



TRANSNET FREIGHT RAIL, a division of

TRANSNET SOC LTD

Registration Number 1990/000900/30

[hereinafter referred to as **Transnet**]

REQUEST FOR QUOTATION [RFQ] No CMAC-JHB-13316

**FOR THE PROVISION OF: UPGRADE OF S002 MASTERSTATION AND
OUTSTATION CONTROLLER UNIT FOR A PERIOD OF 15
MONTHS.**

FOR DELIVERY TO: 138 Eloff Street.

ISSUE DATE: 17 FEBRUARY 2014

BRIEFING DATE: 25 FEBRUARY 2014

CLOSING DATE: 11 MARCH 2014

CLOSING TIME: 10: AM

**ON CLOSING DATE PLEASE SUBMIT TWO (2) DOCUMENTS ORIGINAL &
COPY IN ONE ENVELOPE IT MUST BE INSCRIBED ON THE OUTSIDE
WITH THE TENDER NUMBER AND THE CLOSING DATE.**



COMPULSORY BRIEFING SESSION:

A compulsory briefing session will be held at the following venue:

Time: 10:00

Date: 25 February 2014

Venue: Transnet Freight Rail, 138 Eloff Street, Johannesburg.

The briefing session is compulsory and companies not attending will be overlooked during the tender awarding process.

ATTENDANCE CERTIFICATE

This is to certify that.....

Representative/s of

Has/have today attended the Tender briefing in respect of the proposed:

.....

TRANSNET'S REPRESENTATIVE TENDERER'S REPRESENTATIVE

DATE:.....

"PREVIEW COPY ONLY"

Section 1 NOTICE TO BIDDERS

Quotations which must be completed as indicated in Section 2 of this RFQ are to be submitted as follows:

METHOD: [hand / post and/or courier]

CLOSING VENUE: The Secretary, Transnet Freight Rail, Acquisition Council, and Tender Box on the Ground floor, Inyanda House 1, 21 Wellington Road, and Parktown.

1 Responses to RFQ

Responses to this RFQ [**Quotations**] must not include documents of reference relating to any other quotation or proposal. Any additional conditions must be embodied in an accompanying letter.

2 Broad-Based Black Economic Empowerment [B-BBEE]

Transnet fully endorses and supports the Government's Broad-Based Black Economic Empowerment Programme and it would therefore prefer to do business with local business enterprises who share these same values. Transnet will accordingly allow a "preference" to companies who provide a valid B-BBEE Verification Certificate. All procurement transactions will be evaluated accordingly.

2.1 B-BBEE Scorecard and Rating

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

- the 80/20 system for requirements with a Rand value of up to R1 000 000 (all applicable taxes included); and
- the 90/10 system for requirements with a Rand value above R1 000 000 (all applicable taxes included).
- Bidders are to note that if the 80/20 preference point system is stipulated in this RFP and all Bids received exceed R1 000 000.00, the RFP must be cancelled. Similarly, if the 90/10 preference point system is stipulated in this RFP and all Bids received are equal to or below R1 000 000.00, the RFP must be cancelled.

The value of this bid is estimated to exceed R1 000 000 (all applicable taxes included); and therefore the **90/10** system shall be applicable. When Transnet invites prospective suppliers to submit Proposals for its various expenditure programmes, it requires Respondents to have their B-BBEE status verified in compliance with the Codes of Good Practice issued in terms of the Broad Based Black Economic Empowerment Act No. 53 of 2003.

The Department of Trade and Industry recently revised the Codes of Good Practice on 11 October 2013 [Government Gazette No. 36928]. The Revised Codes will replace the Black Economic Empowerment Codes of Good Practice issued on 9 February 2007. The Revised Codes provide for

a one year transitional period starting 11 October 2013. During the transitional period, companies may elect to be measured in terms of the Revised Codes or the 2007 version of the Codes. After the first year of the implementation of the Revised Codes, B-BBEE compliance will be measured in terms of the Revised Codes without any discretion. Companies which are governed by Sector-specific Codes will be measured in terms of those Sector Codes.

As such, Transnet will accept B-BBEE certificates issued based on the Revised Codes. Transnet will also continue to accept B-BBEE certificates issued in terms of the 2007 version of the Codes provided it was issued before 10 October 2014. Thereafter, Transnet will only accept B-BBEE certificates issued based on the Revised Codes.

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

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

[Refer clause 20 below for Returnable Documents required]

3 Communication

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

A Respondent may, however, before the closing date and time, direct any written enquiries relating to the RFQ to the following Transnet employee:

Name: Koko Selowa Email: Koketso.selowa@transnet.net 011 584 0688

Respondents may also, at any time after the closing date of the RFQ, communicate with the Secretariat of the Transnet Acquisition Council on any matter relating to its RFQ response:

Email: prudence.nkabinde@transnet.net 011 544 9486

4 Tax Clearance

The Respondent's original and valid Tax Clearance Certificate must accompany the Quotation. Note that no business shall be awarded to any Respondent whose tax matters have not been declared by SARS to be in order.

5 VAT Registration

The valid VAT registration number must be stated here: _____ *[if applicable]*.

6 Legal Compliance

The successful Respondent shall be in full and complete compliance with any and all applicable national and local laws and regulations.

7 Changes to Quotations

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

8 Pricing

All prices must be quoted in South African Rand on a fixed price basis, excluding VAT.

9 Prices Subject to Confirmation

Prices quoted which are subject to confirmation will not be considered.

10 Negotiations

Transnet reserves the right to undertake post-tender negotiations with selected Respondents or any number of shortlisted Respondents.

11 Binding Offer

Any Quotation furnished pursuant to this Request shall be deemed to be an offer. Any exceptions to this statement must be clearly and specifically indicated.

12 Disclaimers

Transnet is not committed to any course of action as a result of its issuance of this RFQ and/or its receipt of a Quotation in response to it. Please note that Transnet reserves the right to:

- modify the RFQ's goods / service(s) and request Respondents to re-bid on any changes;
- reject any Quotation which does not conform to instructions and specifications which are detailed herein;
- disqualify Quotations submitted after the stated submission deadline;
- not necessarily accept the lowest priced Quotation;
- reject all Quotations, if it so decides;
- place an order in connection with this Quotation at any time after the RFQ's closing date;
- award only a portion of the proposed goods / service/s which are reflected in the scope of this RFQ;
- split the award of the order/s between more than one Supplier/Service Provider; or
- make no award at all.

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

Transnet reserves the right to lower the threshold /or Technical by % **60%** [**sixty** percent] if no Bidders pass the predetermined minimum threshold.

13 Transnet's supplier integrity pact

Transnet's Integrity Pact requires a commitment from suppliers and Transnet that they will not engage in any corrupt and fraudulent practices, anti-competitive practices; and act in bad faith towards each other.

The Integrity Pact also serves to communicate Transnet’s Gift Policy as well as the remedies available to Transnet where a Respondent contravenes any provision of the Integrity Pact.

Respondents are required to familiarise themselves with the contents of the Integrity Pact which is available on the Transnet Internet site [www.transnet.net/Tenders/Pages/default.aspx] or on request. Furthermore, Respondents are required to certify that they have acquainted themselves with all the documentation comprising the Transnet Integrity Pact and that they fully comply with all the terms and conditions stipulated in the Transnet Supplier Integrity Pact as follows:

YES		NO	
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Should a Respondent need to declare previous transgressions or a serious breach of law in the preceding 5 years as required by Annexure A to the Integrity Pact, such declaration must accompany the Respondent’s bid submission.

14 EVALUATION CRITERIA

1415 TRANSNET WILL UTILISE THE FOLLOWING CRITERIA [NOT NECESSARILY IN THIS ORDER] IN CHOOSING A SUPPLIER/SERVICE PROVIDER, IF SO REQUIRED:

Criterion/Criteria	Explanation
Administrative responsiveness	Completeness of response and returnable documents
Substantive responsiveness	Prequalification criteria, if any, must be met and whether the Bid materially complies with the scope and/or specification given. •
Functionality Threshold	As prescribed in terms of the Preferential Procurement Policy Framework Act (PPPFA), Act 5 of 2000 and its Regulations, Respondents are to note that functionality is included as threshold with a prescribed percentage threshold of 80% . Compliance to specification specification(the contractor to supply clause by clause compliance statement to specification BBF1084/ delivery lead-time(delivery schedule) will be considered as part of the technical evaluation[
Final weighted evaluation based on 90/10 preference point	<ul style="list-style-type: none"> • Pricing and price basis [firm] - whilst not the sole factor for consideration, competitive pricing and overall level of unconditional discounts¹ will be critical • B-BBEE status of company - Preference points will be awarded to a bidder for attaining the B-BBEE status level of contribution in accordance with the table

¹ Only unconditional discounts will be taken into account during evaluation. A discount which has been offered conditionally will, despite not being taken into account for evaluation purposes, be implemented when payment is effected.

system as indicated in paragraph 2	indicated in Annexure A.
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1516 Validity Period

Transnet desires a validity period of 90 [ninety] days from the closing date of this RFQ.
 This RFQ is valid until _____.

1617 Banking Details

BANK: _____
 BRANCH NAME / CODE: _____
 ACCOUNT HOLDER: _____
 ACCOUNT NUMBER: _____

1718 Company Registration

Registration number of company / C.C. _____
 Registered name of company / C.C. _____

1819 Disclosure of Prices Quoted

Respondents must indicate here whether Transnet may disclose their quoted prices and conditions to other Respondents:

YES NO

1920 Returnable Documents

Returnable Documents means all the documents, Sections and Annexures, as listed in the tables below.

a) Respondents are required to submit with their Quotations the **mandatory Returnable Documents**, as detailed below.

