty, the exposed pipes entering the settling tank and exiting the main booster pump station, B1, B2 and B3 pipes.

Before and after the work, the service provider will be required to disconnect and reconnect the Sand Bypass system, in particular the Jetty into the SCADA and reconfigure the Programmable Logic Controller (PLC) for the full functioning of the Sand Bypass System.

The removal and reinstallation will include all connections linked to the pipeline such as valves, actuators, electrical wiring and possibly all six (6) jet pumps on the jetty.

A temporary discharge pipeline and discharge point may need to be constructed and maintained to enable the Sand Bypass system to operate for the duration of the works. This is required immediately after commencement of the supply, and delivery of pipes to PoN until the final commission of all works. The service provider will be required to safely remove all accessories to the pipelines, i.e., valves, actuators, electrical cables, and any other components. Upon completion, the service provider will be required to reinstall all the components, reconfigure into the Sand Bypass system before commissioning. Replace any damaged components.

DESCRIPTION: SAND BYPASS REFURBISHMENT PROJECT

Service provider shall ensure that all welding and joints are verified by an approved welding inspector with a minimum Level 1 or an authorized inspection authority who shall issue a signed verification certificate for the works, that the piping complies with relevant standards and will be safe when properly used.

Once the installation of new pipeline (including joints and other accessories) is completed, service provider will commission the work ensuring the Sand Bypass system is fully functional.

This work is categorised as marine construction work with marine structures, mechanical, electrical, civil, and building works. That means the work will require excavation, heavy lifting, major hazard installation many other construction vehicles.

The work is going to take place at Transnet National Port Authority (TNPA), at Port of Ngqura (PoN) in Sand Bypass.

This Health and 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.

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.

DESCRIPTION: SAND BYPASS REFURBISHMENT PROJECT

Barricade

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

Consequence

The outcome of an event expressed qualitatively or quantitatively.

Contractor

An employer performing construction work, or providing related or supporting services, on a project site.

Competent Person

A person who has in respect of the work or task to be performed the required knowledge, training, experience and as per OHS Act, 1993 (Act 85 of 1993) and Construction Regulations 2014.

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.

DESCRIPTION: SAND BYPASS REFURBISHMENT PROJECT

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.

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Examples of light vehicles include passenger cars, four-wheel drive vehicles, sports utility vehicles (SUV's), 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-Miss

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

HIRA - Hazard Identification and Risk Assessment

IMS - Integrated Management System

MS - Management System

OHS Act - Occupational Health and Safety Act

SOC - Safety Observation and Conversation

VFL - Visible Felt Leadership

OHS - Occupational Health and Safety

SACPCMP - The South African Council for Project and Construction Management Professions, here in refer to as the registrar of Health and Safety Professionals

5. Contractor Health and Safety Management Plan

The contractor must prepare, implement and maintain a project-specific Health and Safety Management Plan. The plan must be aligned with the requirements set out in this specification as well as all relevant/applicable legislation. It must cover all activities that will be undertaken as part of the Project from mobilisation and set-up to rehabilitation and decommissioning.

The plan must demonstrate the contractor's commitment to health and safety and must, as a minimum, include the following:

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- 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;

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- **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 TRANSNET 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 7 days from the start of work.

If the issues requiring corrective action are not resolved within this 7 days period, the contractor will be required to stop any work related to the outstanding actions until they have been resolved.

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

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

6. Policy

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

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

The policy must commit to:

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

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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.

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

7. Hazard Identification and Risk Assessment

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

The Client will provide a baseline risk assessment informing the contractor on the hazards and risks on site. The 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;
- All employees, sub-contractors, suppliers and visitors; and
- All infrastructure, equipment and materials.

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

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

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

7.1 Baseline Risk Assessments

Prior to site establishment, TRANSNET (the Client) will conduct a 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. An attendance register must be completed and retained for reference purpose.

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.

7.2 Task-Based Risk Assessments

The contractor must carry out detailed project-specific Task-Based Risk Assessments which must be reviewed and approved by the Client's Project Health and Safety Manager/Agent and Project Construction 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 Construction Regulations 9, clause (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.

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A Task-Based Risk Assessment must at least:

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

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

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

7.3 Pre-Task Hazard Assessments

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

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

8. Legal and Other Requirements

The Contractor must comply with the requirements of all applicable health and safety legislation as well as TRANSNET 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.

9. Health and Safety Objectives

In order to drive continual improvement, the contractor must set project-specific health and safety 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.

Eliminating health and safety hazards, minimising health and safety 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.).

10. Resources, Accountabilities and Responsibilities

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

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

All health and safety appointments (i.e. the assignment of specific health and safety 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.

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

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

The provision of dedicated health and safety 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;
- 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;
- Providing the resources necessary to meet the requirements of this specification;
- Ensuring that all contractor employees have clearly defined responsibilities with regard to health and safety, and that these responsibilities are clearly communicated and understood;
- Establishing, implementing and maintaining a system for on-going training and assessment of skills and competence;
- Establishing, implementing and maintaining procedures to ensure that only qualified and competent personnel are permitted to work on the project site(s);
- Establishing, implementing and maintaining effective communication and consultative processes concerning health and safety for the duration of the contract;

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- Maintaining operational control for the protection of all persons on the project site(s) as well as the public;
- Establishing, implementing and maintaining effective emergency preparedness and response procedures;
- Establishing, implementing and maintaining effective management of change processes and procedures;
- Establishing, implementing and maintaining effective incident reporting and investigation processes and procedures;
- Establishing, implementing and maintaining effective auditing and inspection processes and procedures; 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.

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

Any cost associated with any work stoppage due to non-compliance with a health and safety requirement shall be for the contractor's account.

10.1 Contractor Construction Manager

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

The contractor's Construction 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;

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- 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

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

10.2 Contractor Construction Health and Safety Officer(s)

The contractor must appoint a full-time Construction Health and Safety Officer for the duration of the contract who is registered with the SACPCMP (The South African Council for Project Construction Management Professions). The project site(s) (directly or through sub-contractors), must appoint full-time Construction Health and Safety Officers, the number of which depending on the scope, complexity, budget and high risk activities involved, as required by the Construction regulations of 2014, regulation 8(5).

The Construction Health and Safety Officer(s) must be on site when work commences at the start of the day and must remain on site until all activities for that day (including the activities of sub-contractors) have been completed. A Construction 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 additional Construction Health and Safety Officers.

Each Contractor Construction 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 Conversations;
- 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;

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- 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 Construction Health and Safety Officer is adequately equipped to enable him to perform his duties effectively. Each Construction 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 Construction Health and Safety Officer must over and above the SACPCMP registration as an Officer; be computer literate, fluent in English, and must have the following minimum qualifications, training and experience:

- At least 5 years' experience as a Construction Health and Safety Officer on construction projects;
- SAMTRAC, NEBOSH or an equivalent training course with accredited health and safety service provider as a minimum qualification ;
- Experience and appropriate training with regard to implementing and maintaining a health and safety management system compliant with national legislation or an international standard;
- Experience and appropriate training with regard to construction related hazard identification and risk management processes;
- Competence, experience and relevant training with regard to incident investigation procedures and causation analysis;
- Health and safety auditing experience and training;
- A valid First Aid certificate of competency;
- Fire prevention and protection training; and

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- A valid Driving Licence (light motor vehicle).
- Registered as a Construction Health and Safety Officer or Construction Health and Safety Manager with SACPCMP. The Client will stipulate which is required depending on the size of the project and on the risk.

The Client will stipulate whether a CHSO or CHSM is required depending on the size of the project and on the risks. Before placing a Construction Health and Safety Officer on the project site(s), the contractor must forward a copy of the person's CV to the nominated TRANSNET Project Management Representative or to the Health and Safety Manager for review and acceptance. A proposed candidate may be rejected should he/she not meet the experience and/or qualification requirements, or due to poor work performance on previous projects. The candidate may also be accepted for a probationary period to the project.

10.3 Contractor Construction 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 Construction supervisors who have experience in the type of work being carried out as required by Construction regulations of 2014, regulation 8(7) and 8(8).

No work may be carried out without an appointed Construction supervisor being physically present in the work area(s) and without a daily safety task instruction having been completed.

Each Contractor Construction 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;

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- 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;
- 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 Construction supervisor must accept these responsibilities in writing as part of his appointment.

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

10.4 Health and Safety Representatives

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

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

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

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

10.5 First Aiders

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

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

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

10.6 Duties of Client

The duties of the Client, Transnet are as per the Construction regulations of 2014, regulation 5(1) – (8).

10.7 Duties of the Designer

The duties of the Designer are as per the Construction regulations of 2014, regulation 6(1) &(2). Health and Safety Design Consideration

10.8 Duties of Principal Contractor

The duties of the Principal Contractor are as per the Construction regulations of 2014, regulation 7(1) – (8).

10.9 Duties of Contractor

The duties of the Contractor as per Construction Regulations of 2014, Regulations 7(2).

10.10 Management and supervision of Construction work

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

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

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

No construction manager appointed may manage any construction work on or in any construction site other than the site in respect of which he or she has been appointed.

A contractor must, after consultation with the client and having considered the size of the project, the degree of danger likely to be encountered or the accumulation of hazards or risks on the site, appoint a full-time construction health and safety officer in writing to assist in the control of all health and safety related aspects on the site.

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

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

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

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

11. 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.

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;

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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:

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- how to access and egress the suspended platform safely;
- how to correctly operate the controls and safety devices of the equipment;
- information on the dangers related to the misuse of safety devices; and
- information on the procedures to be followed in the case of-
 - o an emergency;
 - o the malfunctioning of equipment; and
 - o the discovery of a suspected defect in the equipment;
 - o an instructions on the proper use of body harnesses.
- Training for all operators of construction vehicles and mobile plant.

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

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

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

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

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

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

Foreign qualifications held by employees in health and safety critical roles must be verified against the requirements of local legislation.

11.1 Health and Safety Induction Training

Each employee must attend all mandatory Health and Safety 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 Health and Safety Induction Training pertaining to the particular hazards identified in the area(s) where the

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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 appropriate senior employee of the Principal Contractor who has been fully inducted.

11.2 Specific Training and Competency Requirements

The following specific training and competency requirements must be complied with, where applicable to the project.

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 Conversations (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 working at elevated positions where using a safety harness is required
Confined Spaces*	All Confined Space Entry Officers and Standby Persons
Permit to Work	All Authorised Persons (i.e. Permit issuers) and all Applicants (i.e. Employees who will be applying for permits)
Isolation and Lockout	All Authorised Persons (i.e. Persons who authorise work that requires Isolation and Lockout), all Isolation Officers, and all Applicants (i.e. Persons who request permission to work on systems or equipment requiring Isolation and Lockout)
Mobile Equipment Site Licence*	All mobile equipment operators

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

12. Communication, Participation and Consultation

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

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

This must be achieved as follows:

12.1 Visible Felt Leadership (VFL) and Safety Observations and Conversations (SOCs)

The contractor's supervisory personnel (i.e. Managers and supervisors) must participate in the project's Visible Felt Leadership (VFL) programme. Each manager and each supervisor must, as part of his normal duties, perform Safety Observations and Coaching (SOCs). The intention of this programme is to encourage interaction between supervisors and workers concerning health and safety matters in order to:

- Reinforce behaviours consistent with standards, procedures and management system requirements;
- Correct behaviours inconsistent with standards, procedures and management system requirements; and
- Verify whether employees have the necessary training, certification, equipment, etc. To perform the work that they are carrying out.

