



**DAWID KRUIPER MUNICIPALITY
UPINGTON**

**CONTRACT TN041/2022
REPLACEMENT OF SWITCHGEAR PROJECT: 2022/23**

**SUPPLY MATERIAL, LABOUR AND EQUIPMENT FOR THE
INSTALLATION OF 11kV SWITCHGEAR (DELTA AND FIRE
BRIGADE SUBSTATIONS)**

TENDER DOCUMENT

PROPOSED BY:
The Municipal Manager
Dawid Kruiper Municipality
Private Bag X6003
UPINGTON
8800

Contact Person: Mary Marabi
Tel. Nr.: (054) 338 7182

NAME OF TENDERER :

BID PRICE (incl. VAT) :

The Tenderer is required to check the numbers of pages and should any be found to be missing or duplicated, or should any of the typing be distinct, or any doubt or obscurity arise as to the meaning of any description or particular of any item, or if the Tender Document contains any obvious errors, then the Tenderer must immediately inform the supply chain and have them rectified or explained in writing as the case may be. No liability whatsoever will be admitted by reason of the Tenderer having failure to comply with the foregoing instructions.

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Contractor

Witness for
Contractor

Employer

Witness for
Employer

1: The Tender

Part T1: Tendering procedures

DAWID KRUIPER MUNICIPALITY

BID NOTICE TN041/2022

SUPPLY MATERIAL, LABOUR AND EQUIPMENT FOR THE INSTALLATION OF 11KV SWITCHGEAR (DELTA AND FIRE BRIGADE SUBSTATIONS)

Bids are hereby invited for the SUPPLY MATERIAL, LABOUR AND EQUIPMENT FOR THE INSTALLATION OF 11KV SWITCHGEAR. This tender comprises inter alia the following Works:

- Supply, delivery and installation of:
 - medium voltage infrastructure.
 - associated works
- Testing, commissioning and handing over of completed infrastructure, including documentation
- Planning, implementation and management, including formal reporting, of the works

Sealed tenders marked, "**CONTRACT TN041/2022: "SUPPLY MATERIAL, LABOUR AND EQUIPMENT FOR THE INSTALLATION OF 11KV SWITCHGEAR (DELTA AND FIRE BRIGADE SUBSTATIONS)"**" must reach the Municipal Manager or be placed in the tender box at the municipal offices before or on **Friday, 09 December 2022 at 14:00** and will be opened directly thereafter in the Councillor Chambers at the Municipal Offices.

A compulsory site inspection will be held at **11:00** promptly on **Friday, 18 November 2022** at the **Council Chambers**. The doors will be locked at **11:00** promptly after which no further Tenderers will be allowed. The Certificate that the Tenderer has visited the site will at the same time be signed by the Supply Chain Official. For further information, contact the Supply Chain, at telephone number (054) 338 7000.

Only representatives of the Tenderer will be allowed in the tender meeting who is:

- a) In full time/ part-time employment of the bidder
- b) Has the adequate experience to comprehend the scope of works

The following conditions will apply including the Conditions of Tender or Tender Procedures contained in the Tender document: **These documents must be attached** to the bid form. Bids not containing these documents will be deemed as incomplete and result in non-responsive:

1. Prices must be valid for ninety (90) days from tender closing date.
2. Prices quoted must be inclusive of VAT. The Form of Offer must be properly and fully completed.
3. A firm delivery period must be indicated on the Form of Offer. Bidders are required to provide a realistic construction period, taking into account long lead delivery time items.
4. The tender document must be completed in black ink by means of a ball point pen. Pencil entries will render the tender offer non-compliant. Computerized/ typed tenders will be disqualified.
5. The tender document must be completed on the original tender document. Copies of the tender document or parts thereof will render the document non-responsive.
6. Bids that are late or non-compliant will not be considered, whilst the lowest or only bid will not necessarily be accepted. Bids submitted per fax, electronically or by e-mail will not be considered for award or acceptance.
7. Bids will be evaluated in accordance with the applicable Preferential Point Scoring System as set out in the Councils Supply Chain Management Policy. The following forms: MBD 1, MBD 4, MBD 5, MBD 6.1, MBD 6.2 including Annexures C, D & E, MBD 7.1, MBD 8 and MBD 9 must be completed and submitted with the bid.
8. Only tenderers with **CIDB Grading of 6-EP** or higher are eligible to submit offers for this Tender.
9. B-BBEE points shall be allocated if the following is attached to the bid document:
 - 9.1 a certified copy of the Tenderer's B-BBEE certificate. The B-BBEE certificate will only be accepted if the verification agency is accredited by South African National Accreditation System (SANAS); or
 - 9.2 an original Sworn Affidavit
 - 9.3 A copy of a DTI BBEE certificate must be attached to the bid document.
10. The following documents are compulsory to be included with the tender submission and failure to submit the documents will render the bidder's bid non-responsive
 - 10.1 Contractor registration and grading issued by the Construction Industry Development Board (CIDB) with unique registration number
 - 10.2 Letter from SARS including access PIN to validate TAX clearance and VAT registration shall be submitted with the tender offer.
 - 10.3 Tenderer must be registered at the National Treasury's Central Supplier Data Base (CSD) and proof must be submitted.
 - 10.4 Letter of good standing in respect of Compensation for Occupational Injury and Disease from the Compensation Commissioner.
 - 10.5 Municipal account for Tenderer's office premises, which is not older than 3 months, and not in arrears for more than 3 months.
11. The following compulsory documents must be submitted with the bid document and failure to submit the documents will render the bidder's bid non-responsive:
 - 11.1 Proof of current and valid registration (i.e. original or certified copy of membership confirmation letter or the registration certificate) at the National Bargaining Council for the Electrical Industry of South Africa (N.B.C.E.I).
 - 11.2 Proof of current and valid registration with the Department of Labour as an Electrical Contractor in terms of the Occupational

