

PART 3: SCOPE OF WORK

Document reference	Title	No of pages
	This cover page	1
C3.1	<i>Employer's Works Information</i>	28
C3.2	<i>Contractor's Works Information</i>	1
	Total number of pages	30

C3.1: EMPLOYER'S WORKS INFORMATION

Contents

Part 3: Scope of Work	1
C3.1: Employer's works Information	2
1 Description of the works	5
1.1 Executive overview	5
1.1.1 Formworks	5
1.1.2 Foundation	5
1.1.3 Concrete Works	5
1.1.4 Waste Material	5
1.2 Employer's objectives and purpose of the works	6
1.3 Interpretation and terminology	6
2 Management and start up.	7
2.1 Management meetings	7
2.2 Documentation control	7
2.3 Health and safety risk management	8
2.4 Environmental constraints and management	9
2.5 Quality assurance requirements	10
2.6 Programming constraints	11
2.7 Contractor's management, supervision and key people	11
2.8 Invoicing and payment	11
2.9 Insurance provided by the Employer	12
2.10 Contract change management	12
2.11 Provision of bonds and guarantees	12
2.12 Records of Defined Cost, payments & assessments of compensation events to be kept by the Contractor	13
2.13 Training workshops and technology transfer	13
3 Engineering and the Contractor's design	14
3.1 Employer's design	14
3.2 Parts of the works which the Contractor is to design	14
3.3 Procedure for submission and acceptance of Contractor's design	14
3.4 Other requirements of the Contractor's design	14
3.5 Use of Contractor's design	14
3.6 Design of Equipment	14
3.7 Equipment required to be included in the works	14
3.8 As-built drawings, operating manuals and maintenance schedules	14

4	Procurement	15
4.1	People	15
4.1.1	Minimum requirements of people employed on the Site	15
4.1.2	BBBEE and preferencing scheme	15
4.1.3	Accelerated Shared Growth Initiative – South Africa (ASGI-SA)	15
4.2	SD & L Undertaking	15
4.3	Plant and Materials	16
4.3.1	Quality	16
4.3.2	Plant & Materials provided “free issue” by the <i>Employer</i>	16
4.3.3	<i>Contractor’s</i> procurement of Plant and Materials	16
4.3.4	Spares and consumables	17
4.4	Tests and inspections before delivery	17
4.5	Marking Plant and Materials outside the Working Areas	17
4.6	<i>Contractor’s</i> Equipment (including temporary works)	17
4.7	Cataloguing requirements by the <i>Contractor</i>	17
5	Construction	18
5.1	Temporary works, Site services & construction constraints	18
5.1.1	<i>Employer’s</i> Site entry and security control, permits, and Site regulations	18
5.1.2	Restrictions to access on Site, roads, walkways and barricades	18
5.1.3	People restrictions on Site; hours of work, conduct and records	18
5.1.4	Health and safety facilities on Site	19
5.1.5	Environmental controls, fauna & flora, dealing with objects of historical interest	19
5.1.6	Title to materials from demolition and excavation	20
5.1.7	Cooperating with and obtaining acceptance of Others	20
5.1.8	Publicity and progress photographs	20
5.1.9	<i>Contractor’s</i> Equipment	20
5.1.10	Equipment provided by the <i>Employer</i>	20
5.1.11	Site services and facilities	20
5.1.12	Facilities provided by the <i>Contractor</i>	20
5.1.13	Existing premises, inspection of adjoining properties and checking work of Others	21
5.1.14	Survey control and setting out of the <i>works</i>	21
5.1.15	Excavations and associated water control	21
5.1.16	Underground services, other existing services, cable and pipe trenches and covers	21
5.1.17	Control of noise, dust, water and waste	21
5.1.18	Sequences of construction or installation	21
5.2	Completion, testing, commissioning and correction of Defects	25
5.2.1	Work to be done by the Completion Date	25
5.2.2	Use of the <i>works</i> before Completion has been certified	25
5.2.3	Materials facilities and samples for tests and inspections	25
5.2.4	Commissioning	25

5.2.5	Start-up procedures required to put the <i>works</i> into operation	25
5.2.6	Take over procedures	25
5.2.7	Access given by the <i>Employer</i> for correction of Defects	25
5.2.8	Performance tests after Completion	25
5.2.9	Training and technology transfer	25
5.2.10	Operational maintenance after Completion	26
6	Plant and Materials standards and workmanship	27
6.1	Investigation, survey and Site clearance	27
6.2	Building works	27
6.3	Civil engineering and structural works	27
6.4	Electrical & mechanical engineering works	28
6.5	Process control and IT works	28
6.6	Other [as required]	28
7	List of drawings.....	29
7.1	Drawings issued by the <i>Employer</i>	29
C3.2	Contractor's Works Information.....	30

1 Description of the works

1.1 Executive overview

Buffalo – Port Rex 132kV 2 line is located between Buffalo and Port Rex substations in the Eastern Cape Province. The Buffalo Port Rex 132 kV line 2 has 44 type 213 tower types. The line is 10 km long and runs parallel to Scenery Park. The line is located on the coast of East London and supplies the Mercedes Benz factory, which is a major bulk customer for Eskom in the East London area. Southern Grid raised concerns regarding the integrity of the towers on the Buffalo-Port Rex 2 132kV line due to corrosion, particularly affecting towers located within wetlands areas.

The scope of work entails the following:

- Clear vegetation around the tower legs.
- Inspection and corrosion classification of the stubs.
- Concrete encasement of stubs (Categories 1 to 5).
- Splicing of severely corroded tower stubs (Categories 6 and 7)
- Install missing and/or corroded anti – climbs

Work will be done on live line, care must be taken to ensure that line clearance is not breached; risk assessment must be done prior work to ensure safety of the workers. Contractor's programme to incorporate site returns in case work is stopped due to safety concerns and/or access to site cannot be secured. Some towers are not easily accessible as they are on a mountainous area, wetland and Contractor need to have a plan to access these areas. Three towers require general authorisation hence no work can be done until GA is registered with the department of Water & Sanitation. Contractor and Eskom will have to comply with the GA conditions.

1.1.1 Formworks

Formwork should be prepared before casting of concrete for all four legs of each tower. All concrete placed against shuttering shall be free from irregularities, fines, rock pockets or other imperfections.

1.1.2 Foundation

Tower transformer will be refurbished as per the scope of work.

1.1.3 Concrete Works

All work to be in accordance with SANS 1200 series of specifications. Concrete finish for top of the foundation (wood float finish) and sides of foundation (smooth off shutter finish) should as specified in the drawings. Supply, place and cast concrete works into position. The concrete specifications i.e. type, finish, strength and nominal cover can be found on all prescribed drawings e.g. all top edges of concrete above ground level to have 20mm chamfer at 45 degrees and concrete.