Failure to provide all these Returnable Documents at the Closing Date and time of this RFQ will result in a Respondent's disqualification. Respondents are therefore urged to ensure that all these Documents are returned with their Quotations.

All Sections, as indicated in the footer of each page, must be signed, stamped and dated by the Respondent. Please confirm submission of these mandatory Returnable Documents by so indicating [Yes or No] in the table below:

Mandatory Returnable Documents	Submitted [Yes or No]
SECTION 2 : Quotation Form	

b) In addition to the requirements of section (a) above, Respondents are further required to submit with their Quotations the following **essential Returnable Documents** as detailed below.

Failure to provide all these Returnable Documents may result in a Respondent's disqualification. Respondents are therefore urged to ensure that all these documents are returned with their Quotations.

All Sections, as indicated in the footer of each page, must be signed, stamped and dated by the Respondent. Please confirm submission of these essential Returnable Documents by so indicating [Yes or No] in the table below:

Essential Returnable Documents	Submitted [Yes or No]
SECTION 1 : Notice to Bidders	
- Valid and original B-BBEE Verification Certificate or certified copy thereof [Large Enterprises and QSEs] Note: failure to provide a valid B-BBEE Verification Certificate at the closing date and time of the RFQ will result in an automatic score of zero for preference	
- Valid and original B-BBEE certificate/sworn affidavit or certified copy thereof from auditor, accounting officer or SANAS accredited Verification Agency [EMEs] Note: failure to provide a valid B-BBEE Verification Certificate at the closing date and time of the RFQ will result in an automatic score of zero being allocated for preference	
- In the case of Joint Ventures, a copy of the Joint Venture Agreement or written confirmation of the intention to enter into a Joint Venture Agreement	
- Original valid Tax Clearance Certificate [Consortia / Joint Ventures must submit a separate Tax Clearance Certificate for each party]	
- SECTION 3 : Standard Terms and Conditions of Contract for the Supply of Goods or Services to Transnet	
SECTION 4 : Vendor Application Form	
- Original cancelled cheque or bank verification of banking details	
- Certified copies of IDs of shareholder/directors/members [as applicable]	
- Certified copies of the relevant company registration documents from Companies and Intellectual Property Commission (CIPC)	
- Certified copies of the company's shareholding/director's portfolio	
- Entity's letterhead	
- Certified copy of VAT Registration Certificate [RSA entities only]	
- Certified copy of valid Company Registration Certificate [if applicable]	
- A signed letter from Respondent's auditor or accountant confirming most recent annual turnover figures	
ANNEXURE A – B-BBEE Preference Points Claim Form	

- c) In addition to the requirements of paragraph a) and b) above, Respondents are further requested to submit with their Proposals the following **additional documents** as detailed below.

Please confirm submission of these additional documents by so indicating [Yes or No] in the table below:

**Section 2
QUOTATION FORM**

I/We _____
hereby offer to supply the goods/services at the prices quoted in the Price Schedule below, in accordance with the conditions related thereto.

I/We agree to be bound by those terms and conditions in:

- the Standard Terms and Conditions for the Supply of Goods or Services to Transnet [Section 3 hereof]; and
- any other standard or special conditions mentioned and/or embodied in this Request for Quotation.

I/We accept that unless Transnet should otherwise decide and so inform me/us, this Quotation [and, if any, its covering letter and any subsequent exchange of correspondence], together with Transnet's acceptance thereof shall constitute a binding contract between Transnet and me/us.

I/We further agree that if, after I/we have been notified of the acceptance of my/our Quotation, I/we fail to deliver the said goods/service/s within the delivery lead-time quoted, Transnet may, without prejudice to any other legal remedy which it may have, cancel the order and recover from me/us any expenses incurred by Transnet in calling for Quotations and/or having to accept any less favourable offer.

Price Schedule

I/We quote as follows for the goods required, on a "delivered nominated destination" basis, excluding VAT:

Item No	Description of Goods /Services	Unit of Measure	Quantity	Unit Price (ZAR)	Total Price (ZAR)
1		
2		
3		
4		
5		
6		

Delivery Lead-Time from date of purchase order : _____ **[days/weeks]**

Notes to Pricing:

- a) All Prices must be quoted in South African Rand, exclusive of VAT
- b) To facilitate like-for-like comparison bidders must submit pricing strictly in accordance with this price schedule and not utilise a different format. Deviation from this pricing schedule could result in a bid being disqualified.
- c) Please note that should you have offered a discounted price(s), Transnet will only consider such price discount(s) in the final evaluation stage if offered on an unconditional basis.

Respondent's Signature

Date & Company Stamp

Section 3

STANDARD TERMS AND CONDITIONS FOR THE SUPPLY OF GOODS OR SERVICES TO TRANSNET

A Supplier/Service Provider shall be obliged to adhere to the Standard Terms and Conditions for the Supply of Goods and Services to Transnet as expressed hereunder. Should the Respondent find any condition(s) unacceptable, it should indicate which condition(s) is/are unacceptable and offer an alternative(s). A Quotation submitted by a Respondent will be subjected to review and acceptance or rejection of its proposed contractual terms and conditions by Transnet's Legal Counsel, prior to consideration for an award of business.

1 SOLE AGREEMENT

Unless otherwise agreed in writing, these terms [Terms and each Term] and Transnet's purchase order(s) [Order or Orders] represent the only conditions upon which Transnet SOC Ltd [Transnet] procures goods [the Goods] or services [the Services] specified in the Order from the person to whom the Order is addressed [the Supplier/Service Provider]. Transnet does not accept any other conditions which the Supplier/Service Provider may specify, unless otherwise agreed to by Transnet in writing. In the event of any inconsistency between these Terms and any Order, these Terms shall take precedence.

2 CONFORMITY WITH ORDER

Goods/Services shall conform strictly with the Order. The Supplier/Service Provider shall not vary the quantities specified and/or the specification, if any, stipulated in the Order, without the prior written consent of Transnet. The Supplier/Service Provider warrants that the Goods/Services shall be fit for their purpose and of satisfactory quality.

3 DELIVERY AND TITLE

3.1 The delivery dates and addresses are those in the Order. Time shall be of the essence in respect of the Supplier's/Service Provider's obligations under the Order.

3.2 The Supplier/Service Provider will not be excused for delay in delivery or performance except due to circumstances outside its control and then only subject to the Supplier/Service Provider having notified Transnet in writing on becoming aware of such circumstances. Transnet may terminate an Order, in whole or in part, without incurring any liability to the Supplier/Service Provider if such a delay becomes, in Transnet's absolute opinion, significant.

3.3 Risk of loss or damage to Goods shall pass to Transnet on delivery, and title shall pass to Transnet when payment to the Supplier for the Goods has been effected.

3.4 If on delivery, the Goods/Services do not conform to the Order, Transnet may reject the Goods/Services and the Supplier/Service Provider shall promptly rectify any defects or in Transnet's opinion, supply appropriate replacement Goods/Services at the Supplier's/Service Provider's expense within the specified delivery times, without any liability due by Transnet. Goods shall be subject to such testing and/or inspection as Transnet may consider necessary.

4 PRICE AND PAYMENT

4.1 Prices specified in an Order cannot be increased. Payment for the Goods/Services shall be made by Transnet against an original undisputed invoice(s) [a Tax Invoice], supporting documentation and month-end statement from the Supplier/Service Provider. Tax Invoices plus supporting documentation shall be posted to the address shown in the Order.

4.2 Payment of the Supplier's/Service Provider's valid Tax Invoice(s) will be made by Transnet in the South African currency and on the terms stated in the Order, the standard payment terms being 30 [thirty] days from date of receipt by Transnet of a month-end statement, unless otherwise agreed to in writing. Transnet shall arrange for payment of such Tax Invoices and any pre-authorized additional expenses incurred, provided that the authorised expenses are supported by acceptable documentary proof of expenditure incurred [where this is available]. Any amounts due in terms of these Terms shall be paid to the Supplier/Service Provider, taking into account any deduction or set-off and bank charges.

5 PROPRIETARY RIGHTS LIABILITY

If any allegations should be made or any claim asserted against Transnet that ownership of, or any act or omission by Transnet in relation to Goods/Services or any written material provided to Transnet relating to any Goods/Services or pursuant to an Order being a violation or infringement of any third party's contractual, industrial, commercial or intellectual property rights including but not limited to any patent, registered design, design right, trade mark, copyright or service mark on any application thereof, the Supplier/Service Provider hereby indemnifies Transnet against and hold it harmless from any and all losses, liabilities, costs, claims, damages and expenses [including any legal fees] arising directly or indirectly from such allegation or claim provided that this indemnity shall not apply where the allegation or claim arises solely as a result of the Supplier/Service Provider following a design or process originated and furnished by Transnet. The Supplier/Service Provider shall either

- a) procure for Transnet the right to continue using the infringing Goods; or
- b) modify or replace the Goods/Services so that they become non-infringing,

provided that in both cases the Goods/Services shall continue to meet Transnet's requirements and any specifications stipulated in the Order. Should neither option be possible, the Supplier/Service Provider may remove, with Transnet's prior written consent, such Goods/Services and will pay to Transnet a sum equivalent to the purchase price. If Transnet refuses to give such consent, the Supplier/Service Provider shall have no liability in respect of any continued use of the infringing Goods/Services after Supplier's/Service Provider's prior written request to remove the same.