Health and Safety Act, 1993, Electrical installation Regulation No. 6(4) (i.e. original or certified copy of registration certificate from the Department of Labour)

- 11.3 Certified copy of the intended Electrician's Wireman's Licence as issued by Department of Labour. The intended electrician must be registered for three-phase type works.
- 11.4 Certified copy of designated personnel member's (preferably the intended Electrician) training and certification to work on Medium Voltage networks up to 11kV as per ORHVS Regulations.
- 11.5 Certified copy of valid registration with the SACPCMP as a Construction Health and Safety Officer's (CHSO). Candidates for registration as CHSO will not be accepted in this regard.
- 11.6 Certificates of completion and/or practical of completion certificates for at least 6 installation of MV switchgear projects in the last 5 years. The certificates must indicate the number of switchgear and the value of the contract specifically attributed to the Tenderer for that project, even if the project work was performed by the Tenderer under a sub-contract for or in joint venture with others.
- 11.7 **A complete brochure of the switchgear that the contractor will supply and install for this project, must be submitted and form part of this tender.**

1. Where certified copies of documents are required for inclusion in the tender submission, such certification must be of an originally certified copy of the original document, with certification dated within three months prior to closing date of the tender. Copies of previously certified copies of documents will be deemed non-compliant.
2. Functionality criteria and evaluation will be applied to this tender. Tenderers scoring below the stipulated minimum scoring requirement will not be considered for award or acceptance.
3. Where applicable, a duly completed and signed Joint Venture agreement must be submitted with the tender submission. Additional Joint Venture documents must be submitted as per Tender data.
4. Penalties will be applied for late completion of the Works according to the formula stated in the contract data.
5. Minimum threshold for local content:

5.1	Electrical cables	90%
5.2	Air insulated MV Switchgear	50%
5.3	Steel Value-added Products	100%
5.4	Primary Steel Products	100%

Yours in development

E NTOBA
Municipal Manager
Dawid Kruiper Municipality
Civic Centre, Mark Street
Uppington, 8801

T1.2: Tender Data

Clause number	
	<p>The conditions of tender are the Standard Conditions of Tender as contained in Annex F of the CIDB Standard for Uniformity in Construction Procurement. (see www.cidb.org.za) which are reproduced without amendment or alteration for the convenience of tenderers as an Annex to the Tender Data.)</p> <p>The Standard Conditions of Tender make several references to the Tender Data for details that apply specifically to this tender. The Tender Data will have precedence in the interpretation of any ambiguity or inconsistency between it and the standard conditions of tender.</p> <p>Each item of the Tender Data given below is cross-referenced to the clause in the Standard Conditions of Tender to which it mainly applies.</p>
F.1.1	The employer is the Dawid Kruiper Municipality.
F1.4	<p>Communication <i>Add the following:</i> Attention is drawn to the fact that verbal information, given by the Supply Chain and the Technical department during site visits/clarification meetings or at any other time prior to the award of the Contract, will not be regarded as binding on the Employer. Only information issued formally by the Employer in writing to Tenderers will be regarded as amending the Tender Documents.</p> <p>The Technical Department: Name: Mr R Tyers or Mr D Louw Address: Electrical Services Office Kowen street 03 UPINGTON 8801 Tel: 054 338 7154 E-mail: Robain.tyers@dkm.gov.za or Daniel.louw@dkm.gov.za</p>
F1.5 F1.5.3	<p>The Employer's right to accept or reject any tender offer <i>Add the following:</i> The Employer may reject a tender if, in the opinion of the Employer, the Tenderer will be unable to achieve the contract participation goal tendered, in the performance of the Contract.</p>
F1.6.2 F1.6.3	<p>Competitive negotiation procedure <i>Add the following to F.1.6.2</i> A competitive negotiation procedure will not be followed.</p> <p>Proposal procedure using the two-stage system <i>Add the following to F.1.6.3</i> A two-stage system will not be followed.</p>
F.1.2	<p>The tender documents issued by the Employer comprises:</p> <p>The Tender</p> <p>Part T1: Tendering procedures</p> <p>T1.1 Tender notice and invitation to tender T1.2 Tender data</p> <p>Part T2: Returnable documents</p> <p>T2.1 List of returnable documents T2.2 Returnable schedules</p> <p>The Contract</p> <p>Part C1: Agreements and Contract Data</p> <p>C1.1 Form of Offer and Acceptance C1.2 Contract Data</p>