1.1.4 Waste Material

- Construction rubble must be disposed of, as per Eskom's environmental and waste disposal procedures.
- Scrap steel and other material that will not be re-used will remain the property of Eskom, unless otherwise authorized, and is to be scrapped in accordance with Eskom's asset disposal procedures
- Contractor to ensure that excavated contaminated material is disposed of at a registered landfill site.
- A copy of disposal certificates must be submitted to Eskom Environmental Manager.
- Covid – 19 waste is considered medical waste and should be dispose by accredited waste disposal service provider.

1.2 Employer's objectives and purpose of the works

The Buffalo-Port Rex 2 132kV line is located on the coast of East London and supplies the Mercedes Benz factory, which is a major bulk customer for Eskom in the East London area. The project addresses the following Eskom strategic imperatives: "Provide reliable, predictable and affordable electricity in line with the approvals and regulatory model by NERSA". The project is based on the Buffalo-Port Rex 2 132kV Site Report (240-68108065) with a specific focus on the corrosion of the line towers. The objective of the project is to refurbish the towers on the 132kV Buffalo-Port Rex line. This project will ensure that Eskom is able to continue supplying reliable power to the bulk and major customer (Mercedes Benz plant) in the East London area.

As per the Grid code it is the responsibility of Eskom Transmission to do the necessary asset replacements, forming part of an asset lifecycle management plan compiled in accordance with asset management practices. The capital expenditure will improve the reliability of the supply to the customer by reducing supply interruptions and mitigating possible tower failures. Therefore, the refurbishment of the 132kV towers' foundations will be based on the strategic method.

The scope of the project entails replacing/splicing the tower stubs, members and fixing/breaking the concrete caps and replacing with new caps. Refurbishment will be done on 44 towers located on the Buffalo Port Rex 2 132kV line. It should be noted that towers numbers 12,13 and 14 require general authorisation (GA) registration with the provincial department of water and sanitation before refurbishment can be done. Eskom has already applied for GA and Contractor and Eskom will be expected to comply with the conditions.

1.3 Interpretation and terminology

The following abbreviations are used in this Works Information:

Abbreviation	Meaning given to the abbreviation
AFC	Approved for construction
OBL	Outside battery limits
PM	Project Manager
QS	Quantity Surveyor
EA	Engineering Assistant
AFC	Approved for construction
HV	High voltage
kV	Kilo volt
ORHVS	Operating Regulations for High Voltage Systems
MTS	Main Transmission System
SHEQ	Safety, Health, Environment and Quality

2 Management and start up.

2.1 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:
Pre-inaugural meeting.	1 week after contract is signed.	Megawatt Park	PM and all Stakeholders
Inaugural meeting	After safety and environmental files have been assessed and approved.	Buffalo/Port Rex substation or Microsoft Teams	PM, QS, Site Supervisor, EA, Grid safety and environmental representatives and the Contractor.
Induction	After inaugural meeting and authorisation of the Contractor	Buffalo/Port Rex substation(s)	PM, QS, Site Supervisor, EA, Grid safety and environmental representatives and the Contractor.
Toolbox talk and risk assessment	Daily before work begins.	Buffalo/Port Rex substation(s)	Contractor and Site Supervisor.
Risk register and compensation events	As necessary.	Buffalo/Port Rex substation(s)	PM, Contractor and Site Supervisor.
Overall contract progress and feedback	Monthly on site.	Buffalo/Port Rex substation(s)	PM, QS, Contractor, Site Supervisor, and Grid representatives.

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 shall be submitted to the *Project Manager* by the person convening the meeting within five days of the meeting.

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

2.2 Documentation control

All correspondence is to be addressed to the *Project Manager* with a sequential numbering system. The Contractor shall submit documents both in electronic and hard copies form. A minimum of three hard copies must be provided. Each document shall include at a minimum the following information:

- Title
- Status
- Revision

- References
- Purpose
- Description

2.3 Health and safety risk management

NO WORK ON SITE WILL BE ALLOWED TO COMMENCE BEFORE ALL THE ACCESS PERMITS AND THE RELEVANT HEALTH AND SAFETY FILES ARE IN PLACE – ACCORDING TO THE ESKOM STANDARD (Unique identifier: 240-75248969). The Contractor shall control his activities and processes in accordance with the -Occupational Health & Safety Act No. 85 of 1993 and SHE Requirements for the Eskom Commercial process: **32-726**.

The *Contractor* shall at all times comply with the health and safety requirements prescribed by law as they apply to the works. The Contractor shall comply with the health and safety requirements contained in the following documents:

- SHEQ policy: 32 – 727
- Eskom Procurement and supply chain management procedure: 32 – 1034
- SHE Requirements for the Eskom Commercial process: 32 – 726
- Contractor health and safety requirements: 32 – 136
- Integrated SHE organisation, roles and responsibilities and statutory appointments: 32 – 296
- Life Saving Rules: 240 – 62196227
- Working at heights: 32 – 418
- Eskom Vehicle safety specifications: 32 – 345
- Construction Regulations of 2014 as published by Department of Employment and Labour (DeL)
- National Health Act No 61 of 2003.
- COVID-19 Occupational Health And Safety Measures In Workplaces COVID-19 (C19 OHS), 2020
- Disaster Management Act, 2002 (Act No. 57 of 2002), Disaster Management Act: Declaration of a National State of Disaster: COVID-19 (coronavirus)

SACPCMP – Section 18 Categories of Registration

The Project and Construction Management Professions Act No. 48 of 2000 directs that a person assuming responsibility for works identified for any category of registered persons should be registered as a professional in the appropriate category with the SACPCMP in order to comply with legal and statutory requirements in South Africa. In related gazette notices, such work, services and deliverables are identified for the disciplines of Construction Project Management, Construction Management, Construction Mentorship and Construction Health and Safety.

The client, Eskom, fully understands that the Act in section 18(1) indicates that the person may register in the project and construction management profession as listed. All contractors' identified personnel are registered as per outlined categories in the Act, section 18(1) (a) or (b) categories of registration. Proof of registration shall be submitted with procurement returnables.

Contractor Authorisation & Access

The authorisation procedure for a permit to work shall be followed by the Contractor before commencing work on site. It is the Contractor's responsibility to ensure that a permit to work is obtained before access to site is given. It is also the Contractor's responsibility to ensure that the safety file has been audited by the Health and Safety Representatives before establishing site.

The Contractor must be in possession of a valid first aid certificate. The Contractor's truck must have valid and current crane test certificate with the driver as well as truck driver and crane operator's competency certificates. All tools must have valid and current test certificates, which must be submitted to the Project Manager two weeks before site establishment.

Contractor will only leave site once a written site instruction is issued by an Eskom site representative. Working hours will be from 08h00 to 16h30 during the weekdays (as per outage plan), weekend work to be carried out only on request by Eskom.