Each manager, construction supervisor, safety personnel has a required number of SOCs to be completed per week. All SOCs that are recorded must be submitted to the nominated project management representative on a weekly basis.

The information that is gathered must be analysed and any trends that are identified must be acted on to correct unsafe behaviour or conditions.

12.2 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.

12.3 Daily Safe Task Instructions (DSTIs)

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, updated and re-communicated 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 the DSTI discussion but must not lead the DSTI discussions, as this is the responsibility of the appointed supervisor.

12.4 Health and Safety 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.

12.5 Health and Safety Meetings

12.5.1 Contractor Health and Safety Meetings

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 Construction Health and Safety Officers; and

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;

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- SOCs, PTOs and DSTIs 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 such minutes must be signed off by the Chairperson as a true reflection and attendance records must be kept. These records must be maintained in the contractor's health and safety file.

12.5.2 Site Health and Safety Meetings

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

- Contractor management representatives;
- Contractor Health and Safety Officers;
- 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;
- SOCs, PTOs and DSTIs 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.

12.6 Health and Safety Performance Boards

The contractor must provide and maintain a Health and Safety 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);

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- 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.

12.7 Health and Safety Management Information Notice Boards

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

- The relevant Method Statements, Risk Assessments and Safe Work Procedures for the work that is being performed that day;
- The DSTI for the day;
- The most recent Toolbox Talk;
- Where applicable, all required permits and permissions for the work that is being performed;
- Material Data Sheets (SDS) 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;
- Emergency procedures;
- A site plan indicating evacuation routes and emergency assembly point locations;
- First Aider and Health and Safety Representatives names, contact telephone numbers as well as recent photo; and
- The appointed supervisor's contact details.

12.8 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.

13. 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;

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- 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.

13.1 Contractor Health and Safety File Requirements

The contractor must compile and maintain a file containing all necessary health and safety related documentation. The contents of the file will be audited by the PrCHSA or a nominated Project Health and Safety Representative on a monthly basis.

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

- Valid Letter of Good Standing from the Workman's Compensation Commissioner;
- Proof of Public Liability Insurance;
- Scope of Work under the contract;
- List of Contacts and their Telephone Numbers;
- Health and Safety Policy;
- Health and 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);
- 37.2 Agreements
- Notifications to the relevant authorities that construction work is in progress;
- Baseline and Task-Based Risk Assessments;
- Safe Work Procedures, Work Instructions and Work Method Statements;
- Planned Task Observations;
- Fall Protection Plan;
- A dossier (Equipment Profile) for each fuel-driven vehicle or machine;

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- Inspection Registers, Forms and Checklists (e.g. For portable electrical tools, ladders, safety harnesses, light vehicles, mobile equipment, lifting equipment and lifting tackle, first aid boxes, fire extinguishers, etc.);
- PPE Issue Registers;
- Material Data Sheets;
- Emergency Response Procedures;
- Incident Procedures and 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;
- Health and Safety Meeting Minutes;
- Health and Safety Performance Reports;
- Copies of Inspection and Audit Reports;
- Daily Safe Task Instructions (DSTIs) and Toolbox Talks; and
- Any survey relating to the scope

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

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 Safe Work Procedures

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.

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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).

14.2 Planned Task Observations

All contractor, management supervisors must perform Planned Task Observations (PTOs) 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 two PTO per week involving one or more employees in his work team. This number of PTOs is at the discretion of TRANSNET's Project Manager or appointed Representative.

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

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

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

14.3 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 cell-phones (or similar devices) whilst working on site;
- Sleeping on the job;

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- Building fires on site, unless in a suitably constructed barbequing facility; and
- Pouring / pumping / flushing any substance (chemical / hydrocarbon / 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.

14.4 Site Access

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

14.4.1 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:

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 which states that the employee is fit for duty;
- Completion of all required project induction training;
- Completion of special training / licensing if applicable (e.g. Driving/operating Licence).

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.

14.4.2 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 TNPA 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

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to these areas may only be by means of specified routes.

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

14.4.3 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 Contractors designated Site Office where they must sign in.

All visitors must undergo a visitor induction briefing before entering the site.

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 designated Site Office, and when the visit is over, must be escorted back to the Site Office.

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.

14.4.4 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 daily 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.

14.4.5 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.

14.5 Construction Vehicles

Construction vehicles, such as transportation vehicles, vehicles being used by the Contractors team, that is brought onto site must meet safety requirements. 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 is brought 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, but not limited to:

- 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.

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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).

14.5.1 Mobile Equipment

All Contractors must ensure that mobile equipment and light vehicles comply with relevant/applicable legislation.

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 relevant/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. The assessment must:

- Involve operators and maintenance personnel who will use and work on the equipment; and
- Address all aspects of safe operation including but not limited to 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.

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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. 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.

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A mobile phone, whether hands-free or not, may not be used by the driver or operator of a light vehicle or item of mobile equipment unless the vehicle/equipment is parked in a safe location and not operational. 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, (where relevant to the scope of work) 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 Traffic management Plan must be reviewed/revised where changes to the works areas require. A risk assessment must be carried out prior to any changes being made to traffic movements or road systems.

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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.

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 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 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.

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.

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.

14.5.2 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

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- 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.

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.

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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.

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.

14.5.3 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.

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.

14.5.4 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 specific 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.

The Contractor must ensure that Licenses and Operators' competency certificates are valid for the duration of their activities on site. No training of drivers or operators may be carried out on site unless authorised by a nominated project management representative.

14.5.5 Tyre and Rim Safety

These requirements apply to tyres and rims with a rim diameter of 60cm (24 inches) or greater. Safe Work Procedures must be in place for all tyre maintenance and servicing activities and for tyre fire emergency response.

In the event of a tyre fire, an exclusion zone of 300 metres must be established and may only be accessed by emergency services personnel who are shielded while fighting the fire.

Restricted Work Zones must be established for tyre installation, removal and handling processes.

All tyre and rim handling equipment must have fall back prevention in place prior to anyone entering the Restricted Work Zone.

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No hot work (e.g. Welding or cutting) may be carried out on a rim (wheel) while the rim is fitted with a tyre – whether inflated or deflated. A periodic testing and / or inspection regime must be in place for tyres, rims (wheels), and assemblies.

All tyres and rims (wheels) must be made unserviceable when deemed unfit for service or before being sent off site for disposal. A tracking system must be in place to track the lifecycle of tyres and rims (wheels).

14.6 Access Road to Project Site

The contractor shall ensure that trained flagman are placed at strategic positions that may be identified along the access roads where high risk activities are being undertaken and/or at points of traffic interface.

The project access roads may not be closed without permission from a nominated project management representative.

14.7 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.

14.8 Barricading

Barricading requirements found within the Construction Regulations, 2014 as well as TRANSNET's barricading standards, but not limited to, 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.);
- To protect openings and edges (to prevent persons from falling, all openings and edges associated with 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);

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- 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

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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.

14.9 Excavations

Excavation work or activities which are required as part of the scope shall be undertaken in accordance with the requirements of this Specification as well as all applicable legislation concerning excavation work.

The contractor will be required to 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 will be issued. 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:

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- 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.

If buried services are identified (or are suspected to be present) then the safe work procedure must be altered if necessary to avoid these services. 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 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.

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.

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.

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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.

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.

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.

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. 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.

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.

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

14.10 Cranes and Lifting Equipment

All applicable legislation concerning cranes and lifting equipment must be complied with at all times (Driven Machinery Regulation, Construction Regulations, Code of Practice 29, but not limited to). 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 Specification.

14.10.1 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, but not limited to:

- 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 as a minimum:

- 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.

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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.

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.

14.10.2 Operation

At the start of every day or shift, the operator of a crane or hoist must carry out a pre-operation safety check as per Driven Machinery Regulation 18.

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);

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- Two full wraps of rope must remain on the hoisting drum at all times. If a lower hoist limit switch has been fitted, and it is working correctly, it should not be possible to lower the block below the point where less than two full wraps of rope are on the drum;
- Before commencing with a lift, it must be verified that all rigging connections are correct and secure. Slings, chains, or other lifting devices must be fully and securely seated in the saddle of the hook;
- Slack must be removed from the slings, chains and / or hoisting ropes before lifting the load. It must be ensured that multiple lines are not twisted around each other and that the hoist rope is not wrapped around the load;
- To ensure that the load is properly secured and balanced, it must initially only be lifted a few centimetres. Slings must be repositioned if required;
- Before moving a suspended load, it must be lifted high enough to clear all obstructions. The load must only be lifted to the height necessary to clear obstructions, and no higher;
- Directional movement must be made smoothly and deliberately (there must be no sudden acceleration or deceleration of the moving load). Abrupt, jerky movements of the load in any direction must be avoided;
- Tag lines must be used in situations where a load needs to be steadied or guided while suspended;
- When using tag lines to steady or guide a suspended load that is being moved using a mobile crane, personnel on foot must remain in sight of and in communication with the crane operator at all times, must never walk between the crane and the load, and must remain clear of the load and the crane at all times (at least 5 metres). The load must be moved at a slow walking speed;
- A suspended load must be monitored closely at all times;
- If a crane operator's view of a suspended load is unavoidably obscured (completely or partially), or if a suspended load is unavoidably obscuring (completely or partially) a crane operator's view, then suitably positioned spotters must be in place to provide guidance to the crane operator;
- A load MAY NOT be moved over, or be suspended above, any person or any occupied building. No person may walk beneath, or position himself below, a suspended load;
- No person may pass or work beneath the boom of a crane;
- No person may be positioned between a suspended load and a solid object where there is a risk of being crushed should the load swing;
- No person may be positioned within the radius of the boom of a crane unless directly involved with the lift;
- Under no circumstances may any person ride on a crane's hook or on a load;
- No load may be left suspended unless the operator is at the controls and is monitoring the load. In such a situation, the load must be kept as close as possible to the ground or floor to minimise the possibility of injury should the load drop;
- The controls of a crane or hoist may never be left unattended while a load is suspended. If it becomes necessary to leave the controls, the operator must lower the load to the ground or floor;

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- 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.

14.10.3 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



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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

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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.

14.10.4 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.

14.11 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.

14.11.1 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

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- 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.

14.11.2 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.

14.11.3 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.

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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.

14.11.4 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.

14.11.5 Fall Protection

Whenever there is a risk of falling onto dangerous equipment or machinery, or whenever work must be carried out near 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 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. 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).

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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 visually prior to use and on a monthly basis thereafter by competent persons appointed in writing and each item of equipment must be tagged to show when it was last inspected. All inspections must be recorded in a register. On finding defective or damaged equipment, appropriate action must be taken by the competent person (i.e. the destruction of the equipment to prevent further use).