Clause number	
	<p>C1.3 Form of Guarantee C1.4 Occupational Health and Safety Agreement C1.5 Pro-Forma Ownership of Plant</p> <p>Part 2: Pricing data C2.1 Pricing Instructions C2.2 Summary of Prices C2.3 Technical Schedules</p> <p>Part 3: Scope of work C3 Scope of Work (C3.1- C3.5)</p> <p>Part 4: Site information C4 Site Information</p> <p>Annexure A: Bill of Quantities Annexure B: Quality Checklist Annexure C: Health and Safety</p>
	<p>Should it be necessary for a bidder to obtain clarity on any matter arising from or referred to in this tender document, please refer queries, in writing, to the Supply Chain. Under no circumstances may any other employee within the Dawid Kruiper Municipality be approached for any information. Any such action may result to disqualification of a response submitted in competition to the tender process.</p> <p>Enquiries shall reference specific page and or paragraph numbers, where appropriate.</p> <ul style="list-style-type: none"> • All questions/enquiries must be forwarded in writing not later than 05 December 2022.
F.2.1	<p>The following tenderers who are registered with the CIDB, or are capable of being so registered prior to the evaluation of submissions, are eligible to have their tenders evaluated:</p> <ol style="list-style-type: none"> a) contractors who have a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations, for a 6EP class of construction work; b) Joint ventures are eligible to submit tenders provided that <ol style="list-style-type: none"> 1. every member of the joint venture is registered with the CIDB; 2. the lead partner has a contractor grading designation higher than the minor partner; and 3. the combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for 6EP class of construction work or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations. <p>For eligibility refer to Notice and Invitation to Tender T1.1</p>
F.2.1	<p><u>Functionality criteria, points and evaluation</u></p> <p>Tenderers are required to demonstrate their ability to undertake the work and provide proof of experience, expertise, personnel, plant and equipment to undertake work of this nature.</p> <p>Tenderers are required to score a minimum of 70% of points on each section and an overall average of 70% of 21 points out of a possible 30 points (i.e. 70 %) in order to qualify for the tender.</p> <p>The onus rests with the Tenderer to supply sufficient, accurate, legible, current and valid information which is able to be validated, to allow for the proper scoring, evaluation and award of points. The required information must be in accordance with the required stipulations to be awarded points.</p> <p>Where insufficient information is provided, zero points will be awarded for such particular criterion.</p> <p>Tenderers will be evaluated according to administrative responsiveness, points scoring for functionality, pricing and preference (i.e. B-BBEE contribution level)</p>