The Contractor is to have an Eskom certified and authorised person available in each area where work is performed at all times in accordance with Eskom transmission standard TST32 – 136 contractor safety in a high voltage environment.

2.4 Environmental constraints and management

The Contractor shall comply with the environmental criteria and constraints stated in **TRM-FM-0087: Requirements for contractor's working on Eskom Transmission sites**

The Contractor is required to ensure that all goods, services or works supplied in terms of the tender/contract/order conform to:

- All applicable environment legislation
- EPC32-727: Eskom SHEQ Policy
- Eskom's Safety, Health, Environment and Quality (SHEQ) Policy Poster (32-727) Rev 3
- SHE Requirements for the Eskom Commercial Process: 32-726:
- Project Specific Environmental Management Plan (EMP)
- Eskom Environmental, Occupational Health and Safety Incident Management procedure 32 – 95
- Eskom Waste Management Standard 32 – 245

The Eskom Transmission EMP provides the Aspects and Impacts that will require management and must be followed strictly. The Contractor shall prepare a separate mitigation plan for all environmental concerns raised through the EMP and in any other relevant forum. For tendering purposes, the Contractor must prepare the **following method statements** for all environmental concerns raised in the Eskom Transmission EMP and in any other relevant forum such as clarification meetings.

- Water supply
- Waste management, including the appointment of accredited medical waste disposal service provider to dispose covid – 19 waste
- Storage of hazardous material
- Noise management
- Soil erosion
- Storm water management
- Mixing of concrete
- Vehicle maintenance and refuelling (in case of emergency)
- Vegetation clearance
- Accessibility of the site (access road)
- Equipment and construction storage
- Topsoil management
- Rehabilitation

All developed safe work procedures must be approved by the Eskom Engineer before the work is executed.

Any changes to the approved EMP shall be reported and approved by grid's Environment Manager and Project Manager prior to the commencement of work and during construction. The supplier must ensure that all sub-contractors' environmental management programmes comply with the contract shall define the specific system elements applicable to the subcontractor's scope of work or supply.

Environmental meetings between Eskom and the Contractor may be held regularly and copies of the minutes submitted to Eskom on request. The contractor is to send a flash report for any environmental incidences that has occurred on site as soon as possible or within 24 hours to the SS /Grid Environmental and PM clearly stating any impact to the environment.

Contractor to sign-off TRM-FM-0038 – Eskom Holdings Transmission division contractor environmental compliance Proformas.

If waste is generated during project, it must be disposed at a registered site and contractor shall keep records of disposal certificates and submit copies to Project Manager/Environment Manager.

Deviations from these requirements will be regarded as a non-conformance. Should there be a concern regarding environmental performance and non-conformance to environmental requirements, management engagements and interventions will be introduced to determine a means to addressing the shortfalls. Once these interventions have been explored and exhausted, then the Eskom supplier disciplinary process must be followed.

NB: The Contractor is to compile a complete environmental file. The file needs to be audited and approved by south grid Environmental Manager prior to commencement of work.

2.5 Quality assurance requirements

The Contractor shall control his activities and processes in accordance with Eskom's Quality Requirements for Procurement of Assets, Goods & Services QM 58. Eskom project quality plan has been compiled (unique identifier: JRS - TX-PQP 2021 – 20122021 - 01) by Senior Quality Advisor, who will do quality inspection of all work done by the Contractor.

The Contractor and all sub-contractors shall comply with the requirements listed in the Employer's Supplier Quality Management: List of Tender Returnables Documents (Unique Identifier: 240-12248652), Form A and Quality requirement standard, 'Supplier Contract Quality Requirements Specification', document identifier – QM58.

The Employer places emphasis on the provision of a comprehensive Quality Management System (QMS) for all phases of the project. The QMS of the contractor shall comply with the requirements of ISO 9001. The contractor and all of the contractors' suppliers shall hold a valid certificate of compliance for their QMS to the requirements of ISO 9001:2008. The Employer may at his sole discretion carry out an audit on any supplier or sub-supplier's QMS for compliance.

The contractor will appoint a designated individual to function as Project Quality Manager will be responsible for the overall quality of the work carried out.

The contractor shall develop and submit a Contract/Project Quality Management Plan (CQP) for the contract. This CQP shall describe the project quality requirements and shall also describe the requirement for continued compliance to the requirement of ISO 9001. The contractor may adopt the basics of this document from the ISO 10005:2005 and ISO 10006:2003 normative documents.

Within 4 weeks from contract date, the contractor shall prepare and submit with the CQP also a project Quality Control Plan / Inspection and Test Plan (QITP). The project QITP shall detail all elements of the Works Information (Scope) and shall itemize the required quality levels for each of these components. The Employer reserves the right to review and add inspection witness and hold points to the project QITP before approval.

The contractor may not proceed with any work or procurement of material before the contract quality plan and inspection and test plan have been reviewed and approved by the Employer.

The contractor shall indicate in the project QITP which items are of a proprietary nature where the level of certification is limited to standard documentation and certificates of conformity. For such items the proprietary specifications may not be inferior to the international standards for such items or the specifications of the Employer. The contractor needs to satisfy the Employer that the proprietary specifications meet the Employer specifications.

All equipment not shown as proprietary equipment in the project QITP shall be designed / manufactured / constructed by an ISO 9001 certified organization. The relevant portions of the project QITP shall be issued to the supplier to ensure that all of the quality requirements are complied with. The contractor shall ensure that the suppliers develop and apply approved quality plans for the design / manufacture / construction / testing / commissioning of the equipment. Each of these quality plans shall be submitted to the Employer for review and inclusion of intervention points.

The Contractor will be responsible for all first level quality inspection activities. The Employer shall be given the option to participate in all second and third level quality activities.

The contractor shall use only ISO 9001 accredited suppliers for products, material. Evidence of ISO 9001 certification shall be supplied with the delivery documentation. Failure to include this certification at the time of delivery shall result in rejection of the equipment by the employer.

Eskom reserves the right to conduct scheduled or unscheduled visits to offices, factories and construction sites.

2.6 Programming constraints

A high level schedule must be submitted with the tender documents with activity breakdown, start and end dates to illustrate the execution plan. A comprehensive, detailed programme submitted within 14 days after the contract has been signed and revised version (if required) seven (7) days after the inaugural meeting. Schedule must be in MS Project/Primavera format, indicating all milestones and critical dates. This programme must first be approved by the Project Manager prior the commencement of construction and thereafter updated monthly or as requested by the Project Manager. Updated programmes must be available on site at all times and in all site meetings, reflecting the updates and progress to date. Revised schedule submitted to PM at least 5 days before progress meeting to allow the Eskom project team to interrogate it and provide inputs during the meeting

The following dates shall be clearly reflected on the programme:

Starting and completion dates for all activities as well as relevant key dates for hold or witness points. All relevant significant activities shall be shown in order to monitor the progress on site. The programme shall also reflect a 2 – week period for inspection and correcting of Defects before the completion date.