Persons making use of personal fall protection equipment must do so in strict accordance with the instructions or requirements specified by the manufacturer or supplier of the equipment or system. Specific pre-use inspection, maintenance and fitting protocols must be established in accordance with the manufacturer's requirements or guidelines and these protocols must be followed by all users of the fall protection equipment.

Solvents may not be used to clean fall protection equipment. Only manufacturer-approved cleaning solutions may be used.

No person required to use personal fall protection equipment may work in isolation (a minimum of two persons working together is required). Competent supervision must be in place at all times for all work carried out at height. Supervisors must be appointed in writing.

Emergency response (rescue) procedures for the rapid retrieval of suspended persons in the event of a fall from height must be prepared and tested.

Note: Even though there is no risk of free fall, fall protection equipment may be required in situations where there is a risk of falling, slipping or sliding down a slope of more than 45 degrees.

Note: The maximum service life of fall protection equipment manufactured of synthetic fibre shall be 5 years from the date of first use and / or manufacture unless otherwise specified by the manufacturer.

A person may climb or descend a ladder without fall protection provided that he is able to use both hands and legs to do so, faces the ladder, and uses one step at a time. The ladder must be tied off or supported at its base.

Prior to any roof work being performed, or prior to persons accessing a roof, a structural engineer must verify that the roof is of sound construction and that it is capable of supporting the weight of the persons as well as any equipment that may be required. Should the engineer's findings be to the contrary, alternative methods of performing the work must be found. Particular care must be taken when work is carried out on an asbestos cement roof or a fibreglass roof.

14.11.6 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, but not limited to:

- Hazards relating to accessing the location at height;
- The nature of the work location;

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- 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.

14.11.7 Elevating Work Platforms

Before hiring or purchasing an elevating work platform (e.g. a scissor lift, man lift, boom lift, cherry picker or similar equipment), the certification of the equipment (with regard to suitability of design and construction) must be verified.

Before using an elevating work platform, it must be verified that the equipment is in good working order and has been serviced regularly. The service record and instruction manual must be kept on site. A system must be in place to ensure that the equipment is maintained and inspected as required by the manufacturer and / or local regulations.

Persons (operators) must be formally trained through an accredited training provider and certified competent in the operation of the equipment. Once a person has been issued with the necessary licence or qualification as required under local regulations, he must be appointed in writing to operate the equipment.

Before using an elevating work platform, the operator must inspect the equipment and a pre-use checklist must be completed. The operator of an elevating work platform must be in the "basket" unless it can be demonstrated to the satisfaction of the nominated project management representative that this is not possible or practical.

Every person in the "basket" must keep his feet on the floor at all times. Every person in the "basket" must be secured at all times by means of personal fall protection equipment attached to an approved anchorage point, and systems must be in place to prevent tools and equipment from falling.

A mobile elevating work platform must not be driven unless the "basket" has been lowered and secured in a stable position. Every elevating work platform that is used must be equipped with a dead man's switch or foot pedal at the operator controls. An elevating work platform must only be operated on a firm surface with the outriggers extended (where fitted).

An elevating work platform must not be operated on a grade or slope beyond the capability of the machine (every mobile elevating work platform that is used must be fitted with an inclinometer which sounds an audible alarm before the maximum safe incline has been reached).

The area beneath the “basket” and the boom must be barricaded. A second competent operator of the mobile elevated work platform to be in place on the ground level – to ensure that the elevated work platform could be lowered in case of an emergency. A spotter must be used at all times when moving a mobile elevating work platform and when the “basket” is in an elevated position.

14.11.8 Man Baskets, Suspended Scaffolds and Boatswain’s Chairs

The use of a man basket, suspended scaffold or a boatswain's chair may only be considered when all other avenues to safely perform the work (e.g. ladder, scaffolding, mobile elevating work platform, etc.) have been exhausted. Authorisation to use a man basket, suspended scaffold or a boatswain’s chair must be obtained from the nominated project management representative. If permission is granted, the use of such equipment must be in strict compliance with all applicable legislation.

Each person working from a man basket, suspended scaffold or a boatswain’s chair must be in possession of a valid medical certificate of fitness and must be trained (and assessed competent) in the Safe Work Procedures pertaining to the use of the equipment, as well as the Fall Protection Plan.

Each person working from within a man basket or suspended scaffold or from a boatswain’s chair must wear personal fall protection equipment at all times (i.e. an approved full body harness connected by means of a shock absorbing lanyard to an anchorage point or lifeline that does not form part of the basket or chair).

If suspended using a crane, the man basket, suspended scaffold or boatswain’s chair must be visible to the crane operator at all times. A suitable means of communication must be in place to ensure that the suspended person(s) are able to communicate with the crane operator and personnel on the ground.

The crane operator must remain at the controls at all times while the man basket, suspended scaffold or boatswain’s chair is occupied. Where feasible (and if it is safe to do so), tag lines must be used to stabilise the man basket, suspended scaffold or boatswain’s chair.

A man basket or suspended scaffold (including the suspension system) must be designed by a qualified engineer. Only an approved and certified man basket or suspended scaffold from a Regulatory Body can be used. Regulations require approval by an authority or certification to a national or international standard. The manufacturer’s procedures and conditions for use must be strictly complied with at all times.

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Each man basket or suspended scaffold must be fitted with an information plate indicating the maximum weight and number of persons that may be lifted. Copies of the welding x-rays and engineering drawings must be kept on site.

Any work involving the use of a man basket, suspended scaffold or boatswain's chair must be carried out under the supervision of a competent person who has been appointed in writing.

A man basket, suspended scaffold or boatswain's chair must be thoroughly inspected (examined for damage) by a competent person prior to use (every time the equipment is used) and the results of each inspection must be recorded in a register. The crane or hoist as well as all lifting equipment (tackle) that is used to suspend the man basket, suspended scaffold or boatswain's chair must be tested and inspected as stipulated according to applicable Legislation.

All suspended scaffold erectors, operators and inspectors must be appointed in writing and proof of competency must be provided.

Persons carrying out welding or flame cutting work from within a man basket or suspended scaffold or from a boatswain's chair must take precautions to ensure that they do not accidentally cut or burn through the cables or wire ropes that are suspending them.

14.12 Working near and/or over water

All applicable legislation concerning working along, near, adjacent and/over water must be complied with at all times, but not limited to OSHAct, Construction Regulations, SAMSA etc. Each contractor carrying out work along, near, adjacent and/over/in water must develop, document and implement Safe Work Procedures that are aligned with the requirements of this specification as well as any applicable legislation, standards and codes. A task specific risk assessment for the relevant work to be carried out along, near, adjacent and/over water should be conducted before any such work commences and submitted to the Transnet Project Manager or Representative for approval before any work can commence. The Risk assessment should be reviewed periodically. All potential hazards involved in the work to be carried out along, near, adjacent and/over water e.g. drowning, plant/equipment falling into water/non complaint to SAMSA standards should be identified and mitigated.

Health and Safety documents for such work should include, but not be limited to:

- Competencies of operators and conditional reports/assessments of all plant involved in working along/near/adjacent and over water.
- Methodology for carrying out such work;
- Formulation of method statements/risk assessments/safe work procedures;
- Emergency preparedness e.g. contingency plans, rescue plans, evacuation plans.

Lifting equipment/mobile plant should be kept a safe distance from dangerous locations e.g. openings, edges close to the water. Lifting equipment/mobile plant/barges/dredgers carrying out work along, near, adjacent and/over water should be fixed and securely anchored. The operating zone should be clearly demarcated. No lifting equipment/mobile plant should be allowed to operate beyond its safe working load and capacity. The

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suitability of the ground on which the lifting equipment/mobile plant will be stationed should be identified before work commences with these activities.

14.13 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), 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 in a safe and controlled manner.

14.14 Scaffolding

14.14.1 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.

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 and Inspector.

14.14.2 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.

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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.

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. Chutes may be considered for use.

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

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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.

14.14.3 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.

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.

14.14.4 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.

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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.

14.14.5 Inspection of Scaffolding

Every scaffold structure must be inspected by a competent Scaffolding Inspector/Supervisor who is appointed in writing:

- 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 Inspector/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 Inspector/ Supervisor(s) carrying out the inspections.

14.14.6 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 Inspector/Supervisor must be consulted in this regard);
- The Scaffolding Inspector/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;

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- 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 Inspector/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" 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.

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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.

14.14.7 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 Inspector/Supervisor.

Components found to be defective/broken/rusted 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.

14.14.8 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.

14.15 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

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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.

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When a ladder is used near an entrance or exit, the base of the ladder must be barricaded. Materials and / or equipment may not be placed 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.

14.16 Permit to Work

All personnel must comply with the Permit to Work system applicable to the project. A Permit to Work must be obtained before carrying out any work that involves:

- A hazardous energy source or system, including electricity, compressed fluids (e.g. hydraulics and pneumatics), chemical substances (e.g. toxic, corrosive, flammable or explosive gases and liquids), heat (e.g. steam), radiation, and machinery or materials with potential energy (gravitational and elastic) – isolation and lockout may be required;
- Confined space entry;
- Working at heights;
- A critical lift;

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- Hot work outside of designated workshops;
- Excavation; or
- A service (e.g. water supply, fire suppression systems, etc.).

Note: A Permit to Work may only be issued by an Authorised Person, and may only be received (or accepted) by an appointed Applicant.

All costs associated with the Compliance to Permits section is for the Contractors account.

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;

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- 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.

14.17 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

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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;

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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.

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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.

14.17.1 Personal Locks

A Personal Lock must be such that it can only be unlocked by the person to whom it belongs. Combination locks may not be used. A Personal Lock, as well as the key(s) to the lock, must be kept under the exclusive control of the person to whom the lock belongs.

A Personal Lock must be issued to each person who requires one, and the person's details must be clearly and permanently engraved directly onto his Personal Lock. Alternatively, a thick durable plastic identification tag may be used that clearly displays the company's name, the employee's name, the employee's company number, and a contact telephone number (the tag must be securely fastened to the Personal Lock). Where the above is hand written, it must be done using a permanent marker pen and it must be legible.

Each person issued with a Personal Lock must be trained and certified competent in the correct use of such a lock.

A Personal Lock may NEVER be removed by anyone other than the person to whom it belongs, except if the removal (cutting) of the lock is authorised by the nominated project management representative (in the absence of this person, authorisation can only escalate upwards). Furthermore, the removal of the lock must be done under the personal supervision of the nominated project management representative, and in accordance with a written procedure. The removal (cutting) of a Personal Lock may be required if the person who applied the lock is unable or unavailable to remove it on completion of the work (e.g. lost his key, failed to remove his lock before going home, etc.).

14.18 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.

14.18.1 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.

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A nominated TNPA project management representative must inspect/endorse all electrical work before the installation is energised. Any installation deemed unsatisfactory by the TNPA 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.

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.

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 (bar) 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).