6 PROPRIETARY INFORMATION

All information which Transnet has divulged or may divulge to the Supplier/Service Provider and any information relating to Transnet's business which may have come into the Supplier's/Service Provider's possession whilst carrying out an Order, and the existence of the Order, shall be treated by the Supplier/Service Provider as confidential information and shall not, without Transnet's prior written consent, be disclosed to any third party, or be used or copied for any purposes other than to perform the Order. This clause does not apply to information which is public knowledge or available from other sources other than by breach of this Term. Upon request by Transnet, the Supplier/Service Provider shall return all

materials issued pursuant to the Order and, pending this, shall protect Transnet's rights in any such materials. Such confidential information shall at all material times be the property of Transnet.

7 DEVELOPMENT WORK IN THE PRODUCTION OF GOODS

If the production or provision of any Goods involves research and/or development which are wholly or partly funded by Transnet, then all intellectual property or other rights as a result thereof shall be the property of Transnet on creation.

8 PUBLICITY

The Supplier/Service Provider shall not name Transnet or use its trademarks, service marks [whether registered or not] or Goods in connection with any publicity without Transnet's prior written consent.

9 AFTER SALES SERVICE

The Supplier shall provide replacement parts necessary to ensure the uninterrupted operation of the Goods supplied for the duration of the warranty period, from delivery of any particular item of the Goods and if requested by Transnet shall make these parts available to a third party maintainer of Transnet's choice at the same price as if the parts had been supplied to Transnet. The Supplier undertakes to provide a maintenance service for Goods, should Transnet so request, on terms to be agreed. If the Order so indicates, the Supplier will provide a warranty service for the Goods at a level to be agreed with Transnet.

10 TERMINATION OF ORDER

10.1 Transnet may cancel an Order in whole or in part at any time upon at least 7 [seven] days' written notice to the Supplier/Service Provider, or when there is a change in control of the Supplier/Service Provider or the Supplier/Service Provider commits any serious breach or any repeated or continued material breach of its obligations under these Terms and/or Order or shall have been guilty of conduct tending to bring itself into disrepute, on written notice to the Supplier/Service Provider when such work on the Order shall stop.

10.2 Transnet shall pay the Supplier/Service Provider a fair and reasonable price for justified work in progress, where such price reflects only those costs not otherwise recoverable by the Supplier/Service Provider, at the time of termination, and the Supplier/Service Provider shall give Transnet full assistance to check the extent of such work in progress. Payment of such price shall be in full and final satisfaction of any claims arising out of such termination and upon such payment the Supplier/Service Provider shall deliver to Transnet all work, including any materials, completed or in progress. The sum payable to the Supplier/Service Provider under this clause will not in any event exceed the total amount that would have been payable to the Supplier/Service Provider had the Order not been terminated.

10.3 In the event of termination the Supplier/Service Provider must submit all claims within 2 [two] months of termination after which time claims will only be met in what Transnet considers exceptional circumstances.

10.4 If the Goods or Services are not provided in accordance with an Order, the Order shall be deemed terminated and the Supplier/Service Provider shall compensate Transnet for any costs incurred in obtaining substitute Goods or any damage caused due to the failure or delay in the delivery.

11 ACCESS

The Supplier/Service Provider shall be liable for the acts, omissions and defaults of its personnel or agents who, for the purposes of the Order, shall be treated as if they are the Supplier's/Service Provider's employees. The Supplier/Service Provider shall ensure that any such personnel or agents, whilst on Transnet's premises, shall comply with Transnet's health and safety, security and system security rules and procedures as and where required.

12 WARRANTY

The Supplier/Service Provider warrants that it is competent to supply the Goods/Services in accordance with these Terms to the reasonable satisfaction of Transnet and that all Goods/Services delivered under the Order: (a) conform and comply in all relevant legislation, standards, directives and orders related to *[inter alia]* the supply, manufacture and use of the Goods/Services in force at the time of delivery, and to any specifications referred to in the Order; (b) will not cause any deterioration in the functionality of any Transnet equipment; and (c) do not infringe any third party rights of any kind. The Supplier/Service Provider hereby indemnifies Transnet against all losses, liabilities, costs, claims, damages, expenses and awards of any kinds incurred or made against Transnet in connection with any breach of this warranty.

13 INSOLVENCY

If the Supplier/Service Provider shall have a receiver, manager, administrator, liquidator or like person appointed over all or any part of its assets or if the Supplier/Service Provider compounds with its creditors or passes a resolution for the winding up or administration of the Supplier/Service Provider, Transnet is at liberty to terminate the Order or Orders forthwith, or at its option, to seek performance by any such appointed person.

14 ASSIGNMENT

The Supplier/Service Provider shall not assign its obligations under an Order without Transnet's prior written consent, which consent shall not be unreasonably withheld or delayed.

15 NOTICES

Notices under these Terms shall be delivered by hand to the relevant addresses of the parties in the Order or may be served by facsimile or by email, in which event notice shall be deemed served on acknowledgement of receipt by the recipient.

16 LAW

Orders shall be governed by and interpreted in accordance with South African law and any disputes arising herein shall be subject to South African arbitration under the rules of the Arbitration Foundation of South Africa, which rules are deemed incorporated by reference in this clause. The reference to arbitration shall not prevent Transnet referring the matter to any South African courts, having jurisdiction, to which the Supplier/Service Provider hereby irrevocably submits but without prejudice to Transnet's right to take proceedings against the Supplier/Service Provider in other jurisdictions and/or obtaining interim relief on an urgent basis from a court of competent jurisdiction pending the decision in other courts or from instituting in any court of competent jurisdiction any proceedings for an interdict or any other injunctive relief. If the Supplier/Service Provider does not have a registered office in the South Africa it will at all times maintain

an agent for service of process in South Africa and shall give Transnet the name and address of such agent as such may be amended, in writing, from time to time.

17 GENERAL

Completion or termination of an Order shall be without prejudice to any Term herein which by its nature would be deemed to continue after completion or termination, including but not limited to clauses **Error! Reference source not found.5, Error! Reference source not found.6, Error! Reference source not found.7, Error! Reference source not found.8** and **Error! Reference source not found.12**. Headings are included herein for convenience only. If any Term herein be held illegal or unenforceable, the validity or enforceability of the remaining Terms shall not be affected. No failure or delay by Transnet to enforce any rights under these Terms will operate as a waiver thereof by Transnet. All rights and remedies available to either party under these Terms shall be in addition to, not to the exclusion of, rights otherwise available at law.

18 COUNTERPARTS

These Terms and conditions may be signed in any number of counterparts, all of which taken together shall constitute one and the same instrument. Any party may enter into this agreement by signing any such counterpart.

"PREVIEW COPY ONLY"

By signing this RFQ document, the Respondent is deemed to acknowledge that he/she has made himself/herself thoroughly familiar with all the conditions governing this RFQ, including those contained in any printed form stated to form part hereof and Transnet SOC Ltd will recognise no claim for relief based on an allegation that the Respondent overlooked any such condition or failed to properly take it into account for the purpose of calculating quoted prices or otherwise.

SIGNED at _____ on this _____ day of _____ 20____

.....

SIGNATURE OF RESPONDENT'S AUTHORISED REPRESENTATIVE

NAME: _____

DESIGNATION: _____

REGISTERED NAME OF COMPANY: _____

PHYSICAL ADDRESS:

Respondent's contact person [Please complete]

Name	:	
Designation	:	
Telephone	:	
Cell Phone	:	
Facsimile	:	
Email	:	
Website	:	



**Transnet urges its clients, suppliers and the general public to report any fraud or corruption to
 TIP-OFFS ANONYMOUS : 0800 003 056**

**Section 4
VENDOR APPLICATION FORM**

Respondents are to furnish the following documentation and complete the Vendor Application Form below:

1. **Original** cancelled cheque **OR** letter from the Respondent's bank verifying banking details **[with bank stamp]**
2. **Certified** copy of Identity Document(s) of Shareholders/Directors/Members [where applicable]
3. **Certified copies** of the relevant company registration documents from Companies and Intellectual Property Commission (CIPC)
4. **Certified copies** of the company's shareholding/director's portfolio
5. A letter on the company's letterhead confirm physical and postal addresses
6. **Original** valid SARS Tax Clearance Certificate
7. **Certified copy** of VAT Registration Certificate
8. **A valid and original** B-BBEE Verification Certificate / sworn affidavit **or certified copy** thereof meeting the requirements for B-BBEE compliance as per the B-BBEE Codes of Good Practice
9. **Certified copy** of valid Company Registration Certificate [if applicable]

Vendor Application Form

Company trading name						
Company registered name						
Company Registration Number or ID Number if a Sole Proprietor						
Form of entity [✓]	CC	Trust	Pty Ltd	Limited	Partnership	Sole Proprietor
VAT number [if registered]						
Company telephone number						
Company fax number						
Company email address						
Company website address						
Bank name				Branch & Branch code		
Account holder				Bank account number		
Postal address						

Respondent's Signature _____

_____ Date & Company Stamp

			Code	
Physical Address				Code
Contact person				
Designation				
Telephone				
Email				
Annual turnover range [last financial year]	< R5 m	R5 - 35 m	> R35 m	
Does your company provide	Products	Services	Both	
Area of delivery	National	Provincial	Local	
Is your company a public or private entity	Public	Private		
Does your company have a Tax Directive or IRP30 Certificate	Yes	No		
Main product or services [e.g. Stationery/Consulting]				

Complete B-BBEE Ownership Details:

% Black ownership	% Black women ownership	% Disabled Black ownership	% Youth ownership
Does your entity have a B-BBEE certificate		Yes	No
What is your B-BBEE status [Level 1 to 9 / Unknown]			
How many persons does the entity employ		Permanent	Part time

If you are an existing Vendor with Transnet please complete the following:

Transnet contact person	
Contact number	
Transnet Operating Division	

Duly authorised to sign for and on behalf of Company / Organisation:

Name		Designation	
Signature		Date	

**RFQ FOR THE SUPPLY / PROVISION OF
PROVISION FOR THE UPGRADE OF S002 MASTERSTATION AND OUTSTATION CONTROLLER
UNIT FOR A PERIOD OF 15 MONTHS.**

ANNEXURE A : B-BBEE PREFERENCE POINTS CLAIM FORM

This preference form contains general information and serves as a claim for preference points for Broad-Based Black Economic Empowerment [B-BBEE] Status Level of Contribution.