2.7 Contractor's management, supervision and key people

The Contractor is to submit an organogram showing all key people involved in the contract, 7 days after the contract has been awarded. All key personnel must be appointed in writing, must be current for the specific site and area of work and must be kept on file. It should if there changes to organogram, personnel should be similar in qualification, expertise and this must be communicated with and approved by the Project Manager.

2.8 Invoicing and payment

2.8.1 Invoicing Process

- The Contractor must submit a claim of the work done in quantities to the Eskom Site Supervisor
- Eskom Site Supervisor will verify the quantities with the Contractor on site. A verified and signed claim is submitted to Project Manager and Quantity Surveyor
- Quantity Surveyor will prepare an interim payment certificate and submit a signed certificate to the Project Manager
- Project Manager will forward a signed payment certificate to the Contractor to invoice accordingly.
- The Contractor will submit an invoice to the Project Manager who will verify with the QS if the invoiced amount is as per the payment certificate. If all is in order a GR will be generated by Project Clerk of Works.
- The Contractor will forward an invoice with GR number on it to Eskom Finance for payment. All invoices must be submitted electronically via email to:
 - Invoice submission: invoiceseskomlocal@eskom.co.za
 - After the goods receipt (GR) is generated, GR number must sent to FSS: FSS@eskom.co.za

NB:It should be noted that the Quantity Surveyor can at any time conduct own site verification before finalising payment certificate

2.8.2 Payment Conditions

Within one week of receiving a payment certificate from the *Project Manager* in terms of core clause 51.1, the *Contractor* provides the *Employer* with a tax invoice showing the amount due for payment equal to that stated in the *Project Manager's* payment certificate.

The Contractor shall address the tax invoice to
National Transmission Company SA SOC Limited
Shared Service
Finance

3 Simba Road

Sunninghill

The *Contractor* shall address the tax invoice to National Transmission Company SA SOC Limited and include on each invoice the following information:

- Name and address of the *Contractor* and the *Project Manager*;
- The contract number and title;
- *Contractor's* VAT registration number;
- The *Employer's* VAT registration number 4740101508;
- Description of service provided for each item invoiced based on the Price List;
- Total amount invoiced excluding VAT, the VAT and the invoiced amount including VAT;
- (add other as required)

Add procedures for invoice submission and payment (e. g. electronic payment instructions)

Tax Requirement

- A PDF file that was **created directly from a system** meets the definition of **original document** and is allowed (including saving documents from excel to PDF, word to PDF etc.)
- An Invoice that was **printed and then scanned to PDF** by the Vendor is **not acceptable** as this is not an original tax invoice by SARS definition but a copy.
- The following wording needs to appear on the invoice: **“Your invoice is encrypted in order to comply with SARS requirements that invoices and statements sent electronically are tamperproof.”**

The Contractor must attach detailed assessment of the amount due to each tax invoice showing the Price for Work Done to Date for each item in the Price List for work which has been completed.

A tax invoice shall be submitted for completed work in the requested format. A breakdown of all work completed during the previous period shall be attached. Invoicing and relevant details will be discussed at site hand – over meeting. Payments will be processed once all completion certificates and invoices are submitted.

All quantities claimed must be verified and signed by the Site Supervisor on the 20th of each month or within 1 week after each sectional completion and the signed BoQ must accompany the invoice which should be submitted to the Project Manager before the 25th of each month. Late invoices will be deferred to the following month and no concessions will be made.

2.9 Insurance provided by the *Employer*

As stated in “Format A” available on http://www.eskom.co.za/live/content.php?Item_ID=9248. (See Annexure B for basic guidance).

2.10 Contract change management

Where standard forms are available they should be used.

2.11 Provision of bonds and guarantees

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.

The *Employer* may withhold payment of amounts due to the *Contractor* until the bond or guarantee required in terms of this contract has been received and accepted by the person notified to the *Contractor* by the

Project Manager to receive and accept such bond or guarantee. Such withholding of payment due to the *Contractor* does not affect the *Employer's* right to termination stated in this contract.

2.12 Records of Defined Cost, payments & assessments of compensation events to be kept by the *Contractor*

The Contractor is to keep proof/invoices of all costs incurred for a compensation event and submit them to the Project Manager if requested.

Defined costs are actual costs incurred by the Contractor. These costs should not include profit or company overheads. All compensation events will only be paid on defined costs.

2.13 Training workshops and technology transfer

Not Applicable.

3 Engineering and the *Contractor's* design

3.1 *Employer's* design

Eskom provides all designs as listed in Section 7 of this document.

3.2 Parts of the *works* which the *Contractor* is to design

Not applicable

3.3 Procedure for submission and acceptance of *Contractor's* design

Not applicable

3.4 Other requirements of the *Contractor's* design

Not applicable

3.5 Use of *Contractor's* design

Not applicable

3.6 Design of Equipment

Not applicable

3.7 Equipment required to be included in the *works*

Not applicable

3.8 As-built drawings, operating manuals and maintenance schedules

The Contractor is to provide Eskom with detailed "as built" records where deviations have been made from construction drawings within 14 days after Completion.

4 Procurement

As a State-Owned Enterprise, National Transmission Company SA SOC Limited supports Government's socio-economic development initiatives that it addresses through Supplier Development and Localisation (SD & L) objectives, which include enterprise development, transfer of skills, job creation, incubation, localisation of procurement initiatives and industrialisation.

4.1 People

4.1.1 Minimum requirements of people employed on the Site

The Contractor's shall comply with the Employer's site requirements in the use of labour for the works.

4.1.2 BBBEE and preferencing scheme

A supplier will be awarded the points claimed for B-BBEE status level of contribution if they they submit a valid B-BBEE Certificate.

CIDB level requirements are stated in the Invitation to Tender document.

4.1.3 Accelerated Shared Growth Initiative – South Africa (ASGI-SA)

Not applicable

4.2 SD & L Undertaking

Tenderers who complete and submit the undertaking as required, but who do not meet Eskom's targets, will not be disqualified. SD&L undertakings do not form part of scoring but commitments will form part of contractual obligations

Job Opportunities

Tenderer to indicate number of Jobs to be created and/or retained from this contract;

Number of Jobs to be created	Number of Jobs to be retained

The *Contractor* complies with and fulfils the *Contractor's* obligations in respect of the Supplier Development and Localisation in accordance with and as provided for in the *Contractor's* SD&L Compliance Schedule stated below:

Criteria	Total Target (%)
Local Content to South Africa	100

Local content declaration

As per DTI guidelines {PPPFA act section 9, paragraph 9(1)} Steel and Cement forms part of the designated commodities with a threshold of 100%. As a result tenderers are required to fill in, sign and submit local content declaration forms to confirm their local spend on steel.