Grounding (earthing) and lightning protection systems and devices must be designed, engineered, selected and installed based on site-specific requirements where required.

14.18.2 Arc Flash Safety

Depending on the scope and nature of the work, a documented arc flash protection programme must be in place. The PPE required (specific to a task and the equipment on which the task is performed) and associated procedures to mitigate the hazard must be included.

An Arc Flash Hazard Assessment must be carried out based on accurate and current data. All electrical cabinets where the potential for an arc flash hazard exists must be labelled in accordance with the hazard assessment and the potential incident energies calculated. A process must be in place for updating the Arc Flash Hazard Assessment and labelling as changes and electrical upgrades occur that might affect the available short circuit current on the system.

In order to mitigate the hazard, Safe Work Procedures must be in place and all persons potentially exposed to arc flash hazards must be trained in these Safe Work Procedures and must be supplied with appropriate arc flash PPE.

14.19 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.

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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.

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.

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 14-1 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

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- 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.

14.20 Confined Spaces

Entry into a confined space occurs when a person's whole body, upper body or head is within the confined space. This is not intended to prevent an authorised, competent person from inserting only his arm into the space to test for hazards using appropriate monitoring equipment. Precautions must be taken to prevent persons from being overcome by atmosphere escaping from the confined space.

Before any person enters a confined space, a detailed risk assessment must be carried out, including the need for an authorised person to assess such things as oxygen levels, contaminants, temperature extremes and concentration of flammable substances.

As a minimum the risk assessment shall address the following:

- Isolation and lockout procedures required for chemical substances, mechanical or electrical energy, steam, pressure, heat, gases, liquids and solids;
- Venting, purging, draining and cleaning prior to entering the confined space;
- Hazards created by carrying out particular tasks or through the use of chemical substances in the confined space. Task-Based (or Issue-Based) Risk Assessments and/or Written Safe Work Procedures must be available for work in confined spaces - in particular for abrasive blasting, welding, flame cutting, grinding, chemical/steam cleaning, rubber lining and painting;

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- Entry, exit and escape routes as well as barricading;
- The electrical safety, intrinsic safety and other safety specifications of equipment to be used in the confined space (explosive atmospheres must be considered);
- The need to test for presence of toxic/asphyxiant substances, radioactivity, oxygen, temperature extremes and flammable substances prior to entry and during the performance of work;
- Provision of suitable mechanical ventilation and personal protective equipment e.g. lifejackets etc. and in particular the use of respiratory protection such as compressed air breathing apparatus; and
- A ventilation rate suitable for general use must take into account factors such as air contaminant type, rate of generation, rate of oxygen depletion, temperature, efficiency of ventilation distribution and contaminant removal from the breathing zone. Therefore each situation needs to be evaluated on its own merit by a risk assessment that will select a combination of ventilation method and respiratory protection that suits the particular circumstances. This must be achieved by consultation between competent operations personnel, engineers and a ventilation specialist.

Entry and work inside a permitted confined space must be controlled and regulated by the project Isolation / Lockout and Permit to Work control systems. The Authorised Person issuing the Permit to Work may only do so if the conditions applying to the specific confined space entry have been satisfied and documented.

As a minimum, the following must be included in the permitting process:

- Access barriers to prevent unauthorised entry;
- Isolation procedures for contaminants and other energy sources;
- The need for breathing apparatus / ventilation requirements;
- The sign-in and sign-out of all persons entering the confined space;
- Display of the permit;
- Communication procedures and/or equipment;
- Safety specifications of equipment to be taken into the confined space;
- Barricading of entrances and exits;
- Rescue plan and equipment;
- Standby person(s); and
- A completion and lock-in procedure (to ensure that space is evacuated and adequately secured).

The Permit to Work process must require competent rescue persons with suitable communication, rescue and fire-fighting equipment to be present where any of the following may exist:

- Compressed air breathing apparatus is required;
- There is a high risk of fires or explosions;
- The atmosphere can rapidly become unsafe for breathing purposes if the mechanical ventilation fails;
- There is a high risk of flooding or engulfment;

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- Narrow tunnels or pipes are entered or where exit or escape routes cannot readily be accessed;
- Work is done in remote areas; and
- A single person, who cannot be observed directly or is isolated from other workers, does the work.

Where testing for toxic/asphyxiate substances, radioactivity, oxygen, temperature extremes and other health hazards as well as for flammable substances is carried out, it may only be done by persons trained, tested and certified competent in writing to do so. The ventilation method and quantity must be adequate to ensure oxygen levels and explosive or toxic gas levels remain within acceptable defined limits. Where ventilation is required, this must be covered by an approved documented procedure.

As a minimum standard, the volume of air pumped in and circulated in a confined space needs to be equivalent to 20 times the volume of the space per hour.

Where breathing apparatus or respiratory equipment is required, the contractor's Health and Safety Officer must be consulted with regard to the specification and selection of suitable equipment. All persons required to use respiratory protection must be medically fit and trained in the correct use of the equipment.

Safe and convenient entry, exit and escape routes from the confined space must be provided where possible and practical. Where this cannot be achieved effectively, the risk assessment must determine if a competent rescue person must be on duty at the confined space when work is in progress.

Where a standby/rescue person is required, they will have no other duties and will be positioned outside the confined space entry point at all times while personnel are within the space.

14.21 Arc Welding

All welding machines must be fitted with voltage reducers. The supply cable to every welding machine must be correctly rated and fitted with an approved plug to be used only with an approved matching plug socket. The electrical circuit to every plug socket must be protected by a correctly rated circuit breaker and a supply voltage rated earth leakage unit. Welding cables must be properly insulated and correctly rated for the welding machines on which they are to be used.

Welding cable terminals must either be covered with a properly designed, constructed and installed cover so that inadvertent human contact with the terminals is impossible, whether the cables are connected or not, or the welding cables must be fitted with insulated plugs so that inadvertent human contact with any live part is impossible when the cables are plugged into the machine. Also the plug socket should be such that when the cables are not plugged in, inadvertent contact with a live part of the socket is impossible.

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Earth cable clamps and electrode holders must be of an approved type. Earth clamps and electrode holders must be fixed to welding cables with eye terminals and bolts. All welding machines and safety devices must be subjected to regular planned maintenance and a monthly electrical inspection. The inspection must include a test to ensure that the voltage reducer is functioning properly, by measuring and confirming that the open circuit output voltage is reduced.

Before using a welding machine, the welder must ensure that he is wearing all the required and approved protective clothing and equipment:

- Persons assisting the welder must also wear all of the required personal protective Welding hood;
- Leather welding gloves;
- Safety boots with steel toe protection;
- Flame resistant overalls; and
- Any other clothing or equipment necessary to perform his work safely and efficiently.

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 as well as any health risks.

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;

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- 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.

Any activities associated with welding should be carried out in a safe manner with all precautionary measures documented, prepared for and undertaken e.g. x-rays taken of any pipes.

14.22 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.

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All safety precautions must be taken by the Principal Contractor whenever any activity requires any welding to be undertaken. These precautions relate to direct employees who are undertaking the task as well as employees from the surrounding works area.

14.23 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.

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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.

14.24 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

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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.

14.25 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:

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- 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.

14.26 Pneumatically Powered Tools and Equipment

Pneumatic powered tools must only be driven by filtered compressed air with an in-line lubrication system, or be lubricated prior to use if there is no in-line lubrication system. When using pneumatic powered tools the designated tool pressure must be attained by the use of a regulator.

Pneumatic powered tools must be disconnected when not in use. They must not be disconnected from the air supply until all the residual pressure has been released or contained by a shut-off device. Hoses must not be kinked as a means of containment.

Employees operating pneumatic powered tools, and any potentially affected employee in the vicinity of use, must wear suitable personal protective equipment. All rotary compressed air tools (e.g. drills) must have the rated revolution per minute (RPM) permanently marked on the casing. Only attachments of compatible RPM must be used with these machines.

The actual RPM of the tool must be checked every three months to ensure that the speed is as rated to manufacture specifications.

Pneumatic powered tools must be secured to the air supply hose by an approved positive means to prevent the tool from becoming accidentally disconnected. Safety clips or retainers must be securely installed and maintained on pneumatic impact (percussion) tools to prevent attachments from being accidentally expelled.

All pneumatically driven nailers, staplers, and other similar equipment provided with automatic fastener feed, which operate at more than 100 kPa pressure at the tool, must

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have a safety device on the muzzle to prevent the tool from ejecting fasteners unless the muzzle is in contact with the work surface.

Compressed air must not be used for cleaning purposes except where reduced to less than 30kPa, and then only with effective chip guarding and personal protective equipment in place. The 30kPa requirement does not apply to concrete form, mill scale and similar cleaning purposes.

The use of compressed air for cleaning purposes must be approved by the nominated project management representative. Compressed air must not be pointed at any part of the body or used for cleaning clothing.

Airless spray guns of the type which atomize paints and fluids at high pressures must be equipped with automatic or visible manual safety devices which will prevent pulling of the trigger to prevent release of the paint or fluid until the safety device is manually released. A diffuser nut which will prevent high pressure, high velocity release while the nozzle tip is removed, plus a nozzle tip guard which will prevent the tip from coming into contact with the operator, or other equivalent protection must be provided in lieu of the above.

Abrasive cleaning nozzles must be equipped with an operating valve, which must be held open manually to enable operation. A support must be provided on which the nozzle may be mounted when it is not in use.

14.27 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.

14.28 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.

14.29 Explosive Powered Tools

All operators shall be trained by the contractor. The contractor shall ascertain that the explosive charges to be used are of the correct strength for the purpose.

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Projectiles from explosive powered tools shall NOT be driven into:

- Tile, terracotta, glazed brick, glass, marble, granite, thin slate or other brittle substances;
- High tensile steel, cast iron or steel hardened by heat treatment; or
- Concrete that contains aggregate that will not pass wholly through 25mm mesh screens.

Under no circumstances shall a tool be fired in such a manner as to cause the projectile to fly free. Suitable safety glasses and hearing protection shall be worn by operators when firing an explosive powered tool.

At all times when a tool is being used, the operator shall display clearly legible signs at or near the place where the tool is in use. Sign should read: WARNING: EXPLOSIVE POWERED TOOL IN USE – KEEP CLEAR. The operator shall warn all other employees in the vicinity of the area in which the tool is about to be used.

Tools shall never be stored in a loaded state. Cartridges and tools shall be stored separately in lockable containers. A logbook must be kept of the number of cartridges used and returned.

14.30 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.

A utility knife must be used as a last resort, when it is the safest tool to use. Always consider alternatives that pose less of a risk to the operator.

Whenever a utility knife is used, ensure that a complete risk assessment is done and that all possible hazards have been addressed. Only utility knives with retractable blades are to be used. The blade is to be retracted at all times when the knife is not in use or is being stored.

Before using the utility knife, ensure that the tool is in a good condition and the blade is secure in the holder (seated correctly and that there is no play). Ensure that the blade is always sharp and in good condition. This will prevent the use of excessive force.