1. INTRODUCTION

- 1.1 A total of preference points shall be awarded for B-BBEE Status Level of Contribution.
- 1.2 Failure on the part of a Bidder to fill in and/or to sign this form and submit a B-BBEE Verification Certificate from a Verification Agency accredited by the South African Accreditation System [SANAS] or a Registered Auditor approved by the Independent Regulatory Board of Auditors [IRBA] or an Accounting Officer as contemplated in the Close Corporation Act [CCA] together with the bid will be interpreted to mean that preference points for B-BBEE Status Level of Contribution are not claimed.
- 1.3 Transnet 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 Transnet.

2. GENERAL DEFINITIONS

- 2.1 **"all applicable taxes"** include value-added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies;
- 2.2 **"B-BBEE"** means broad-based black economic empowerment as defined in section 1 of the Broad-Based Black Economic Empowerment Act;
- 2.3 **"B-BBEE status 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;
- 2.4 **"Bid"** means a written offer in a prescribed or stipulated form in response to an invitation by Transnet for the provision of goods, works or services;
- 2.5 **"Broad-Based Black Economic Empowerment Act"** means the Broad-Based Black Economic Empowerment Act, 2003 [Act No. 53 of 2003];
- 2.6 **"comparative price"** means the price after the factors of a non-firm price and all unconditional discounts that can be utilised have been taken into consideration;
- 2.7 **"consortium or joint venture"** means an association of persons for the purpose of combining their expertise, property, capital, efforts, skills and knowledge in an activity for the execution of a contract;
- 2.8 **"contract"** means the agreement that results from the acceptance of a bid by Transnet;

- 2.9 **"EME"** means any enterprise with an annual total revenue of R5 [five] million or less as per the 2007 version of the B-BBEE Codes of Good Practice and means any enterprise with an annual total revenue of R10 [ten] million or less as per the Revised Codes of Good Practice issued on 11 October 2013 in terms of Government Gazette No. 36928;
- 2.10 **"firm price"** means the price that is only subject to adjustments in accordance with the actual increase or decrease resulting from the change, imposition, or abolition of customs and excise duty and any other duty, levy, or tax, which, in terms of the law or regulation, is binding on the contractor and demonstrably has an influence on the price of any supplies, or the rendering costs of any service, for the execution of the contract;
- 2.11 **"functionality"** means the measurement according to predetermined norms, as set out in the bid documents, of a service or commodity that is designed to be practical and useful, working or operating, taking into account, among other factors, the quality, reliability, viability and durability of a service and the technical capacity and ability of a bidder;
- 2.12 **"non-firm prices"** means all prices other than "firm" prices;
- 2.13 **"person"** includes reference to a juristic person;
- 2.14 **"QSE"** means any enterprise with an annual total revenue between R5 [five] million and R35 [thirty five] million as per the 2007 version of the B-BBEE Codes of Good Practice and means any enterprise with an annual total revenue of between R10 [ten] million and R50 [fifty] million as per the Revised Codes of Good Practice issued on 11 October 2013 in terms of Government Gazette No. 36928
- 2.15 **"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;
- 2.16 **"subcontract"** means the primary contractor's assigning or leasing or making out work to, or employing another person to support such primary contractor in the execution of part of a project in terms of the contract;
- 2.17 **"total revenue"** bears the same meaning assigned to this expression in the Codes of Good Practice on Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Empowerment Act and promulgated in the Government Gazette on 9 February 2007;
- 2.18 **"trust"** means the arrangement through which the property of one person is made over or bequeathed to a trustee to administer such property for the benefit of another person; and
- 2.19 **"trustee"** means any person, including the founder of a trust, to whom property is bequeathed in order for such property to be administered for the benefit of another person.

3. ADJUDICATION USING A POINT SYSTEM

- 3.1 The Bidder obtaining the highest number of total points for the evaluation criteria as enumerated in Section 2 of the RFP will be awarded the contract, unless objective criteria justifies the award to another bidder.
- 3.2 Preference points shall be calculated after prices have been brought to a comparative basis taking into account all factors of non-firm prices and all unconditional discounts.
- 3.3 Points scored will be rounded off to 2 [two] decimal places.
- 3.4 In the event of equal points scored, the Bid will be awarded to the Bidder scoring the highest number

of preference points for B-BBEE.

- 3.5 However, when functionality is part of the evaluation process and two or more Bids have scored equal points including equal preference points for B-BBEE, the successful Bid will be the one scoring the highest score for functionality.
- 3.6 Should two or more Bids be equal in all respect, the award shall be decided by the drawing of lots.

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4. POINTS AWARDED FOR B-BBEE STATUS LEVEL OF CONTRIBUTION

- 4.1 In terms of the Preferential Procurement Regulations, 2011, preference points shall be awarded to a Bidder for attaining the B-BBEE status level of contribution in accordance with the table below:

B-BBEE Status Level of Contributor	Number of Points [Maximum 10]
1	10
2	9
3	8
4	5
5	4
6	3
7	2
8	1
Non-compliant contributor	0

- 4.2 Bidders who qualify as EMEs in terms of the 2007 version of the Codes of Good Practice must submit a certificate issued by an Accounting Officer as contemplated in the CCA or a Verification Agency accredited by SANAS or a Registered Auditor. Registered auditors do not need to meet the prerequisite for IRBA's approval for the purpose of conducting verification and issuing EME's with B-BBEE Status Level Certificates.
- 4.3 Bidders who qualify as EMEs in terms of the Revised Codes of Good Practice issued on 11 October 2013 in terms of Government Gazette No. 36928 are only required to obtain a sworn affidavit on an annual basis confirming that the entity has an Annual Total Revenue of R10 million or less and the entity's Level of Black ownership.
- 4.4 In terms of the 2007 version of the Codes of Good Practice, Bidders other than EMEs must submit their original and valid B-BBEE status level verification certificate or a certified copy thereof, substantiating their B-BBEE rating issued by a Registered Auditor approved by IRBA or a Verification Agency accredited by SANAS.
- 4.5 In terms of the Revised Codes of Good Practice issued on 11 October 2013 in terms of Government Gazette No. 36928, Bidders who qualify as QSEs are only required to obtain a sworn affidavit on an annual basis confirming that the entity has an Annual Total Revenue of R50 million or less and the entity's Level of Black ownership. Large enterprises must submit their original and valid B-BBEE status level verification certificate or a certified copy thereof, substantiating their B-BBEE rating issued by a Registered Auditor approved by IRBA or a Verification Agency accredited by SANAS.
- 4.6 A trust, consortium or joint venture will qualify for points for its B-BBEE status level as a legal entity, provided that the entity submits its B-BBEE status level certificate.
- 4.7 A trust, consortium or joint venture will qualify for points for their B-BBEE status level as an unincorporated entity, provided that the entity submits their consolidated B-BBEE scorecard as if they were a group structure and that such a consolidated B-BBEE scorecard is prepared for every separate bid.
- 4.8 Tertiary institutions and public entities will be required to submit their B-BBEE status level certificates in terms of the specialised scorecard contained in the B-BBEE Codes of Good Practice.

- 4.9 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 subcontracting more than 25% [twenty-five per cent] of the value of the contract to any other enterprise that does not qualify for at least the same number of points that such a Bidder qualifies for, unless the intended subcontractor is an EME that has the capability and ability to execute the subcontract.
- 4.10 A person awarded a contract may not subcontract more than 25% [twenty-five per cent] of the value of the contract to any other enterprise that does not have an equal or higher B-BBEE status level than the person concerned, unless the contract is subcontracted to an EME that has the capability and ability to execute the subcontract.
- 4.11 Bidders are to note that in terms of paragraph 2.6 of Statement 000 of the Revised Codes of Good Practice issued on 11 October 2013 in terms of Government Gazette No. 36928, any representation made by an entity about its B-BBEE compliance must be supported by suitable evidence or documentation. As such, Transnet reserves the right to request such evidence or documentation from Bidders in order to verify any B-BBEE recognition claimed.

5. B-BBEE STATUS AND SUBCONTRACTING

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

B-BBEE Status Level of Contribution _____ = _____ [maximum of 10 points]

Note: Points claimed in respect of this paragraph 5.1 must be in accordance with the table reflected in paragraph 4.1 above and must be substantiated by means of a B-BBEE certificate issued by a Verification Agency accredited by SANAS or a Registered Auditor approved by IRBA or a sworn affidavit in the case of an EME or QSE.