The threshold to be applied to local content is as follows:

Material	Threshold %
Steel	100%
Cement	100%

Skills Development

Tenderers are required to propose against the following training initiatives;

Skill Type (occupation)	Target number of person to be trained local to site	Tenderer Proposal
Concrete reinforcer	2	
Safety Officer	1	
Foundation Team Leader	1	

The *Contractor* shall keep accurate records and provide the *Project Manager* with reports on the *Contractor's* actual delivery against the above stated SD&L criteria.

4.2.1 Subcontract to designated groups

Not Applicable

4.2.2 Retention for SD & L Commitments

- Eskom shall be permitted to retain 2.5% (two and half percent) of the invoices (including VAT) as security for the fulfilment by the suppliers of their SD&L obligations.
- Once Eskom has verified that suppliers have fulfilled their SD & L obligations, the 2.5% retained shall be approved for reimbursement by Eskom to suppliers within 90 (ninety) days of verification by Eskom.

4.2.3 Monitoring and Reporting of SD&L Commitments

- Suppliers shall on a quarterly basis submit a report to Eskom in accordance with Data Collection Template on their compliance with the SD& L obligations described above.
- Eskom shall review the quarterly reports submitted by the suppliers within 60 (sixty) days of receipt of the reports and notify the suppliers in writing if their SD&L obligations have not been met.
- Upon notification by Eskom that the suppliers have not met their SD&L obligations, suppliers shall be required to implement corrective measures to meet those SD&L obligations before the commencement of the following quarter, failing which Retention clauses shall be invoked.

Every contract shall be accompanied by the SD&L implementation schedule which must be completed by the suppliers and returned to SD&L representative for acceptance before contract award. This will be used as a reference document for monitoring, measuring and reporting on the supplier's progress in delivering on their stated SD&L commitments.

4.3 Plant and Materials**4.3.1 Quality**

The Contractor shall control his activities and processes in accordance with Eskom's Quality Requirements for Procurement of Assets, Goods & Services QM 58, as amended. Quality requirements are described in the Project Quality Plan document number **JRS - TX-PQP 2021 –17122021 - 01**.

4.3.2 Plant & Materials provided "free issue" by the *Employer*

Not applicable

4.3.3 *Contractor's* procurement of Plant and Materials

Contractor to bring own material and equipment for construction. Material and equipment to be stored according to manufacturers and/or quality requirements. Quality Senior Advisor might inspect material/equipment at the manufacturers' or Contractor's site(s) to ensure compliance.

4.3.4 Spares and consumables

Not applicable

4.4 Tests and inspections before delivery

All structural steelwork and fencing be inspected by the Contractor before delivery to site and should have a certificate from the Galvanizer stating the coating thickness. The requirements are also indicated on the Project Quality Plan document number JRS - TX-PQP 2021 -17122021 - 01, Quality Control Plan / Inspection and Test Plan and QM 58.

4.5 Marking Plant and Materials outside the Working Areas

Not applicable.

4.6 Contractor's Equipment (including temporary works).

The Contractor to supply all necessary equipment for construction

4.7 Cataloguing requirements by the Contractor

The Contractor to supply all necessary equipment for construction

5 Construction

5.1 Temporary works, Site services & construction constraints

5.1.1 *Employer's Site entry and security control, permits, and Site regulations*

Entry to the site is governed by the Grid's Line and Servitude Supervisor and the Contractor shall adhere to all regulations given. All employees are to sign the Workers' declaration on entering and leaving the working area.

The Contractor is to have an Eskom certified and authorized ORHVS person available on site at all times in accordance with Eskom's Construction Safety, Health and Environmental Management 32-136. The authorized ORHVS person is to have a valid first aid level 2 certificate.

The authorization procedure for a permit to work shall be done before the Contractor commences work on site. It is the Contractor's responsibility to ensure that the authorization procedure for a permit to work is obtained before access to the work can be given by HV Plant Manager for authorization.

The Contractor will be required to have an Eskom certified and authorized ORHVS person available in each area where work is being performed. The work is not transferrable to other site apart from site where is taking place.

5.1.2 **Restrictions to access on Site, roads, walkways and barricades**

Access on site is restricted to the area in which the Contractor is working and has been barricaded. The Contractor will be required to arrange for own security for material, workers and safe transportation of equipment. The contractor will make own arrangements for accommodation, transport, drinking water and change rooms. Eskom will negotiate with the local community, landowners, farmers for area where the Contractor will setup site but Contractor will carry financial obligations. Following commissioning the Contractor will return to site to remove replaced equipment under grid's supervision and Grid's disposal Officer will arrange disposal on the same day to safeguard the material.

Surrounding communities' way of life will be affected, for instance movement will be restricted as the Contractor's camp and site will be demarcated to ensure the safety of the community and their livestock. Some towers are not easily accessible by road and it is recommended that higher vehicles (i.e. 4 x 4 or similar) be used to access the area and care should be taken especially during windy weather.

The following are the general conditions from landowners when entering their property:

- No Poaching
- Stay only on the access road (Servitude road) and do not drive around the farm except to the area of work
- Lock all gates at all times
- Keep the area clean of debris before vacating site
- Ensure senior control on site at all times
- Any losses incurred (Animals being affected) to be reimbursed in full
- No fires.
- The workers to produce identifications at all times (Name Tags)
- Workers should have their own toilet facilities
- No workers on the farm after 5pm
- Vehicles should also have company identification stickers visible
- Contractor should be able to provide proof of police clearance is these requested by landowners

5.1.3 **People restrictions on Site; hours of work, conduct and records**

The Contractor is to supply Eskom with Police clearance for all the employees on site before work commences.

The normal working hours shall be Monday to Friday from 08:00 am to 04:30 pm. Any work done outside this duration must be arranged through the Project Manager and Senior HV Plant Supervisor.

The maximum speed limit on site is 40 km/h.

Any overtime work to be communicated at least 5 days in advance and approval received from Project Manager before the work is done.

5.1.4 Health and safety facilities on Site

There are no toilet facilities available on site for the contractor to use. The Contractor is to provide his own toilet facilities on site and ensure that these facilities are kept in a clean condition to Eskom's satisfaction. No work on site will be allowed to commence before the toilet facilities are available on site.

The Contractor will arrange for own security for material, workers and work site. All project team members entering site will complete a logbook, car and contents will be searched by security personnel. Before entering the construction site project team members will be required to wear appropriate protective clothing, undergo risk assessment then sign the register. Contractors will be required to provide list of personnel, car registration and equipment that will be brought to site.