Always wear cut resistant gloves and safety glasses when using a utility knife. There is always a risk of the blade breaking under tension and becoming a projectile. Always ensure that you cut away from your body, and that no part of your body is in the firing line. Always ensure cleanliness of all equipment in use during the cutting operations.

14.31 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.

14.32 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. Correct lifting techniques must be used at all times when lifting a load manually.

The following, but not limited to, 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 on route.

Team Manual Handling:

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- 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

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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).

14.33 Demolition Work

Demolition work must be carried out as per the requirements of Construction Regulations, 2014, Regulations 14.

The contractor must appoint a competent person in writing to supervise and control all demolition work on a project site.

14.34 Temporary Works

The contractor must appoint a temporary works designer in writing to design, inspect and approve the erected temporary works on site before use.

The contractor must ensure that all temporary works operations are carried out under the supervision of a competent person who has been appointed in writing for that purpose. The contractor must ensure that, all temporary works structures are adequately erected, supported, braced and maintained by a competent person so that they are capable of supporting all anticipated vertical and lateral loads that may be applied to them, and that no loads are imposed onto the structure that the structure is not designed to withstand.

All temporary works structures are done with close reference to the structural design drawings, and where any uncertainty exists the structural designer should be consulted. Detailed activity specific drawings pertaining to the design of temporary works structures are kept on the site and are available on request to an inspector, other contractors, the client, the client's agent or any employee.

All persons required to erect, move or dismantle temporary works structures are provided with adequate training and instruction to perform those operations safely. All equipment used in temporary works structure are carefully examined and checked for suitability by a competent person, before being used.

All temporary works structures are inspected by a competent person immediately before, during and after the placement of concrete, after inclement weather or any other imposed load and at least on a daily basis until the temporary works structure has been removed and the results have been recorded in a register and made available on site;

No person may cast concrete, until authorization in writing has been given by the competent person; if, after erection, any temporary works structure is found to be damaged or weakened to such a degree that its integrity is affected, it is safely removed or reinforced immediately. Adequate precautionary measures must be taken in order to:

- Secure any deck panels against displacement; and
- Prevent any person from slipping on temporary works due to the application of release agents;
- As far as is reasonably practicable, the health of any person is not affected through the use of solvents or oils or any other similar substances;

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- Upon casting concrete, the temporary works structure is left in place until the concrete has acquired sufficient strength to safely support its own weight and any imposed load, and is not removed until authorization in writing has been given by the competent person contemplated in paragraph (a);
- The foundation conditions are suitable to withstand the loads caused by the temporary works structure and any imposed load in accordance with the temporary works design.
- Provision is made for safe access by means of secured ladders or staircases for
- A temporary works drawing or any other relevant document includes construction sequences and methods statements;
- The temporary works designer has been issued with the latest revision of any relevant structural design drawing;
- A temporary works design and drawing is used only for its intended purpose and for a specific portion of a construction site; and
- The temporary works drawings are approved by the temporary works designer before the erection of any temporary works.

No contractor may use a temporary works design and drawing for any work other than its intended purpose.

14.35 Structure

The 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;
- 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.

14.36 Personal Protective Equipment

Applicable legislation, standards, procedures and safe work procedures (such as but not limited to Construction Regulations, General Safety Regulations, Client HS Specification) 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 the project site:

- Safety footwear with steel toe protection;

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- 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, safety information boards 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).

Contractors must appoint an employee to:

- Control the issuing and replacement of PPE;

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- 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.

14.36.1 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.

14.36.2 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

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- 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.

14.36.3 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

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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.

14.36.4 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.

Respirator zones identified 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);

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- 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 Data Sheets (SDSs), 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

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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.

14.36.5 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.

14.36.6 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, slops, slippers, open-toed and high-heeled shoes are not permitted on any project premises.

Safety boots must provide the following protection:

- Steel toe cap to protect against crushing (impact and compression forces);
- Leather uppers that provide resistance against water penetration and water absorption;
- Slip resistant soles;

And where a risk assessment identifies the need:

- Puncture resistant soles (i.e. steel midsoles) for protection against sharp objects;
- Chemical resistant soles for protection against spilt chemical substances (such as solvents, hydrocarbons, acids, and alkalis);
- Heat resistant soles for protection against hot surfaces or molten metal; or
- Electrical shock resistant soles for protection (insulation) against live electrical conductors.
- Gumboots with steel toe caps must be worn when working in water or very wet conditions.

14.36.7 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.

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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.

14.36.8 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 fire-fighting, attending to a heating furnace, working with molten metal, working in refrigerated environments, etc.;
- Hot work (e.g. welding, burning, cutting and grinding);
- Working with hazardous chemical substances (e.g. acids, solvents, pesticides, etc.); and
- Clean up and disposal of hazardous materials and wastes (e.g. asbestos, hydrocarbons, etc.).

A wide variety of protective garments are available, such as fire-fighting 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.

14.36.9 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;

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- 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.

14.36.10 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.

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14.36.11 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).

14.36.12 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.
- Working near/over water – SABS approved life jackets, life rings in close proximity.

14.36.13 Sun Protection

The contractor must ensure that all personnel are protected in sunlight through the use of long sleeve shirts, long trousers, brims 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).

14.37 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;
- 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;

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- 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, including the evacuation of all persons in the vicinity. Suitable fire-fighting 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.

14.38 Fire Protection and Prevention

The contractor must compile a Fire Protection and Prevention Plan for the work that will be carried out on site.

The contractor must assess / survey his area of responsibility and identify locations where the risk of fire is high. Cognisance must be taken of the fact that certain locations may

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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 fire-fighting equipment. The type, capacity, positioning, and number of fire-fighting 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.

Fire-fighting 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 fire-fighting 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.

Fire-fighting 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 fire-fighting equipment.

Access to fire-fighting 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 fire-fighting appliances and alarm points are located. The contractor must ensure that his employees (and those of any appointed sub-contractors) are trained in fire-fighting procedures and the use of fire-fighting 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. All personnel working

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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.

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 fire-fighting procedures and the use of fire-fighting 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 fire-fighting equipment must not be used on electrical equipment or burning liquids.

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

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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.

14.39 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.

14.40 Housekeeping

The contractor must maintain all work areas in a tidy state, free of debris and rubbish. Unless directed otherwise, the contractor must dispose of all debris, rubbish, spoil and hazardous waste off site in a designated and authorised area or facility. The contractor must familiarise himself with the waste management plan for the site including collection and disposal arrangements, and must align his waste management activities accordingly.

In cases where an inadequate standard of housekeeping has developed and compromised safety and cleanliness, a nominated project management representative may instruct the contractor to cease work until the area has been tidied up and made safe. Neither additional costs nor contract deadline extensions will be allowed as a result of such a stoppage. Failure to comply will result in a clean-up being arranged through another service provider at the cost of the non-complying contractor.

The contractor must carry out housekeeping inspections on a weekly basis to ensure maintenance of satisfactory standards. The contractor must document the results of each

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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.

14.41 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.

14.42 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.

14.43 Facilities

Sanitary conveniences must be provided and maintained at a rate of at least one shower facility for every 20 workers, at least one toilet facility for every 10 workers, separate male and female changing facilities and sheltered eating areas.

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Where chemical toilets are provided, one toilet for every 10 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 from an approved source. 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.

15. Occupational Health and Hygiene

The contractor must ensure that the exposure or potential exposure of his employees to any of the following stressors is assessed and measured:

- Noise;
- Thermal stress (heat and cold);
- Particulates (dust);
- Silica (free crystalline silica);
- Gases or vapours;
- Lead;
- Chemicals;
- Ionising radiation;
- Non-ionising radiation;
- Vibration (hand / arm vibration and whole body vibration);
- Ergonomics; and

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- 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 refurbishment 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).

TRANSNET Health and Hygiene Department is required to provide the following monitoring services where relevant and required:

- 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

TRANSNET Health and Hygiene must provide the contractor with a project specific health risk assessment in respect of existing Occupational Health Risk on Sites.

The contractor must conduct an Occupational Health Risk Assessment in respect of their project activities. The contractor will be required to appoint an Approved Inspection Authority (AIA) for Occupational Hygiene to conduct Occupational hygiene Surveys should such a need arise.

15.1 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 prior to work commencing for the first time in any area.

Emergency lighting must be provided in all indoor workplaces that do not 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 not be less than 20 lux.

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

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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.

All lighting on site must comply with the requirements of the Environmental Regulations for Work Places GNR2281 of 16 October, 1987.

15.2 Noise

A hearing conservation program must be implemented and protection against the effects of noise exposure must be provided when the noise exposures equal or exceed an 8-hour time-weighted average sound level of 85 decibels measured on the A-weighted scale of a standard sound level meter at slow response.

For the hearing conservation program to be effective it must include as a minimum:

- Monitoring of the workplace to determine the representative exposure of employees to excessive noise levels;
- An audiometric testing program for employees, which must include:
 - A baseline audiogram for all employees exposed to noise levels equal to or in excess of the standard;
 - Audiograms for each overexposed employee at a frequency determined by the OMP;
 - Analysis of audiogram results with retesting and/or referral to an otolaryngologist or qualified physician when a significant threshold shift (STS) occurs; and
 - Written employee notification of the STS.
- A training program for all employees exposed to noise;
Provision of personal protective equipment to all affected employees when administrative or engineering controls fail to reduce sound levels to within the levels of the standards.

Monitoring of employee exposures to noise shall be conducted by an Approved inspection Authority (AIA).

The monitoring requirement may be met by either area monitoring or personal monitoring that is representative of employee exposures. Personal monitoring is preferred, and may be required based on the type(s) of noise sources.

For purposes of the hearing conservation program, employee noise exposures shall be computed in accordance with local legislation. A person-task specification shall be available for every job category and shall be submitted with an employee for audiometric testing.

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Audiometric test results obtained from the pre-employment medical examination for a new employee shall be used as the baseline audiogram. Testing to establish a baseline audiogram shall be preceded by at least 14 hours without exposure to workplace noise.

Hearing protectors shall not be used as a substitute for the requirement that baseline audiograms be preceded by 14 hours without exposure to workplace noise. Employees shall be notified of the need to avoid high levels of non-occupational noise exposure during this 14-hour period.

Record-keeping for the audiogram shall include, as a minimum:

- Name and job classification of the employee;
- Date of the audiogram;
- The examiner's name;
- Date of the last acoustic or exhaustive calibration of the audiometer;
- Employee's most recent noise exposure assessment.

Audiometric test results shall be maintained in the employee's medical file. To control noise exposure, its three basic elements shall be examined, i.e. source of the sound, travel path, and effect on receiver or listener. Solution of a given noise problem might require alteration or modification of any or all of these three basic elements.