5.2 Subcontracting:

Will any portion of the contract be subcontracted? YES/NO [delete which is not applicable]

If YES, indicate:

- (i) What percentage of the contract will be subcontracted? %
- (ii) The name of the subcontractor
- (iii) The B-BBEE status level of the subcontractor
- (iv) Is the subcontractor an EME? YES/NO

5.3 Declaration with regard to Company/Firm

- (i) Name of Company/Firm.....
- (ii) VAT registration number.....
- (iii) Company registration number.....
- (iv) Type of Company / Firm [TICK APPLICABLE BOX]

- Partnership/Joint Venture/Consortium
- One person business/sole propriety
- Close Corporations
- Company (Pty) Ltd

(v) Describe Principal Business Activities

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

(vi) Company Classification [TICK APPLICABLE BOX]

- Manufacturer
- Supplier
- Professional Service Provider
- Other Service Providers, e.g Transporter, etc

(vii) Total number of years the company/firm has been in business.....

BID DECLARATION

I/we, the undersigned, who warrants that he/she is duly authorised to do so on behalf of the company/firm, certify that points claimed, based on the B-BBEE status level of contribution indicated in paragraph 4 above, qualifies the company/firm for the preference(s) shown and I / we acknowledge that:

- (i) The information furnished is true and correct.
- (ii) In the event of a contract being awarded as a result of points claimed as shown in paragraph 6 above, the contractor may be required to furnish documentary proof to the satisfaction of Transnet that the claims are correct.
- (iii) If the B-BBEE status level of contribution has been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, Transnet 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) restrict the Bidder or contractor, its shareholders and directors, and/or associated entities, or only the shareholders and directors who acted in a fraudulent manner, from obtaining business from Transnet for a period not exceeding 10 years, after the *audi alteram partem* [hear the other side] rule has been applied; and/or
 - (e) forward the matter for criminal prosecution.

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WITNESSES:

- 1.
- 2.

SIGNATURE OF BIDDER

DATE:.....

COMPANY NAME:

ADDRESS:.....

"PREVIEW COPY ONLY"

Respondent's Signature

Date & Company Stamp



TRANSNET
freight rail

A Division of Transnet SOC Limited

Technology Management

DESCRIPTION

of the Transnet Freight Rail Telecontrol System

"PREVIEW COPY ONLY"

Author:	Chief Engineering Technician Technology Management	FTJ Smit	_____
Approved:	Senior Engineer Technology Management	AJ Brtiz	_____
Authorised:	Principal Engineer Technology Management	John Kannemeyer	_____
		Date:	January 2014

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1. Introduction.

- 1.1. A Transnet Freight Rail (TFR) Telecontrol system consists of a large number of electrical sub-stations controlled and monitored from a central master station.
- 1.2. At the time of writing this document TFR runs three separate systems, one for the coal export line (Coalink), one for the iron ore export line (Orex) and one system for the rest of TFR. The Passenger Rail Agency of South Africa (PRASA) has four systems one each at Pretoria, Johannesburg, Durban and Cape Town.
- 1.3. The following are the main segments of such a system:
 - 1.3.1. Electrical Substation
 - 1.3.2. Telecontrol Outstation (OS).
 - 1.3.3. The Telecontrol master station (MS)

2. Applicable documents:

- 2.1. Traction Substations:
 - 2.1.1. Traction Substations Technical Assistant Handbook - CEE-EP 001
- 2.2. SIS500 Outstation:
 - 2.2.1. SIS500 documentation tree (MRI) - CSE-11INT 010
 - 2.2.2. SIS 500 Outstation manual, - CSE-11INT 051 CAT N72
- 2.3. Telecontrol Master station
 - 2.3.1. S002:
 - 2.3.1.1. S002 Installation RPM and scripts - BBC 8814
 - 2.3.1.2. S002 Installation Guidelines - BBC0352
 - 2.3.1.3. S002 configuration manual - BBC 0354
 - 2.3.1.4. S002 operations manual - BBC 0353
 - 2.3.2. OCU:
 - 2.3.2.1. OCU configuration manual - BBC 8818
 - 2.3.2.2. OCU Installation RPM - BBD 7135
 - 2.3.3. Typical network layout - BBF 1086
- 2.4. Communication protocols:
 - 2.4.1. Interface Requirement Specification (IRS) for S107 - BBD 7121
 - 2.4.2. Interface Requirement Specification (IRS) for S016 - BBD 7122

3. Electrical Substation:

- 3.1. There are two main categories for substations i.e. Traction (Supplying traction power to trains) and EL&P (Electrical Lights & Power - supplying auxiliary power to buildings).
- 3.2. Traction Power comes in two sub categories i.e. alternating current (AC) and direct current (DC) substations. The AC substations are split into 25KV and 50KV substations.
- 3.3. Electrical substations contain the following equipment:
 - 3.3.1. Switchgear
 - 3.3.2. Transformers
 - 3.3.3. Rectifiers (DC substations only)
 - 3.3.4. Batteries and charger
 - 3.3.5. Various transducers, such as voltage and current sensing.
 - 3.3.6. Local monitoring and control panel
 - 3.3.7. Various other high-current substation equipment
 - 3.3.8. Remote control and monitoring equipment for the above, known as the Telecontrol Outstation (OS).
- 3.4. See applicable documents for more.

4. Telecontrol Outstation (OS):

- 4.1. Currently only the Siemens universal outstation (now legacy) and the Spoornet SIS500 outstations are used.
 - 4.1.1. The two versions of OS are mostly compatible at card level.
 - 4.1.2. OS capabilities:
 - 4.1.2.1. Up to 3 digital input cards each with thirty-two single bit inputs (theoretical maximum of 6 cards).
 - 4.1.2.2. Up to 2 digital output cards each with sixteen open/close outputs (theoretical maximum of 3 cards).
Outputs can be latched or pulsed depending on which type of rail card is used.
 - 4.1.2.3. 1 Analogue card with sixteen channel analogue measurements (theoretical maximum of 2 cards).
 - 4.1.2.4. Processor and communication unit.
 - 4.1.2.5. Power supplies and battery chargers to supply the necessary power for the OS and controls.
- 4.2. See applicable documents for more.

5. The Telecontrol master station (MS):

The Telecontrol master station consists out of the following components:

5.1. S002 UNIX/Linux servers

5.1.1. Hosts the S002 master station software.

5.1.1.1. There are two servers running a Linux or UNIX operating system in a dual redundant configuration. However undesirable, in an emergency, either server can operate in a standalone configuration.

5.1.1.2. Under normal conditions the redundant servers are in an online/standby configuration.

5.1.1.3. The standby server is a hot standby i.e. can instantly take over from the online server.

5.1.1.4. Both servers have online, standby, offline and down modes.

5.1.1.4.1. The offline and down modes are for maintenance purposes.

5.1.1.5. There is an external watchdog and switch panel (the Indication and Switch Panel or ISP) controlling the operational state of the two servers. The ISP ensures that either one of the server is kept in the online mode at all times. However for maintenance purposes the standby server can be taken to offline or down modes manually by pressing the appropriate switch on the ISP panel.

5.1.1.6. The servers keep an event database (MySQL) of all events as they take place, this database is replicated on the other (standby) server which can be queried locally as well as from a remote location via the Transnet WAN. (S002 release 7.0 or later)

5.1.1.7. The state of any measurement, alarm or indication in the system can be relayed to any host on the Transnet WAN. (S002 release 8.0 or later) This is used for Traction Power Supply Energy Management System (TPSEMS) and/or other forms of remote data acquisition of the Telecontrol system.

5.1.1.8. Remote maintenance and system monitoring can be done via a S002 and Outstation Communications Unit (OCU) web pages. (S002 release 8.0 or later)

5.2. Communications controlling equipment:

5.2.1. Outstation Communications Unit (OCU) and Line Controller Unit (LCU)

5.2.1.1. The Outstation Communications Unit (OCU) is a frontend to S002 Master Station that handles the communications to the Outstations (OS) It runs on an embedded Linux Operating system (uCLinux). The hardware for the OCU has been developed by TFR. It comprises of a 3u board with the MCF5282 Coldfire processor from Freescale. It has 32MByte of RAM and 8MByte of flash. The processor runs at a bus speed of 64MHz. There is one Ethernet (10/100 UTP) port and two RS232 asynch serial ports (300 to 115200 bps) and a third port selectable RS232 or RS422 at the same bitrates.

5.2.1.2. The OCU replaces the (obsolete) LCU and they cannot work together in the same system. The OCU requires version 7.0 or later of S002 and the LCU works only with older versions of S002.

5.2.1.3. An OCU/LCU collects information from the substations using the outstations (OS) and relays it to the active S002 server. It also accepts commands or controls from the active server and relays them to the relevant outstation for execution and returns the result thereof to the server.

5.2.1.4. A Telecontrol system can host (up to) 63 OCU/LCU's and each OCU/LCU can host (up to) 63 outstations. Hence a theoretical 3969 electrical sub-stations can be controlled and monitored by a single Telecontrol system.

5.2.1.5. The OCU hosts a webpage with limited monitoring ability. (OCU's only)

5.2.2. For analogue lines, separate Analogue Modems (v23) are used by the OCU's.

5.2.3. Analogue lines may be combined using Analogue Line combiners.

5.2.4. For digital lines, up to three of the serial ports of the OCU can be connected to a Flex-mux and other digital Transtel equipment.