The Contractor must have a quarantine area on site to isolate suspected Covid – 19 cases. Emergency contacts should be displayed on site for workers use, which must include nearby health facility for Covid – 19 testing and treatment.

The Contractor to comply with the following while on site:

- Safe Working Procedures that must be approved by Project Engineer before the start of the work
- Personal Protective Equipment (PPE) as marked below.
- Prevention/mitigation measures
- Emergency procedures
- Covid – 19 safety regulations
- Access to be provided by Eskom Supervisor

O/all	Pants	Top	Dust coat	Apron	Hard hat	Gum boots	Safety shoes	Safety Glasses	Face shield	Dust mask	Respirator	Ear protection	Safety (harness)	Gloves
X					X		X			X		X	X	X

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

The Contractor shall control his activities and processes in accordance with Eskom's SHE Requirements for Commercial Process (Document Identifier: 32-726).

The Contractor shall establish a refuse control system on how various waste streams will be separated consequently dispose of. All waste is to be collected and disposed of as required by Eskom and the Local Authority. The disposal of Covid – 19 waste must be disposed by licensed medical waste disposal service provider.

5.1.6 Title to materials from demolition and excavation

Material from excavation and demolition, must be disposed of by the Contractor at a registered disposal site except where expressly stated by the PM or the relevant staff from the Grid. All rubble and other material must be classified, weighed and transported to a registered dumping site. All dismantled material to be handed over to Eskom personnel unless it has been stated that the Contractor must dispose.

5.1.7 Cooperating with and obtaining acceptance of Others

The Contractor's attention is drawn to the fact that other Contractors might be on site, access and interfacing with them will be required to ensure safe execution of the scope. The Contractor shall allow safe access for other Contractors and Eskom personnel when required.

5.1.8 Publicity and progress photographs

Warning signs and notices must be clearly displayed at all sites where work is taking place. It is the responsibility of the Contractor to ensure that all its workers and visitors adhere to all signs. No photographs are to be taken without the permission of Lines and Servitude Supervisor or Eskom Site Supervisor.

5.1.9 Contractor's Equipment

All equipment must be registered in the equipment register and as per 32-136. The Contractor is responsible for his own security and insurance of his equipment. The Contractor is to take stock of his material and equipment on a regular basis and any shortage to be reported to the Project Manager immediately, stating if it is hired or owned.

5.1.10 Equipment provided by the Employer

Not applicable.

5.1.11 Site services and facilities

All the water necessary for construction purposes must be provided for by the Contractor. It is the Contractor's responsibility to test any water before using it for construction purposes. The Contractor is to submit a Test Certificate for the water used on site.

Electricity is available on site. The Contractor shall provide all connections, extensions and additional supply points necessary for the works. Any measures which the Contractor may require to maintain continuity and quality of supply shall be arranged by him at his own expense.

The Contractor is responsible for the security of its own works, equipment and shall provide everything else necessary for providing the works.

5.1.12 Facilities provided by the Contractor

The Contractor supplies all plant and materials required for providing the works. This will include drinking and construction water for all personnel and works on all sites for duration of construction.

There are no offices or telephone facilities available on site. The Contractor is to provide his own facilities on site and ensure that these facilities are kept in a clean condition to Eskom's satisfaction. In addition, the contractor shall supply own power since the area is outside Eskom property but working on Eskom servitude, a generator might be sourced or an arrangement made with local authorities. The contractor to provide temporary accommodation preferably on location agreed with the land owners. Toilet facilities should be sourced for workers and ensure that these facilities are kept in a clean condition to Eskom's satisfaction, including maintenance thereof and disposal certificate submitted to Eskom.

Contractors to use nearby area in East London to provide accommodation for workers while working on Buffalo – Port Rex 2 132kV line.

The contractor shall provide all site offices and storage for equipment for the duration of the works. The contractor will be responsible for all food and beverages consumed by his staff. The contractor will be responsible for all transport to and from the sites including tools, all materials delivered and removed from site.

The local clinics and public hospital (i.e. Frere, Cecilia Makiwane, Duncan Village Day) in East London area or private hospital (i.e. Life) can be used for medical assistance. Contractor should know the health facilities allocated by government to test and treat covid – 19 cases

5.1.13 Existing premises, inspection of adjoining properties and checking work of Others

The work is to be carried out in an existing Eskom servitude; however, some of the towers are located on property owned by private individuals/entities hence approval should be sourced to get access to site. When entering private property should do so under Eskom supervision and ensure gates are closed upon entering and exiting the site.

5.1.14 Survey control and setting out of the works

The Contractor is responsible for setting out the works as shown on the drawings.

5.1.15 Excavations and associated water control

All necessary precautions shall be taken to ensure that deep excavations are safe and that the sides are stable, if not they shall be battered. All excavations are to be properly barricaded at all times.

5.1.16 Underground services, other existing services, cable and pipe trenches and covers

Before any excavation is commenced, it will be the responsibility of the Contractor to ascertain from the Eskom, Lines and Servitude the position of any existing services on site. Once these are indicated to the Contractor they shall be deemed “known”. Any costs incurred for repairs to any “known” services shall be for the Contractor’s account. The Contractor must excavate with caution when checking for underground pipes and cables.

5.1.17 Control of noise, dust, water and waste

The Contractor shall control his processes and procedures so as to minimise noise and dust. All waste is to be collected and disposed of as required by Eskom and the Local Authority.

5.1.18 Sequences of construction or installation

The Buffalo Port Rex 2 132 kV line has 44 x 213 tower types. The line is 10 km long and runs parallel from Scenery Park (Buffalo Substation to Port Rex Power Station). Table 5.1 summarizes the line details.

Table 5.1: Summary of Line Details

Line details	
Line name	Buffalo Port Rex
Line length	10 km
Voltage	132 kV
Structure types	213
Conductor	Single Zebra
Ground wire	19/104” and OPGW

5.1.18.1 Clearing of vegetation around the tower legs

Before any construction work can begin on this line, the trees/brushed around the legs to be worked on need to be trimmed to allow visibility and room for working. The appointed contractor will be responsible for the trimming, transportation, and disposal at a registered dumping facility of the trees/bushes. The grid guideline should be followed for bush clearing

Inspection and corrosion classification of the stubs

For the appropriate restoration measures to be applied consistently, corrosion must be categorized. The categories of corrosion is defined as shown in Table 5.1.