Controlling noise at the noise source can be achieved by the following:

- Select quiet equipment initially. In selecting quiet equipment the following features shall be considered:
 - Low-noise certification;
 - Advertisement of "quiet" operation, evidence of noise control design;
 - Evidence of "lower" and "slower" operating characteristics;
 - Side-by-side noise testing of equipment; and
 - "On-site" or "in operation" inspection of mechanical equipment before purchase.
- Reduce operating noise by considering the following control measures:
 - Reduce impact or impulse noise by reducing weight, size, or height of fall of impacting mass;
 - Reduce speed in machines and flow velocities and pressure in fluid systems;
 - Balance rotating parts – to control machinery noise and vibration of fans, fly wheels, pulleys, cams, etc.
 - Reduce frictional resistance between rotating, sliding or moving parts in mechanical systems: frequent lubrication, proper alignment of moving parts; static and dynamic balancing of rotating parts; correction of eccentricity or "out-of-roundness" of wheels, gears, rollers, pulley, etc.;
 - Reduce resistance in air or fluid systems: use of low flow velocities, smooth boundary surfaces of duct or pipe systems, and long-radius turns and flared actions in pipes, etc., to reduce turbulence noise;
 - Isolate vibration elements in machinery; install motors, pumps, etc. on most massive part of machine; use belt or roller drives in place of gear trains; use flexible hoses and wiring instead of rigid piping and stiff wiring, etc.

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- Apply vibration damping materials such as liquid mastic; pads of rubber, felt, foam or fibrous blankets; or sheet metal visco-elastic laminates or composites to vibrating machine surfaces; and;
- Reduce noise leakage from the interior of machines such as compressors by sealing or covering all openings or applying acoustical materials to machine interiors.

Controlling noise in the transmission path can be achieved by the following:

- Separate the noise source and receiver as much as possible;
- Use sound-absorbing materials on ceiling, floor or wall surfaces as close to the machine as possible;
- Use sound barriers and deflectors in the noise path;
- Use acoustical lining on inside surfaces of such passageways as ducts, pipe chases, or electrical channels;
- Use mufflers, silencers or snubbers on all gasoline or diesel engines, regardless of size; and particularly on equipment when large quantities of high-pressure, high-velocity gases, liquids, steam or air are discharged into the open air; and
- Use vibration isolators and flexible couplers where the noise transmission path is structure borne in character.

Protection for the receiver – when engineering controls fail to reduce the levels to within the levels specified in local legislation, the following measures shall be implemented:

- Personal protective equipment shall be provided and replaced as necessary at no cost to employees;
- Supervisors shall ensure that hearing protective devices are worn by all employees who are exposed to a time-weighted average of 85 decibels or greater and who have experienced a significant threshold shift;
- Employees shall be given the opportunity to select their hearing protectors from a variety of suitable protectors.

Noise zones shall be indicated by means of signs at every entrance to such zones. When noise levels exceed 100 dB(A), a combination of earplugs and earmuffs may be required to achieve protection of the worker. It is important to note that using double protection will add only 5 to 10 dB of extra attenuation above that of a single Hearing Protection Device. Where an earmuff and earplugs are used together, OSHA recommends using this simple calculation: Take the higher rating of the two devices, and add five. Hearing Protection Devices should be worn for the full noise exposure period.

Where an audiometry programme is required, it must meet the following standards:

- All testing must be by pure tone audiometry in an approved audiometry booth or quiet room, with measured noise levels less than 40 dB(A);
- The initial audiogram must be taken prior (minimum of 24 hours) to exposure to significant noise. Further audiograms must be taken periodically; annually where exposures are over 85 dB(A) Leq or where continued deterioration to hearing is occurring;
- Testing must be performed by trained and competent personnel;

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- Audiometers must be calibrated according to the manufacturer's guidelines. As a minimum these will be a weekly biological calibration using an employee unexposed to noise, or a bio-acoustic simulator, and an annual quantitative check. All results must be documented; and
- Audiograms must be read by trained persons who will identify any increasing hearing loss and then determine if this is noise induced. Any employee with a significant downward shift in one or both ears (measured as an average non age-adjusted loss from baseline of 10 dB at 2, 3 or 4 kHz) must be retested following removal from noise for a minimum of 24 hours, usually after a days-off period. If the downward shift persists the employee must be reviewed by a physician and improved hearing protection considered.

15.3 Particulate and Gas / Vapour Exposure

Designated areas must be created where:

- It is likely that the 95 per cent upper confidence limit of a Specific Exposure Group's (SEG) mean exposure concentration for agents resulting in chronic effects (such as total inhalable dust, respirable dust, respirable crystalline silica, PAH, fluorides, lead, mercury, asbestos or non-asbestos fibrous materials) exceeds the relevant OEL; and
- Agents with an acute effect, such as particulate hazards, or gases (e.g. CO, SO₂, NH₃, HF, etc.), or vapours exceed 50 per cent of the relevant OEL.

Designated areas must:

- Be identified and mapped, signposted or otherwise clearly communicated to employees working in the area. Signposting, where necessary, must use appropriate wording or symbols on signs to identify the hazard;
- Have a documented respiratory protection programme based on suitable risk assessment and standards, which is applied to employees, contractors and visitors;
- Have regular monitoring of SEGs working in the area; and
- Have a formal review of the practicality of engineering controls at least every two years, or less where it is a critical control for a significant risk.

Particulate and gas / vapour monitoring must be appropriate to the exposure conditions and toxicants, and based on the use of equipment approved by local regulatory authorities, as per documented methods.

Where risk assessment indicates the possible presence of levels of gas or vapour sufficient to cause health effects in less than one shift (e.g. confined space entry), continuous monitoring is required as long as the potential for harm exists.

Employees and contractors must be covered by a medical surveillance programme when:

- Their Specific Exposure Group TWA mean exposure to respirable crystalline silica, total inhalable dust, respirable dust, lead or asbestos is greater than 50 per cent of the relevant OEL;
- The medical adviser considers that it is advisable; or
- There is a legal requirement for medical monitoring.

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Where risk assessment indicates a risk of a respiratory condition, assessment programmes must include chest x-rays and / or lung function tests. The test or tests chosen must enable the earliest detection of adverse effects from the exposure of concern. Where indicated, they must meet the following standards:

- High quality chest x-rays will be taken every five years, unless local legislation requires these to be more frequent;
- All chest x-rays for pneumoconiosis surveillance will be read to International Labour Organisation (ILO) standards by an ILO B reader, wherever possible, and if not, by a competent radiologist using verifiable quality criteria;
- Any progression of more than one step on the ILO extended scheme to a reading above 1/0 will be reviewed by a physician;
- Any reading suggesting active lung disease will be reviewed by a physician; and
- All spirometry will be performed by trained staff following the American Thoracic Society guidelines or equivalent and be offered at a frequency determined by the likely rate of detectable change in lung function.

Controls must be of an adequate standard such that surfaces are adequately cleaned to avoid:

- Dust generation due to material dislodgment (e.g. windblown), where practicable; or
- Fume generation from accumulated dust during welding / heating or cutting operations.

Where risk assessment indicates the need to reduce exposures to toxic substances for employees or their families, good personal hygiene must be enforced. The programme must include:

- No smoking, eating or drinking in designated hazard areas;
- Washing of hands and face prior to drinking, eating or smoking;
- Showering at work post shift or after exposure to 'dirty' conditions; and
- Laundering of contaminated clothing by the contractor.

Abrasive blast cleaning must be conducted so as to protect worker health and minimise dust emissions. Substitutes must be used whenever practicable for abrasives containing crystalline silica. However, if such abrasives are used, workers must be aware of the hazards and exposure monitoring conducted. The hazardous properties of alternative materials must be considered before use.

Where required, training in the recognition of signs and symptoms of hazardous particulate and gas / vapour exposure, emergency procedures and preventative measures must be provided.

15.4 Respiratory Protection Devices

The selection of Respiratory Protection Devices (RPD's) must be based on:

- The potential particulate size distribution, gas / vapour types, substance toxicity and likely concentrations;
- Compatibility with the work tasks and other PPE; and
- Comfort (as it affects wear-time) and allowance for adequate communication.

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Only RPD's approved by the nominated project management representative may be used. Suitable facilities must be available for cleaning and sanitary storage of RPD's.

Half-mask and full-face air-purifying respirators must NOT be used where:

- The atmosphere is oxygen deficient (< 19.5 per cent);
- The atmosphere is immediately dangerous to life or health (e.g. in areas where CO concentrations are > 1500 ppm, HF > 30 ppm or NH₄ > 300 ppm);
- Gases and vapours are more than ten times their OEL or greater than 1000 ppm for half-mask respirators, or more than 100 times their OEL for full-face respirators; or
- Particulates are more than five times their OEL for half-mask respirators, or more than 50 times their OEL for full-face respirators.

For atmospheres that are oxygen deficient, or contain unknown hazards, or have concentrations of gases and vapours that are unknown, or could potentially exceed levels that are immediately dangerous to life or health, an air-supplied type respirator must be worn.

For effective use of negative pressure RPD's (including disposable RPD's), fit testing must be qualitative and documented as a minimum, although quantitative fit testing is preferred. Fit testing must be performed by a competent person when RPD's are first issued and must be repeated periodically according to legal requirements or two-yearly as a minimum frequency. There must be a policy requiring a clean shaven face when using a negative or neutral pressure RPD for routine tasks, or the use of a positive pressure RPD will be required. A pulmonary function test and medical evaluation may be required to determine whether or not an individual is medically fit to wear a respirator.

For air-supplied RPD's, breathing air must be effectively filtered and / or isolated from plant and instrument air, and isolated from sources of potential contaminants. The quality of the breathing air must be checked for conformance with applicable standards.

The respiratory protection programme must include:

- Periodic inspection of RPD's, including before each use;
- Periodic evaluation of cleaning, sanitising, maintenance and storage practices by competent persons;
- Performance of positive and negative fit checks before each use by RPD wearers to ensure that the respirator is functioning properly; and
- Training at first issue of a RPD and regular refresher training thereafter in accordance with regulatory requirements or at least once every two years.

15.5 Hazardous Chemical Substances

No chemical substance may be brought onto site unless it has been approved for use by the nominated project management representative. The contractor must develop and maintain a hazardous chemical substance register specifying as a minimum the type and volumes of substances on site.

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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 minimum information to the nominated project management representative for review PRIOR to bringing the substance onto site:

- A detailed 16-point Material 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 Material 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;

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- 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 as described by this Specification. 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

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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.

15.6 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

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- 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.

15.7 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 himself 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 any incidents (all persons involved), and whenever there is reasonable suspicion. Alcohol and drug testing must 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

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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 are required to 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). The contractor must take note that employee medicals for this project must include a drug test;
- Periodic (Surveillance) Medical Examination – to assess the on-going 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).

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.

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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 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.

15.8 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 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.

15.9 COVID-19 Management

The Contractor must ensure compliance to COVID-19 management protocols as gazetted by South African Government legislation and Hazardous Biological Agents Regulations.

15.10 Measuring and Monitoring

The workplace exposure (or potential exposure) of persons to hazardous substances or agents must be measured and monitored to determine the effectiveness of control measures as well as compliance with legal and other requirements, particularly Occupational Exposure Limits. All such measuring and monitoring must be carried out by an Approved Inspection Authority (i.e. a specialist service provider that is appropriately registered with a governing authority).