5.2.5. Digital Lines can be combined using digital line combiners.

5.2.6. A firewall for GPRS connected OS's.

5.2.7. A possible Satellite link for future OS's on satellite links.

5.2.8. TCP-IP switches and other standard IT equipment are used for TCP-IP traffic.

5.2.9. See applicable documents for more detail on the OCU.

5.3. Communications medium between master station and outstations:

- 5.3.1. The (legacy) LCU uses the Westinghouse and Selenia synchronous protocols (both now legacy) as well as an older version of S107 asynchronous protocol, these protocols are all polled.
- 5.3.2. The OCU uses only the following asynchronous protocols;
 - 5.3.2.1. S107(updated) – Polled protocol
 - 5.3.2.1.1. Outstations are polled (scanned) by the OCU in a round robin configuration, the OS will report any change in its state and the OCU will report the change to the master server.
 - 5.3.2.1.2. Operates over multiple communications media including copper using analogue modem and digital media such as fibre optic.
 - 5.3.2.1.3. S016 – Demand Protocol
 - 5.3.2.1.4. Outstations atomically report any change to the OCU as they happen, while the OCU will do a periodical (once an hour or so) check back requests to ensure the OS and the connection are alive. The demand protocol is encrypted for enhanced security.
 - 5.3.2.1.5. Operates over multiple communications media including GSM – GPRS, satellite, and tcp-ip network, but can also work on copper using analogue modem and digital media such as fibre optic.
- 5.3.3. See applicable documents for more.

5.4. X terminal workstations:

- 5.4.1. The system can host up to 63 workstations each consisting of up to three X-Terminals grouped in a centre, left and right configuration. The workstations are grouped in (up to) 32 zones.
- 5.4.2. The X-Terminals can be any device capable of the X11 protocol and with a display utilising 256 colours and a display resolution of at least 1280x1024 pixels. Multiple screens per X-terminal are allowed. The X-terminal can be a MS-Windows machine with X emulation software, a UNIX/Linux host or a diskless machine booting Linux from a network host.

5.5. Various peripheral equipment:

- 5.5.1. Event and demand printers for printing events and items such as work permits.
- 5.5.2. Indication and Switch Panel (ISP) (see 3.1.1.5).
- 5.5.3. A Mimic panel is available to display substation and device statuses and other critical alarms. However in most systems additional workstations with multiple screens are used instead.
- 5.5.4. The Night Alarm is used to activate a siren if there is an unaccepted Telecontrol alarm over a period of time.
- 5.5.5. UPS for continued power and graceful shutdown of the servers.



TRANSNET
freight rail

A Division of Transnet SOC Limited

Technology Management

DESCRIPTION

of the
Transnet Freight Rail Telecontrol System

"PREVIEW COPY ONLY"

Author:	Chief Engineering Technician Technology Management	FTJ Smit	_____
Approved:	Senior Engineer Technology Management	AJ Brtiz	_____
Authorised:	Principal Engineer Technology Management	John Kannemeyer	_____
		Date:	January 2014

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5.2. Communications controlling equipment:

5.2.1. Outstation Communications Unit (OCU) and Line Controller Unit (LCU)

- 5.2.1.1. The Outstation Communications Unit (OCU) is a frontend to S002 Master Station that handles the communications to the Outstations (OS) It runs on an embedded Linux Operating system (uCLinux). The hardware for the OCU has been developed by TFR. It comprises of a 3u board with the MCF5282 Coldfire processor from Freescale. It has 32MByte of RAM and 8MByte of flash. The processor runs at a bus speed of 64MHz. There is one Ethernet (10/100 UTP) port and two RS232 asynch serial ports (300 to 115200 bps) and a third port selectable RS232 or RS422 at the same bitrates.
- 5.2.1.2. The OCU replaces the (obsolete) LCU and they cannot work together in the same system. The OCU requires version 7.0 or later of S002 and the LCU works only with older versions of S002.
- 5.2.1.3. An OCU/LCU collects information from the substations using the outstations (OS) and relays it to the active S002 server. It also accepts commands or controls from the active server and relays them to the relevant outstation for execution and returns the result thereof to the server.
- 5.2.1.4. A Telecontrol system can host (up to) 63 OCU/LCU's and each OCU/LCU can host (up to) 63 outstations. Hence a theoretical 3969 electrical sub-stations can be controlled and monitored by a single Telecontrol system.
- 5.2.1.5. The OCU hosts a webpage with limited monitoring ability. (OCU's only)
- 5.2.2. For analogue lines, separate Analogue Modems (v23) are used by the OCU's.
- 5.2.3. Analogue lines may be combined using Analogue Line combiners.
- 5.2.4. For digital lines, up to three of the serial ports of the OCU can be connected to a Flex-mux and other digital Transtel equipment.
- 5.2.5. Digital Lines can be combined using digital line combiners.
- 5.2.6. A firewall for GPRS connected OS's.
- 5.2.7. A possible Satellite link for future OS's on satellite links.
- 5.2.8. TCP-IP switches and other standard IT equipment are used for TCP-IP traffic.
- 5.2.9. See applicable documents for more detail on the OCU.

5.3. Communications medium between master station and outstations:

- 5.3.1. The (legacy) LCU uses the Westinghouse and Selenia synchronous protocols (both now legacy) as well as an older version of S107 asynchronous protocol, these protocols are all polled.
- 5.3.2. The OCU uses only the following asynchronous protocols;
 - 5.3.2.1. S107(updated) – Polled protocol
 - 5.3.2.1.1. Outstations are polled (scanned) by the OCU in a round robin configuration, the OS will report any change in its state and the OCU will report the change to the master server.
 - 5.3.2.1.2. Operates over multiple communications media including copper using analogue modem and digital media such as fibre optic.
 - 5.3.2.1.3. S016 – Demand Protocol
 - 5.3.2.1.4. Outstations atomically report any change to the OCU as they happen, while the OCU will do a periodical (once an hour or so) check back requests to ensure the OS and the connection are alive. The demand protocol is encrypted for enhanced security.
 - 5.3.2.1.5. Operates over multiple communications media including GSM – GPRS, satellite, and tcp-ip network, but can also work on copper using analogue modem and digital media such as fibre optic.
- 5.3.3. See applicable documents for more.

5.4. X terminal workstations:

- 5.4.1. The system can host up to 63 workstations each consisting of up to three X-Terminals grouped in a centre, left and right configuration. The workstations are grouped in (up to) 32 zones.
- 5.4.2. The X-Terminals can be any device capable of the X11 protocol and with a display utilising 256 colours and a display resolution of at least 1280x1024 pixels. Multiple screens per X-terminal are allowed. The X-terminal can be a MS-Windows machine with X emulation software, a UNIX/Linux host or a diskless machine booting Linux from a network host.

5.5. Various peripheral equipment:

- 5.5.1. Event and demand printers for printing events and items such as work permits.
- 5.5.2. Indication and Switch Panel (ISP) see 3.1.1.5.
- 5.5.3. A Mimic panel is available to display substation and device statuses and other critical alarms. However in most systems additional workstations with multiple screens are used instead.
- 5.5.4. The Night Alarm is used to activate a siren if there is an unaccepted Telecontrol alarm over a period of time.
- 5.5.5. UPS for continued power and graceful shutdown of the servers.



TRANSNET
freight rail

A Division of Transnet SOC Limited

TECHNOLOGY MANAGEMENT

SPECIFICATION

For The
Upgrade Of S002 Master Station
And
Outstation Communications Unit

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		Date:	January 2014

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1. Scope

This specification describes the required modifications and additions to the S002 Master Station and the Outstation Communications Unit (OCU) systems.

2. Documents and Standards

The following documents and standards form a part of this specification. In the event of conflict between the documents referenced herein and the contents of this specification, the contents of this specification shall be considered a superseding requirement.

2.1. Schedule of Documents

- 2.1.1. BBC0678 TELECONTROL: Transnet Freight Rail Telecontrol Documentation Tree
- 2.1.2. BBF1085 Transnet Freight Rail Telecontrol System Description.
- 2.1.3. BBF1086 A typical network layout.
- 2.1.4. BBC0678 Documentation tree.
- 2.1.5. BBD7127 Master record index for the Outstation Communications Unit (OCU) and all documents listed therein.
- 2.1.6. BBD7126 Master record indexes for the S002 master station (MS) and configuration editor (CE) and all documents listed therein.
- 2.1.7. All the above documentation is included in A CD ROM that's is available on request
- 2.1.8. Tenderers must note that the CD-ROM as mentioned above must be collected before the tender briefing session starts

2.2. Software

- 2.2.1. All the existing Telecontrol System software (Sources and documentation) shall be made available to the successful tenderer. Tenderers who wish to inspect the software before submitting a tender may do so by making an appointment with the technical officer.

2.3. Standards

- 2.3.1. The standards/specifications as used in the original development of the Telecontrol system shall apply unless otherwise stated. Updated version of these standards/specifications can also be used. Where tenderers are planning to use updated standards/specifications it shall be clearly stated in their tender reply.
- 2.3.2. Military Standards MIL-STD-498, DOD-STD-2167A, etc. were used in the development of the Telecontrol system. Refer applicable documents.
- 2.3.3. This contract is to be done to the same standards; Tenderers shall indicate their experience in applying these standards.