Stub drawings for the 213A, 213B and 213C can be found in appendix B, scope of work. These drawings will need to be confirmed with what is on site by the contractor. The supplied drawings are merely a guideline.

a) Exposing buried caps/plinths:

Towers with plinths or caps that are buried into the ground because of soil displacement will need to be exposed to be inspected and categorized. The following procedure will be followed:

- Photograph a before picture showing the leg with the buried cap or plinth. Use a white board and marker and show what tower name, number, and relevant leg (A, B, C or D) the photograph is showing
- Using hand tools, excavate 1m x 1m around the tower leg to remove any silt and expose the steel and cap or plinth
- Using suitable tools, clean the silt off the exposed foundation
- Photograph the exposed leg
- Using suitable tools, scabble the existing cap 150 mm below the steel-concrete interface to expose the steel. Inspect and classify the stub and stub bracing members
- Conduct assessment on the stub and stub supporting members

The corroded stubs will be inspected and categorized as per table 5.2

Table 5.1: Corrosion categories identified with a scale from 1 to 7

Corrosion Category	Corrosion Condition	Restoration Category
1	No visible signs of galvanic depletion. Galvanising thickness 60 microns or more	No corrosion
2	No visible signs of galvanic depletion. Galvanising thickness 30 – 59 microns.	
3	Galvanising visible depleted. Onset of steel discolouring.	Light corrosion
4	Galvanising almost depleted. Thin film of rust developing in surface.	
5	Deeper rust hardened crust/pitting in smaller areas of 2 cm.	
6	Component rusted through more than 30% of cross sectional area	Severe Corrosion
7	Component rusted through more than 60% of cross sectional area and or completely disintegrated.	

b) Inspection Methods:

The following methods may be adopted to carry out the inspection of the stubs:

Category 1 and 2 inspections

- Using a galvanometer or suitable equipment, determine the galvanizing thickness of the stub and stub supporting members.
- Place the galvanometer and take micron readings on and around the steel and concrete interphase and along the members.
- Take a minimum of 3 readings on each flange of the stub and determine the average microns.

- Compare the average reading to value in table 5.2

Category 3, 4 and 5 inspections

- Conduct a visual inspection of the stub and members.
- Photograph signs of pit corrosion and steel discoloration.
- Confirm category using a galvanometer or suitable equipment. Average micron reading of 29 or less.

Category 6 and 7 inspections

- Using a vernier caliper or suitable equipment, measure the thickness of the stub
- Compare the difference, if any, of the tower steel dimension on the stub drawing with the tower steel dimension measured on site.
- Determine the cross-sectional area of the member on site and compare it to the cross-sectional area of a healthy member.
- Determine the material loss percentage. ($\text{Cross-sectional area of member on site} \div \text{Cross-sectional area of healthy member} \times 100 \geq 30\%$)

c) Record of Inspection:

A record inspection will be required from the contractor for all the towers worked on. Visible before and after photographs of all the legs worked on. Photographs should show the tower number and which leg is shown. We recommend using a 12 MP camera or higher. Due to the difference in the refurbishment works between corrosion categories 1 to 5 and categories 6 and 7, tower stubs that have been categorized as 6 and 7 will have to be photographed and sent to LES for acceptance prior to work commencing on them.

5.1.18.2 Concrete encasement of stubs (Categories 1-5)

- Concrete formwork, placement, finishing, curing, and testing shall be as per TRMCAAC 6.
- Scab the existing plinth/cap using a pick and hammer or suitable tools until you get to fresh steel. Care should be taken not to damage or bend the steel.
- Clean up the corroded section using a wire brush or suitable tool.
- Apply a paint on the stub and stub bracing member. Paint to conform to specification in Appendix C, Scope of Work.
- Shutter the leg and cast a concrete cap of minimum 25 MPa strength that extends above the initial concrete-steel interface. Ensure that the shuttering will help achieve a finished cap that will be at least 500 mm above ground level.
- Due to a fluctuating water table, towers in wetlands will require a 1 m concrete encasing. Four towers were identified to be in a wetland. Contractor to confirm number.
- Prior to casting the cap, mix and apply cement slurry to the scabbled cap to ensure bonding of the old concrete and new concrete. This cement slurry should be applied just before the new concrete is placed. Do not allow the slurry to dry up before placing the new concrete.
- Finish the new cap to allow water shedding. A slope of 1:2 is recommended.
- Paint and seal the concrete-steel interface. Ensure that the paint overlaps past the concrete-steel interface
- Paint to be used must be accepted by Eskom before use.
- Concrete cubes shall be made by the contractor for testing. Four cube tests to be done per batch, one cube crushed at 7 days and three cubes crushed at 28 days as per TRMCAAC 6.

5.1.18.3 Splicing of severely corroded tower stubs (Categories 6 and 7)

The following procedure can be followed for severely corroded tower stubs:

- Provide a crane with a suitable capacity and a suitable boom reach. It is recommended that a 100-ton SWL crane or above be used to obtain the suitable boom length. The tower must be supported such that only vertical support is provided without any horizontal, twisting or moments applied to the structure which may cause some imbalance of forces through the tower stubs. Tower outline drawings can be found in Appendix A, Scope of Work.
- Position the crane as close as possible to the tower. The qualified and certificated rigger will advise with the suitable position for the crane considering the required access to the tower stubs to be refurbished. When the boom is extended the crane lifting hook should be positioned above the tower in the central position.

- Provide a mobile platform as climbing of unstable tower is deemed unsafe and climbing is prohibited. The mobile platform will be utilized to take four slings of suitable capacity for the tower type to the top of the tower.
- The slings will be connected on the four main joints at the top of the tower and then connected to the crane hook.
- Remove the slack from the slings to secure the tower. Care should be taken when removing slack that no significant force is applied to the tower to avoid lifting the tower causing further instability.
- With the tower secured, work on the corroded stub may begin.
- Excavate 1m x 1m x d (d=required depth based on tower type) around the stub to be refurbished. This excavation would be between 500mm and 600mm deep. The main purpose for the excavation is to expose 400mm of fresh steel where new steel can be joined. Only hand tools can be used to excavate to reduce any disturbance of the corroded legs.
- Once the concrete column is exposed the concrete can then be broken to expose fresh steel that can be used to create a new joint. Care should be taken that during this activity the steel is not damaged or bent.
- The corroded portion of the stub can then be cut off and holes drilled on the freshly exposed steel to create a new joint. This joint should have the same properties as all the joints on the main leg members.
- The number and the size of bolts should match with other main joints on the tower leg. The centre-to-centre, edge and end distances should meet the minimum requirements from the standards (TRMSCAAC 6, Annexure A, should be used as a reference).
- A new piece of steel member (1m long) will be introduced to span the corroded area and cut to size where necessary. The member must have a flat edge (ground heel) so it can fit firmly inside the existing member.
- The bolts should be removed to allow for the member to fit firmly on the tower stub and the main leg.
- The existing members should be cleaned to make sure that they are free of rust, concrete, and dirt. The new piece is put in place against the existing members and the position of the holes matching the ones on the stub and the main leg are marked.
- It is important that this piece is clamped in place during this activity to make sure no movement occurs when the holes are marked.
- Once the holes have been marked on the new piece, they can be drilled on site. The correct size of the drill bit must be used, and the required tolerances must be maintained (TRMSCAAC 6). Corrosion mitigation such as the Eskom accepted zinc rich paint can be used on the cuts and the drilled holes (the manufacturer's instructions must be followed). Refer to appendix C in scope of work for paint specification.
- The newly drilled piece can then be placed against the members and then bolted in place making sure that all the bolts are tightened, punched, and painted.
- It is recommended that the corroded bracing members be replaced rather than be spliced as indicated on the pictures above. This reduces mistakes and provides flexibility on site. The new joint is then painted to 500mm above ground level (about 1m total length).
- The concrete is then cleaned removing all loose particles before applying the wet-to-dry epoxy. This will ensure a bond between the old and new concrete.
- The shutters are then put in place to prepare for the concrete pouring. The shutters must extend to the required height above the ground.
- A concrete mix design is required before hand for LES acceptance to ensure that the correct mix will be used.
- Concrete placement, curing, finishing, and testing should be as according to TRMSCAAC 6.
- Backfilling can then take place as specified by the standard. Rehabilitation of the area would then take place at this point removing debris from site to a registered dump site.