A plan for measuring and monitoring occupational exposure must be developed and it must include, as a minimum:

- 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

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- 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. 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.

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 surrounding Port users and tenants, 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) when project needs require, and following any emergency situation, to ensure that it remains appropriate and effective.

At each project work site, as a minimum:

- A suitable evacuation alarm (siren) must be provided. 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.
- 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 then again six months 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

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shortcomings, and the Emergency Response Plan and associated procedures must be amended as required.

16.1 Fire Fighting

The contractor must ensure that Fire Fighting requirements are complied with.

16.2 First Aid and First Aid Kits

The contractor must ensure that First Aiders are trained and appointed as described in this Specification and in accordance with relevant legislative requirements.

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 weather-proof 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.

No tablets or medication are to be stored in the first aid box.

No tablets or medication to be administered by first aiders or other personnel to employees who are not feeling well or have been injured.

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.

17. Management Review

A review of the contractor's Health and Safety Management System must be undertaken as required within the project timeframe 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.;

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- 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.

18. 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.

19. Contractor / Sub-contractor Alignment

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 as required by this Specification. 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. All health and safety requirements imposed by the Client onto the Contractor is applicable to all sub-contractors as well.

20. Incident (Occurrence) Management

The contractor must establish a procedure for the management of all health and safety incidents. This procedure must define the responsibilities, methodologies and processes that must be followed for:

- Reporting an incident;
- Investigating an incident;
- Analysing an incident to determine the root cause;
- Identifying and implementing corrective actions to prevent a recurrence; and
- Communicating information concerning an incident to relevant persons and / or groups.

Please Note: Arrangements must be in place to ensure that proper medical care is provided to any contractor (or sub-contractor) employee that suffers an occupational injury or illness. These arrangements must be described briefly in the contractor's Health and Safety Management Plan and in detail in the Incident Management Procedure.

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-miss is an incident. All near-miss incidents 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 and a TRANSNET Incident Flash Report must be completed and submitted within 24 hours to the relevant TRANSNET representative. Depending on the Actual Consequence, 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), 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 and Labour/Department of Mineral Resources/SAMSA).

The Project Construction 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 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 other methodologies approved by the Project Health and Safety Manager may be used.

Each incident (including near-miss incidents) must be investigated.

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

DESCRIPTION: SAND BYPASS REFURBISHMENT PROJECT

the TRANSNET Project Health and Safety Representatives 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 a stipulated time frame as determined by the nominated project management representative.

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.

21. Non-conformance

Non-conformance Reports (NCR) will be issued to Contractors upon the identification of non-compliances to this specification. NCR's will be issued to Contractors for their response and implementation of corrective actions. NCR's must be closed out within a 48hour period depending on the severity of the non-conformance.

The contractor must establish a process for identifying and recording corrective actions arising from:

- Non-compliances;
- 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.

22. 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.

22.1 Reporting on Performance

Reports summarising the contractor's health and safety performance on the project must be compiled on a weekly and a monthly basis.

The contractor must be prepared to discuss the content of these reports at scheduled health and safety meetings.

The reports must contain the following minimum information:

- Number of contractor and sub-contractor employees on site;
- Total hours worked on site by contractor and sub-contractor employees (by company);
- Number of incidents by category (i.e. Near-miss, 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 (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 (PTOs) 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.

DESCRIPTION: SAND BYPASS REFURBISHMENT PROJECT

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-miss, 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.

22.2 Audits and Inspections

On a monthly basis, the health and safety management system and workplace activities of the contractor will be audited by a Project Health and Safety Practitioner as well as the project PrCHSA to assess compliance with the project health and safety requirements. Any deviation from these requirements (i.e. non-conformance) that places the health or safety of any person in immediate danger will result in the specific activity being stopped until the non-conformance is corrected.

For each non-conformance determined during any audit, the contractor must identify and implement appropriate corrective actions.

For each corrective action, a responsible person must be designated and an appropriate timeframe (target date) for completion of the corrective action must be specified. Progress on implementing corrective actions (i.e. closing non-conformances) must be monitored and reported on. The implementation of corrective actions will be verified during the monthly audits.

Should it be determined that the contractor's level of compliance is unsatisfactory, all work being performed by the contractor on the project site may be stopped (at the contractor's expense) until an investigation into the reasons for the poor performance has been carried out, a corrective action plan has been developed, and corrective actions have been implemented.

In addition to the audit carried out by the Project Health and Safety Manager/Practitioner and the Agent, the contractor must carry out an internal audit on a monthly basis to assess compliance with the project health and safety requirements (including the requirements of this specification and the contractor's Health and Safety Management Plan). Furthermore, the contractor must ensure that each appointed sub-contractor is audited and measured to the same standard. Copies of these audit reports must be submitted to the Project Health and Safety Practitioner 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:

DESCRIPTION: SAND BYPASS REFURBISHMENT PROJECT

- 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.

23. Reference Documents

1. Occupational Health and Safety act, No 85 of 1993 and Regulations
2. Compensation for Occupational Injuries and Diseases Act, No 130 of 1993
3. TIMS – Contractor Management Procedure 014



CONTRACTOR COMPLIANCE FILE ASSESSMENT CHECKLIST

Date of inspection/ Evaluation: _____

Client	
Employer (Principal contractor)	
Registered name of the enterprise	
Trade name of the Enterprise	
Company Registration No	
SARS registration No(PAYE)	
UIF registration No	
COIDA registration no	
Relevant SETA for EEA purpose	
Industry sector	
Bargaining Council	
Contact person & position	
Contact number	
Site Address	
Postal Address	
Chief Executive Officer	
Chief Executive officer's email and contact number	
Construction Manager	
Health and Safety Representative	
Activities/ Service rendered	
Commencement date	
Completion date	
Site Phone	
Total number of employees on site:	
Female	
Male	
People with disabilities	



CONTRACTOR	Complying	Not Complying (i.e. Comments)	Not Applicable
1. Site Specific Organogram of reporting structure. This document must provide all persons appointed in terms of OHS Act No. 85 of 1993 including contact details. (rev, date, approval)			
2. Contractor scope of work information (Company Profile)			
3. Notification of Construction Work to the Department of Labour: Document to display required information as per OHS Act No.85 of 1993 – Construction Regulations Annexure A, Must carry the stamp of acceptance from the Department of Labour (<i>if applicable</i>)			
4. Application for a permit to do construction work (<i>if applicable</i>)			
5. Valid Letter of Good Standing with FEM/WCA: And proof of relevant insurances to carry out work.			
MANAGEMENT PLANS			
6. Copy of reference documents: Health & Safety, Security, Quality, Environmental, and other applicable Specifications Including a signed register of communication to Managers, Supervisors & Safety Officers			
7. Approved Contractor Execution Plan correlating with Specification provided by Transnet (i.e. Approved health and safety plan, environmental plan, security plan etc.)			
8. Contractors Health and Safety Policy			
9. Site Specific Emergency Plan			
10. Contractors Traffic Management Plan (if applicable)			
11. Procedure for handling Hazardous Chemical Substance's and Applicable Safety Data Sheet (<i>if applicable</i>).			
APPOINTMENTS			
12. Fully completed appointments of the following (depends on the scope of work) but not limited to:			
• Sec. 16(2) – Delegated Authority (Assistant to the CEO)			
• CR 8(1) – Construction Manager			
• CR 8(7) – Construction Supervisor			
• CR 8(8) – Assistant Construction Supervisor			
• CR 8(5) – Construction Safety Officer			
• CR 9(1) – Risk assessment			
• CR 10. (1)(a) – Fall Prevention Planner (<i>if applicable</i>)			
• CR 10.(2)(b) (fall risk) Physical & Psychological fitness			
• CR 23.(d)(k) – Vehicle operator and Inspector			
• GSR 3.4 – First aider			
• CR 29 (h) – Fire Fighter			
• Sec 24, GAR 9(2) – Incident Investigator			
• CR 13(1)(a) – Excavation Supervisor			
• CR 28(a) – Stacking and Storage Supervisor			
• CR 12(1) – Temporary works designer			
• CR 14(1) – Demolition work supervisor			