2.4.S002 & OCU description

2.4.1. See document BBF 1085

2.5.Glossary of Terms

Term or Abbreviation	Meaning
TFR	Transnet Freight Rail - A division of Transnet Ltd.
Telecontrol	TFR's SCADA system for the monitoring and control of electrical substations.
OCU	OUTSTATION COMMUNICATIONS UNIT, the new communications unit.
SIS500	The Telecontrol systems remote terminal unit, known as an Outstation.
OS	Outstation
LMCU	Line Monitor and control unit, the Processor unit of the SIS 500 OS
S002	Unix/Linux hosted software that controls the operating of the Telecontrol system (i.e. master station)
CI	Configuration Item
CE	Configuration Editor a S002 CI
LA	Log and Archive a S002 CI
MS	Master Station
ISP	Interface & Switch Panel
Maxdem/TPSEMS	Power usage monitoring system used within TFR.
S107	The current and preferred asynchronous communications protocol.

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3. Description of Work

The following work on the Telecontrol system is required:

3.1. Required changes to the OCU.

3.1.1. Porting:

3.1.1.1. The OCU application to be ported to the latest stable version of uCLinux. The version to be used will be discussed with the successful tenderer.

3.1.2. Activity & Fault LED's:

3.1.2.1. The operation of the LED's to show line activity and the Fault LED to be changed.

3.1.2.1.1. The activity LED for polled and network protocols, to be on if one or more OS's had a good reply in the last scan cycle.

3.1.2.1.2. The fault LED on polled protocols, a one 100th millisecond flash for each communications failure (run-out of retries) on network protocols the fault LED is to remain on as long as one or more OS's have failed (run out of retries) in the last scan cycle.

3.1.3. OCU webpage:

3.1.3.1. The OCU to send a test message (like 'the quick brown fox') with a loopback link between the RX-TX pins at the (disconnected) OS, the OCU is to receive the reflected test message, display the received data and report passed or failed.

As for the analogue line test, this test must time out after some time. There must also be a cancel function.

3.1.3.1.1. This cancel function must be added to the current (for analogue lines) test-signal function.

3.2. Required changes to S002

3.2.1. Porting:

3.2.1.1. S002 to be ported to the latest stable version of the Linux operating system. The version to be used will be discussed with the successful tenderer (Oracle Linux might be preferred).

3.2.2. Configuration of alternative Standby master

3.2.2.1. Provision is to be made for an alternative standby master, such as for an emergency telecontrol master station where there is a duplicated master station environment that can take over from the normal master station. The servers at the alternative master station are to have their dynamic tcc's automatically updated using TFR WAN system. This is to include an 'alternative master up to date' message in the 'recent event' list.

3.2.2.2. The event database at the alternative master station must replicate automatically.

- 3.2.2.3. An indication with an alarm on the system diagram must indicate the state/availability of the alternative master station and its database.
- 3.2.2.4. Any failure of the alternative master, or the communications to it, may not hinder the operation of the active master.
- 3.2.2.5. The Interface & Switch Panel (ISP) and the protocol are to be adapted for this. A new requirements specification for the updated ISP and protocol to be drawn up.
- 3.2.2.6. The new ISP will be developed by TFR in conjunction with the successful tenderer.

3.2.3. Download of a text-file to an OS.

- 3.2.3.1. S002 is to have a new capability to download one or more text files to an OS (for future, non SIS500, type OS's only).
- 3.2.3.2. These text files will be downloaded directly from the active server's (S002) system to the selected OS.
- 3.2.3.3. This is to be done outside of the Configuration Editor (CE).
- 3.2.3.4. The SIS500 OS may disregard these requests, but should not crash if it received such message.
- 3.2.3.5. Transfer protocol and file size constraints for these text messages will be discussed with the successful tenderer.

3.2.4. S002 website:

- 3.2.4.1. Statuses of all s002 peripherals, including workstations, are to be indicated on the S002 website.
- 3.2.4.2. S002 peripherals, including workstations, are to be disabled and (re)enabled from the S002 website.

3.2.5. Start of web-browser on workstations:

- 3.2.5.1. The 'options' drop-down menu of s002 taskbar must have 'start web-browser' option.

3.2.6. Restart of workstations:

- 3.2.6.1. Enabled workstations that have been detected as present at startup and crashed later must be attempted to be restarted automatically. If several restart attempts have failed such workstations are to be marked as faulty.
- 3.2.6.2. Start and restart of a workstation is to be done as a whole workstation i.e. left, right and centre terminals together and not as individual terminals.

3.2.7. Configuration Editor (CE)

- 3.2.7.1. When a new Telecontrol Configuration file (TCC) is created a new CE backup (.iso) file is to be (automatically) created with a filename related to the tcc revision, such as tcc-name-revision#.iso, the compiled tcc should also be included in the .iso file.

3.2.7.1.1. A printable pdf document, reflecting the date of creation and version of the TCC, with space for the signatures of the system maintainer and electrical engineer is to be included in the tcc directory.

- 3.2.7.2. The CE editor's taskbar is to display the hostname of the current host it's running on.

3.2.8. Backup of s002 Database & CE files

3.2.8.1. All backups that currently can only be backed up to CD or DVD must also have the option to be backed up to a file, this includes CE, TCC and MySQL archives.

3.2.9. Display of analogue values

3.2.9.1. There must be a difference how values that are out of range are displayed (currently all *'s). One for under range possibly all -'s and for over range maybe +'s. All *'s can be used to indicate some other form of errors if any.

3.2.9.2. In CE, an 'except' or 'ignore' function is to be added for 'out of range' error messages generated whilst saving analogue measurement forms, specially when 'units' are used as engUnits.

3.2.9.3. The 'view data' function of an analogue measurement should indicate the raw analogue value.

3.2.9.4. The value transferred for TPSEMS purposes should reflect the same resolution as received from the outstation regardless of the engineering unit used on the relevant diagram.

3.2.10. Upload of OS configuration

3.2.10.1. The two and three state mapping display needs column headers to make it more readable.

3.2.10.2. All displayed windows must fit on a screen set to a resolution of 1024 x 768 or be equipped with scroll-bars.

3.2.10.3. The S002 configuration guide needs to have an in depth section on the usage of the OS configuration uploads and downloads.

3.2.10.4. The 'Saved' OS uploads and edited configurations, are also to be stored in a separate file one for each outstation, outside of the tcc directory.

3.3. Changes to the Man Machine interface (MM)

3.3.1. The XM interface is to work on both unsecured local LAN or over a SSH link on a secure IFR WAN link.

3.3.1.1. The successful tenderer is to demonstrate a workstation setup that runs on a standard Microsoft Windows installation (Windows 7 and 8) using SSH, preferably set to 32 bit color setting.

3.4. Event Archive

3.4.1. Replication of event database (mySQL)

3.4.1.1.1. If the replication (between standby, active and alternative hosts) of the archive stops for whatever reason it's to attempt to restart the replication automatically, log the event and create an alarm if it did not succeed in restarting the replication.

3.5. Fixing of known bugs and problems in S002, OCU and SIS500

3.5.1. S002 & OCU WebPages

3.5.1.1. All (OCU and S002) WebPages must be more readable when displayed on a terminal set to 8 bit color.

3.5.1.2. All (OCU and S002) WebPages and sub pages are to fit on a screen set to a resolution of 1024 x 768 pixels, or if this is not possible to be equipped with scroll-bars.

3.5.2. TPSEMS interface

3.5.2.1. The interface is to create an alarm condition if it loses physical connection with the data server such as a cable break, not only on a shutdown of the remote server's database.

3.5.3. OCU restarts

3.5.3.1. OCU's needs a physical reset after GPRS (S100) changes are made. Some form of automated process needs to be found.

3.5.4. Mimic controller

3.5.4.1. Communications to the mimic controller fails intermittently.

3.5.5. OS Connects

3.5.5.1. "Suppress" function for OS connects on s002 diagrams does not operate properly.

3.5.5.2. Connects set to "None" in CF should not display in red on active displays, possibly in white or as disabled.

3.5.5.3. A "disable" function for OS connects is to be added

3.5.6. Analogue forms in CF

3.5.6.1. The zero scale value (ZSV) resets to defaults when an analogue form is (re)opened.

3.5.7. Upload of OS configuration

3.5.7.1. The dynamic configuration upload display needs to show the legends for the info displayed.

3.5.7.2. The 'states' upload must be able to be displayed.

3.5.7.3. The rail card number in Analogue mapping cannot be edited.

3.5.7.4. Some fields in the 'Basic data' menu cannot be edited.

3.5.7.5. Workstation occasionally crashes when updated configuration is downloaded or 'committed'.

4. Set up of the firewall server, DHCP, DNS, NTP and other S002 associated Linux files.

4.1. The contractor shall supply a list (and the paths to these files) of *all* Linux system files that are not automatically setup by the S002 installation script and thus need to be modified manually afterwards. An actual (working) sample for each of these files and the lines to be modified therein is to be supplied. This is to be included in the as-build documentation.

4.2. The contractor shall give (documented) tutorials on how to set up all the required files that are not automatically set up by the S002 installation script. Special emphasis is to be given to (but not restricted to) the firewall, DHCP, DNS & NTP associated script files. This information is to be simplified and restricted to the Masterstation requirements.

5. Draw up a maintenance schedule

5.1. The contractor shall supply a recommended maintenance schedule and procedures for system maintainers of the entire S002 masterstation system including the Linux operating system.