5.1.18.4 Installation of Anti – climbs

It was noted on the images from the site visit that some of the towers on the line have no anti-climb devices. Some towers on the line have the barb wire type anti climb device and some towers have the razor wire type anti climb device. Theft on the barb wire type is predominant over the razor wire type.

The contractor should design, supply, and install the anti-climb devices where required. The razor wire type anti-climb device will be installed where stolen or removed. Anti-climb devices shall conform to the requirements in the specification for anti-theft measures and TRMSCAAC 6 section 5.2.7.

5.2 Completion, testing, commissioning and correction of Defects

5.2.1 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 except for the work listed below which may be done after the Completion Date but in any case before the dates stated. The *Project Manager* cannot certify Completion until all the work except that 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	Within 14 days after Completion

5.2.2 Use of the *works* before Completion has been certified

This will be managed by the Site Supervisor to ensure harmony and coordination of all on-going works.

5.2.3 Materials facilities and samples for tests and inspections

During foundation casting test cubes of the ready mix concrete used will be requested, however, for any on site hand/machine mixes test cubes will be mandatory.

5.2.4 Commissioning

Not Applicable.

5.2.5 Start-up procedures required to put the *works* into operation

Not Applicable.

5.2.6 Take over procedures

The Contractor is to arrange inspection at least 1 week before completion to inspect and identify any outstanding or incorrect items.

5.2.7 Access given by the *Employer* for correction of Defects

The Project Manager arranges for the Employer to allow the Contractor access to and use of a part of the works that has been taken over if needed to correct defects. After the works have been put into operation, entry to the site is governed by the Grid's Lines and Servitude (Simphiwe Minnie) and the Contractor shall adhere to all instruction given. The Contractor will be responsible for ensuring that the area to be worked in is barricaded before correcting any defects.

5.2.8 Performance tests after Completion

The procedure for performance test is specified under the project quality plan document.

5.2.9 Training and technology transfer

Refer to SD & L requirements

5.2.10 Operational maintenance after Completion

Not applicable.

6 Plant and Materials standards and workmanship

6.1 Investigation, survey and Site clearance

Not applicable.

6.2 Building works

All building work to comply with SANS 10400 – 1990 – 2, SANS 1200 & National Preamble of trades. All work at least complies with the “Accuracy in buildings” SANS 10155 – 1980 – 1, Grade of accuracy 2, unless otherwise specified.

6.3 Civil engineering and structural works

Reference could be made to the SANS1200 series of specifications developed and published by South African National Standards. However these are now very out of date and originally developed for use with SAICE general conditions of contract for works of civil engineering which have themselves been superseded twice.

All SANS 1200 specifications are in the process of being updated to make them more compatible with a wider range of contracts, including NEC, and users should check availability of the new SANS 2000 series of specifications.

Sections 3, 4 and 5 of SANS1200A are probably already covered in section 5 of this Works Information.

This subsection would typically comprise

- Particular specifications provided by the *Employer*
- List of standardised specifications applicable to the *works* and
- Variations to the standardised specifications

If use is made of the 1200 series, users should include a covering note dealing with the changes in terminology, such as the one provided below. Further changes are required depending on which specifications in the 1200 series are selected.

Title	Date or revision	Tick if publicly available
Eskom Standard Specifications		
Construction Safety, Health and Environmental Management 32-136	Latest Rev.	✓
Eskom Cardinal Rules 32-421	Latest Rev.	✓
Safety, Health and Environmental (SHE) Policy 32-94	Latest Rev.	✓
32-726 SHE Requirements for Eskom Commercial Process	Latest Rev.	✓
(SHE) Policy 32-727	Latest Rev.	✓
Smoking Procedure 32-36	Latest Rev.	✓
Vehicle and Driver Safety Management 32-93	Latest Rev.	✓
Eskom Vehicle Safety 32-345	Latest Rev.	✓
Working at Heights 32-418	Latest Rev.	✓
SHE Requirements for the Eskom Commercial Process 32-726	Latest Rev.	✓
TST0015 Training, assessment and authorization of persons for the operation & maintenance of the Power System Contractor Safety in a High Voltage Environment	Latest Rev.	✓
TPC41-283 Non Conformance Procedure	Latest Rev.	✓
Occupational Health and Safety Act No. 85 of 1993	Latest Rev.	✓
QM58 Quality Requirements for Procurement of Assets, Goods &	Latest Rev.	✓

Services.		
ESKOM STANDARD Unique identifier: 240-75248969	Latest Rev.	✓
Eskom Particular Specifications		
EPS 1 Specification for Earthmat	Attached	
EPS 2 Specification for Stringing, Cabling, Earthing and Erection	Attached	
EPS 3 Variations and Additions to Standardised Specifications	Attached	
Standardised Specifications		
SABS 1200 Standardised Specification for Civil/Electrical Engineering Construction		✓
SANS 2001 CS1:2007 Construction Works Part CS1: Structural steelwork		✓
NWS 1058 Safety at Construction Sites		✓

6.4 Electrical & mechanical engineering works

All mechanical and related electrical works to be tested by the Contractor prior to commissioning.

6.5 Process control and IT works

Not Applicable.

6.6 Other [as required]

Not required.

7 List of drawings

7.1 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.

Document number	Revision	Title
240-98155775	2	Scope of Works document for Buffalo – Port Rex 2 132kV line-stub corrosion refurbishment
474-285	0	Specification For Anti – Theft Measures
240-52456757		Contract Specification for Vegetation Management Services on Eskom Networks
240-47172520	2	TRMSCAAC 6: The Standard for the Construction of Overhead Powerlines
240-70172585	2	Vegetation Management and Maintenance within Eskom Land, Servitude and Rights of Way

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 sub headings 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.