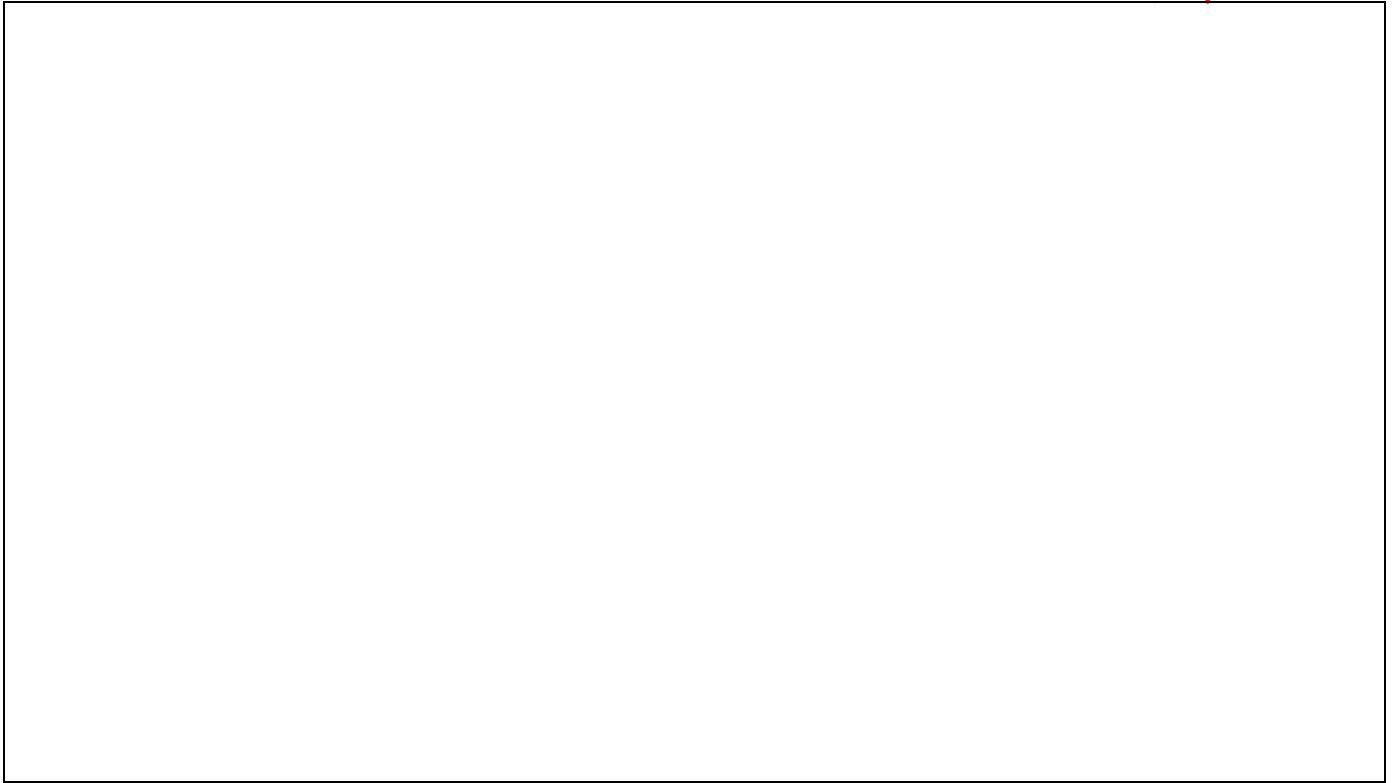


• CR 16(1) – Scaffolding work supervisor			
• CR 17 (1) – Suspended platform work supervisor			
• CR 18(1)(a) – Rope access supervisor			
• CR 19(8)(a) – Material host Inspector			
• CR 20(1) – Bulk mixing plant supervisor			
• CR 21(2) – Explosive actuated fastening devices inspector			
• Sec 17(1) – SHE Rep (more than 20 employees)			
• GSR 13(a) – Ladder Inspector An abbreviated CV of the above appointed persons shall be attached to the appointment. Competency certificates will also be attached as required in specifications			
13. Elevated work training (Rescue/ Safety harnesses) – accredited Training (<i>If applicable</i>)			
14. Fall Protection Plan by competent person / Rescue Plan (<i>If applicable</i>)			
15. Contract/Project Specific Risk Assessment indicating the full scope of work and risk profile – High risk task inventory registers to be attached.			
16. Risk Assessment (HIRA), Method Statement, Safe Work Procedure to be generated for each specific task to be performed on the contract/project i.e. Site establishment, confined spaces, working at heights, working near water, excavations etc. Note: before establishment they can supply what they will start with – site establishment, fencing, clear & grub...so only request what is relevant at the time.			
17. PPE Policy and most recent issue register.			
INDUCTION			
18. Induction application forms completed for every employee of the contractor performing work on site; The following shall be attached:			
• Employee Dossier with applicable documentation;			
• Proof of site-specific induction;			
• Copy of ID Document; /Passport Accompanied by Work VISA			
• Legal Letter of Appointment;			
• Proof of competence i.e.: Artisans, drivers, operators etc.;			
• Valid medical certificate of fitness done by an Occupational Health Practitioner (i.e. Annexure 3 for construction work)			
REGISTERS			
19. Copy of equipment registers to be used with copy of each item's inspection checklist. The registers are not limited to the following, depends on the scope of work:			
• Site visitors register			
• Excavation Inspection Register			
• Hand tools Inspection register			
• Barricading Inspection Register			
• Traffic Inspection Register			
• Mobile Toilet Inspection Register			
• Daily Risk Assessment and Toolbox Talk			
• PPE Inspection Register			



• First Aid kit Inspection Register			
• Fire Fighting Equipment Register			
• Portable electrical Equipment Register			
• Pneumatic Tool Register			
• Compressor Checklist			
• Ladder Inspection Register			
• Vehicle Inspection Register			
• Working at Height Equipment Register			
INCIDENT/ACCIDENT MANAGEMENT			
20. Incident /Accident Management Procedure including reporting, recording and investigation of incidents and accidents			
21. Register of first aid injuries			
22. Register of reportable injuries to the Provincial Director			
OTHERS			
23. Section 37(2) mandatory agreement between client - contractor and contractor - sub contractor. As well as:			
• CR 5.1(k) Principal Contractor appointment			
• CR 7(1)(c)(v) Subcontractor appointment			
24. Training Matrix (Management, Supervisors and Employees)			
25. Copy of the OHS act and its Regulations, COID Act Regulations			

CONTRACTOR'S COMPLIANCE FILE REVIEW			
Date	Print Full Name	Designation	Signature
Status			
Approved			
Not Approved			
Reasons for not approving			



**TRANSNET NATIONAL PORTS AUTHORITY**

TENDER NUMBER: TNPA/2024/09/0008/77882/RFP

DESCRIPTION OF WORKS: SUPPLY, DELIVERY, REMOVAL, REPLACEMENT, AND COMMISSIONING OF PIPELINE INCLUDING ALL THE ACCESSORIES ON THE 225M LONG JETTY PIPEWORK AT TRANSNET NATIONAL PORTS AUTHORITY (TNPA), SAND BYPASS IN PORT OF NGQURA (PoN).

PART 4: SITE INFORMATION

Core clause 11.2(16) states

"Site Information is information which

- describes the Site and its surroundings and
- is in the documents which the Contract Data states it is in."

In Contract Data, reference has been made to this Part 4 of the contract for the location of Site Information.

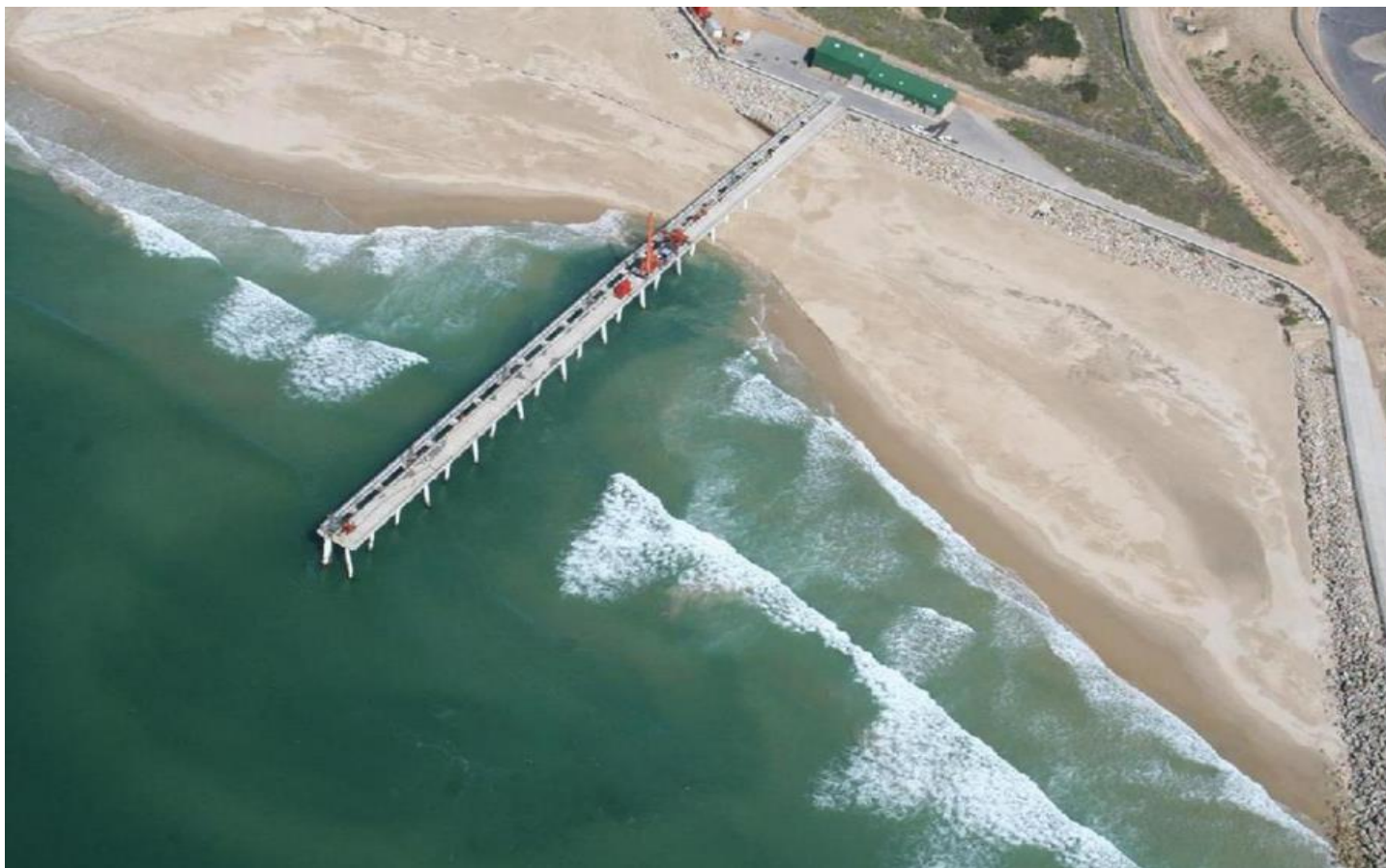
1. Description of the Site and its surroundings



**TRANSNET NATIONAL PORTS AUTHORITY**

TENDER NUMBER: TNPA/2024/09/0008/77882/RFP

DESCRIPTION OF WORKS: SUPPLY, DELIVERY, REMOVAL, REPLACEMENT, AND COMMISSIONING OF PIPELINE INCLUDING ALL THE ACCESSORIES ON THE 225M LONG JETTY PIPEWORK AT TRANSNET NATIONAL PORTS AUTHORITY (TNPA), SAND BYPASS IN PORT OF NGQURA (PoN).

**1.1. General description**

The supply, delivery, removal, replacement, and commissioning of pipeline including all the accessories on the 225m long Jetty pipework will take place at Transnet National Port Authority (TNPA), at Sand Bypass in Port of Ngqura. See below pictures of the Jetty with the steel pipeline.

**TRANSNET NATIONAL PORTS AUTHORITY**

TENDER NUMBER: TNPA/2024/09/0008/77882/RFP

DESCRIPTION OF WORKS: SUPPLY, DELIVERY, REMOVAL, REPLACEMENT, AND COMMISSIONING OF PIPELINE INCLUDING ALL THE ACCESSORIES ON THE 225M LONG JETTY PIPEWORK AT TRANSNET NATIONAL PORTS AUTHORITY (TNPA), SAND BYPASS IN PORT OF NGQURA (PoN).



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DESCRIPTION OF WORKS: SUPPLY, DELIVERY, REMOVAL, REPLACEMENT, AND COMMISSIONING OF PIPELINE INCLUDING ALL THE ACCESSORIES ON THE 225M LONG JETTY PIPEWORK AT TRANSNET NATIONAL PORTS AUTHORITY (TNPA), SAND BYPASS IN PORT OF NGQURA (PoN).

1.2. Existing buildings, structures, and plant & machinery on the Site

This work is categorised as marine construction work with marine structures, mechanical, electrical, civil, and building works. This work will require excavation, heavy lifting, major hazard installation.

The jetty comprises of concrete piles with a permanent steel casing, concrete headstocks, and a concrete deck of precast and in situ construction. All pipework and valves are supported at deck level by precast beams. Transnet will provide relevant drawings and all other relevant information for the existing structure where the construction is going to take place.

A temporary discharge pipeline and discharge point may need to be constructed and maintained to enable the Sand Bypass system to operate for the duration of the works, immediately after commencement of the Supply, delivery, removal, installation, and commissioning of pipeline until the commission of such work.

1.3. Subsoil information

N/A

1.4. Hidden services

N/A

1.5. Other reports and publicly available information

N/A

**TRANSNET NATIONAL PORTS AUTHORITY**

TENDER NUMBER: TNPA/2024/09/0008/77882/RFP

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