5.1.1. This shall include what should be checked, truncated, backed up or any other form of maintenance of the entire masterstation system including the databases, system files, system logs, software and firmware.

5.1.1.1. For all appropriate Linux commands required for this, the contractor shall include examples of such commands.

5.1.2. This should be subdivided in a daily, weekly, monthly and six monthly schedules or any other period if required.

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6. Optional features

This section is to be offered as optional features, TFR will decide if it, or any part thereof, is to be included in the final contract

6.1. Analogue measurements

6.1.1. The Engineering units value of analogue measurements must be 'zap-able'.

6.2. S002 website:

6.2.1. OS configuration upload, download and edit capabilities are to be added to the S002 website.

6.2.1.1. This is to include the download of text files to OS's (see 3.2.3).

6.3. SIS500 OS

6.3.1.1. Sis500 OS should put its alarm bit on when an analogue value goes outside its Half Dead Band Value (HDBV)

6.4. The X11 interface

6.4.1. The X11 interface must work on workstations (Windows or Linux) set to 32 bit color setting

6.4.1.1. The successful tenderer is to demonstrate a workstation setup that runs on a Linux and standard Microsoft windows installation (Windows 7 and 8) using the local LAN and/or SSH, using the 32 bit color setting preferably using free or open source software rather than using licensed X emulators such as ReflectionX. The configuration and settings is to be made available to TFR.

6.4.1.1.1. Licensed software can only be used if TFR approves.

6.4.1.1.2. The Microsoft windows based workstations must be able to run other windows based applications in conjunction with the workstation application.

6.5. Extension to Emailed reports

6.5.1. The monthly reports are to include outstation and OCU stats.

6.6. Study on a new workstation interface

6.6.1. The contractor is to do a study on another form of workstation interface that does not use X11, possibly HTML (as suggested below) or any other free and widely used technology.

Such a new interface is to work in conjunction with and not to replace the X11 system currently in use.

- 6.6.2.** The contractor is to deliver a report on how it could work, as well as the feasibility and reasonable cost estimate to create such a workstation interface. The report should be ready to be used as a specification for the creation of such an interface.
- 6.6.3.** A TFR suggestion on how a html workstation could work, but the contractor may give an additional (optional) solution for this section, TFR will decide which solution, if any, will be used
- 6.6.3.1.A HTML based interface between S002 and workstations is to be added.
- 6.6.3.2.The new HTML based system shall be functionally identical to the current X11 system and to have similar “look and feel”.
- 6.6.3.3.The HTML system must be able to operate in conjunction with the X11 system.
- 6.6.3.4.The HTML shall work with most popular browsers including Microsoft IE ver. 9 or later and Firefox ver. 5 or later.
- 6.6.3.5.All environment updates such as Telecontrol and substation device status changes shall be sent to the workstations as they happen without the browsers needing manual refresh cycles.
- 6.6.3.6.There can be up to 63 workstations (typical 10 to 20 workstations) and each can have multiple windows open simultaneously. The network traffic must be limited to cope with the load and be able to run all workstations on the same 100 megabit LAN.
- 6.6.3.7.There is to be a form of a “heartbeat” to check that all the info shown in a web browser is current. After a short delay the web browser is to blank out if communication with the master station (S002) is lost.
- 6.6.3.8.The workstation shall be free from any restrictions of screen resolutions or colour-depth. Workstations must be able to handle at least eight monitors per workstation configured as a single screen.
- 6.6.3.9.Scrollbars will be used if a page is too big to fit on a screen.
- 6.6.3.10. See <http://www.ape-project.org/> for a possible solution.

6.6.4. More alarms in CE

- 6.6.4.1. Currently there are 127 possible alarm types in CE, this is to be extended to 255.

7. Build of all S002, SIS500 and OCU binaries from source code

7.1.Build of S002 software

- 7.1.1. The process of building of all of the S002 & CE software and associated scripts is to be shown and documented.
- 7.1.2. This includes all compilations, assemblies, makes, linking etc.

7.2.Build of OCU firmware

- 7.2.1. The process of building of all of the OCU firmware, uCLinux, S002, and boot-loader of the OCU is to be shown and documented.

7.2.2. This includes all compilations, assemblies, makes, linking etc.

7.3. Build of the SIS500 firmware

7.3.1. The process of building of the SIS500 firmware for all current revisions is to be shown and documented. This shall include all of the SIS500 inclusive of the host firmware (all current versions), Digital board, Modem board, watchdog, Instrument board, the creation of the FPGA (Xilinx chip) binaries and programming thereof on the both digital and instrument boards.

7.3.2. This includes all compilations, assemblies, makes, linking etc.

7.4. Set up development environment

7.4.1. A machine to be supplied by TFR is to be loaded with the all source documents, install scripts and binaries for the entire Telecontrol system (S002&CE, OCU & SIS500 as on the source CD's) to be installed on that machine. This also includes all the tools and software required to (re)create these systems.

7.4.2. The contractor shall give tutorials (demonstrated and documented) on how to make simple changes to any part of the SIS500, S002 and CE or OCU systems or parts thereof and rebuild the entire effected system.

7.4.3. The objective of this section is to recreate all files on the delivered installation CD.

8. Constraints and conditions

8.1. Where possible, open source software and tools (such as GNU compilers) shall be used for development and documentation. TFR to agree on its usage.

8.1.1. Existing documentation that is to be amended shall be done in its existing format.

8.1.2. Open Office (version 3 from www.openoffice.org) or LibreOffice (<http://www.libreoffice.org>) are preferred for documentation purposes. All documents must be saved as source and also in a (electronically searchable) text based PDF format.

8.1.3. Copies of all tools and software used for this contract as well as their set-up files shall be handed over to TFR.

8.1.4. Non-open source applications can only be used if approved by TFR. In such cases the application software and development tools are to be offered to TFR as optional items.

8.2. GPL Licensing covers open Source software; the contractor is to familiarise with it and adhere to the rules.

9. Maintenance/Warranty Period

9.1. Regardless of any other reference to warranty or maintenance in any part of the contract documentation, the maintenance/warranty period for this contract shall be 18 months from the date of acceptance commissioning.

9.2. Regardless of an item (hardware/software/firmware/documentation, etc) been newly created or modified the maintenance/warranty shall cover all of the entire OCU, S002, CE and SIS500 Outstation.

(This implies that any latent or existing error in S002 software, OCU or SIS500 firmware cannot be used as an excuse for any new problems. In such case the contractor is to either fix the existing problem or find an acceptable (TFR approved) work around)

9.2.1. If any work done shows up any new problems or errors, in any item, existing or new, latent or otherwise, shall be up to the contractor to fix the problems/errors. This shall apply even if it requires fixing a problem/error that the contractor has not created.

10. Acceptance testing

10.1. All items shall be fully tested against the original standards and test documents, amended where necessary and new one's created where applicable.

10.2. Test reports shall be created and delivered

10.3. TFR will provide OCU, and outstation equipment for testing at the contractor's site.

10.4. Final site testing will be done at the Johannesburg Control Centre.

11. Roll out and Implementation of the work

11.1. The contractor is to install and rollout the work at the Johannesburg Control Centre.

11.2. TFR is to do the installation at the Emergency centre with the contractor supervising the installation process.

11.2.1. For coallink and orex sites the contractor is to be available for remote assistance telephonic and over the network (connectivity will be assisted by TFR).

12. Deliverables and delivery dates

12.1. Ownership of all deliverables (including all sources of Soft/Firmware, manuals and documents) are to be transferred to TFR and shall be free from any form of licensing or restrictions of use. All intellectual properties (IP) shall remain with, or transferred to TFR.

12.2. The following items shall be delivered, complete in all respects, fully tested and ready to install, at the delivery dates as specified:

12.2.1. For all soft/firmware

12.2.1.1. All (the entire set of) source code, including all make files and information required to compile and make binary files for all soft/firmware on CD/DVD. (includes all unchanged files)

- Quantity : 2 sets
- Delivery date : within 15 months from date of tender acceptance notification.

12.2.1.2. Binary installation files for all soft/firmware including OCU Linux and application download files on CD/DVD. (includes all unchanged files)

- Quantity : 2 sets
- Delivery date : within 15 months from date of tender acceptance notification

12.2.1.3. Test and acceptance reports on CD/DVD.

- Quantity : 2 sets
- Delivery date : within 2 weeks from commissioning acceptance.

12.2.2. Documentation

12.2.2.1. Complete set of all documentation in source format on CD/DVD (includes all unchanged files)

- Quantity : 2 sets
- Delivery date : within 15 months from date of tender acceptance notification.

12.2.2.2. Complete set of all documentation in an electronically searchable, text based PDF format on CD/DVD (includes all unchanged files)

- Quantity : 2 sets
- Delivery date : within 15 months from date of tender acceptance notification.

12.2.2.3. Complete set of as-build documentation in source and electronically searchable, text based PDF format on CD/DVD (includes all unchanged files).

As build documentation is to include all information on each installed site i.e. all files and code that is site specific and not part of, or to be modified after a normal operating system and application installation.

- Quantity : 2 sets
- Delivery date : within 3 months from acceptance of delivery.

12.2.3. End of warrantee period

12.2.3.1. The contractor shall deliver a new and complete set of all sources on CD/DVD and the complete documentation set including the as-build documentation in electronically searchable, text based PDF format on CD/DVD. This is to include all changes made to sources and installations during the warrantee period.

- Quantity : 2 sets

Delivery date : within one month after the end of the warrantee period.