Clause number																		
	Functionality assessment criteria																	
	<table border="1"> <thead> <tr> <th data-bbox="295 284 537 313">Category</th> <th data-bbox="549 284 1098 313">Description</th> <th data-bbox="1102 284 1267 313">Points</th> <th data-bbox="1272 284 1437 313">Min required</th> </tr> </thead> <tbody> <tr> <td data-bbox="295 320 537 689">Financial</td> <td data-bbox="549 320 1098 689"> 1. Bank rating certificate issued by financial Institute not older than 60 days, Rating A 2. Bank rating certificate issued by financial Institute not older than 60 days, Rating B 3. Bank rating certificate issued by financial Institute not older than 60 days, Rating C Bank rating lower than C is regarded as a risk hence no points will be allocated. </td> <td data-bbox="1102 320 1267 689"> 10 8 7 </td> <td data-bbox="1272 320 1437 689"> 7/10 (70%) </td> </tr> <tr> <td data-bbox="295 696 537 1243">Resources</td> <td data-bbox="549 696 1098 1243"> 1) Micro- ohm tester 2. Pressure tester up to 24Kv 3) Basic timer to determine breaker opening and closing times 4) Primary and Secondary Injection tester 5) Polarity tester Bidder must submit proof of equipment he owns, as certified copy of original document. Alternatively, to submit pro forma lease agreement or letter(s) of intent for the equipment he intends to hire. Lease agreements or letters of intent to hire must be endorsed by a Commissioner of Oaths. </td> <td data-bbox="1102 696 1267 1243"> 2 2 2 2 2 </td> <td data-bbox="1272 696 1437 1243"> 7/10 (70%) </td> </tr> <tr> <td data-bbox="295 1249 537 1809">Technical Expertise</td> <td data-bbox="549 1249 1098 1809"> 1. Authorized Installer of the product on offer (Proof of such authorization must be submitted) 2. Site Manager – min 5 years' experience. 3. Site Foreman – min 5 years' experience. 4. MV Cable Joints, Points will be awarded for Technical Expertise applicable to the key personnel and individual construction staff members. Proof shall be submitted with the tender submission. Certificates shall be valid at time of tender submission. The various individuals shall be in the permanent employment of the Tenderer to be awarded points. The various individuals shall each provide written declaration stating their personal confirmation of their intended involvement, which declaration shall be endorsed by a Commissioner of Oaths. </td> <td data-bbox="1102 1249 1267 1809"> 3 3 2 2 </td> <td data-bbox="1272 1249 1437 1809"> 7/10 (70%) </td> </tr> </tbody> </table>	Category	Description	Points	Min required	Financial	1. Bank rating certificate issued by financial Institute not older than 60 days, Rating A 2. Bank rating certificate issued by financial Institute not older than 60 days, Rating B 3. Bank rating certificate issued by financial Institute not older than 60 days, Rating C Bank rating lower than C is regarded as a risk hence no points will be allocated.	10 8 7	7/10 (70%)	Resources	1) Micro- ohm tester 2. Pressure tester up to 24Kv 3) Basic timer to determine breaker opening and closing times 4) Primary and Secondary Injection tester 5) Polarity tester Bidder must submit proof of equipment he owns, as certified copy of original document. Alternatively, to submit pro forma lease agreement or letter(s) of intent for the equipment he intends to hire. Lease agreements or letters of intent to hire must be endorsed by a Commissioner of Oaths.	2 2 2 2 2	7/10 (70%)	Technical Expertise	1. Authorized Installer of the product on offer (Proof of such authorization must be submitted) 2. Site Manager – min 5 years' experience. 3. Site Foreman – min 5 years' experience. 4. MV Cable Joints, Points will be awarded for Technical Expertise applicable to the key personnel and individual construction staff members. Proof shall be submitted with the tender submission. Certificates shall be valid at time of tender submission. The various individuals shall be in the permanent employment of the Tenderer to be awarded points. The various individuals shall each provide written declaration stating their personal confirmation of their intended involvement, which declaration shall be endorsed by a Commissioner of Oaths.	3 3 2 2	7/10 (70%)	<p>A minimum of 70% required in order for the bidder to be evaluated further. Bidders scoring below 70% will be regarded as non-responsive. Failure to obtain 70% on each section will render the bidder's bid non-responsive.</p> <p>All compulsory documents to be submitted with the bid document, failure to submit any of the compulsory documents will render the bidder's bid non-responsive.</p>
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F.2.7	For particulars regarding the compulsory pre-tender clarification meeting (site inspection meeting), see Notice and Invitation to Tender T1.1																	

Clause number	
F.2.12	No alternative proposals will be considered for tender evaluation. Main offers will be used for the tender evaluation. Bidders are allowed to provide alternative offers for consideration with the successful tenderer.
F.2.13.1	<i>Add the following to F.2.13.1</i>
	Where the tendering entity is a joint venture it is recommended that the standard CIDB Joint Venture Agreement be used.
F.2.13.2	Electronic tender offers/ Copies or tenders completed with pencil will not be accepted.
F.2.13.3	Parts of each tender offer communicated on paper will be submitted as an original, plus Nil copies.
F.2.13.4	<i>Add the following after the first sentence of F.2.13.4:</i>
	The tender will be signed by a person duly authorised to do so. Tenders submitted by joint ventures of two or more firms will be accompanied by the document of formation of the joint venture, authenticated by a notary public or other official deputed to witness sworn statements, in which is defined precisely the conditions under which the joint venture will function, its period of duration, the persons authorised to represent and obligate it, the participation of the several firms forming the joint venture, and any other information necessary to permit a full appraisal of its functioning.
F.2.13.5	<p>The Employer's address for delivery of tender offers and identification details to be shown on each tender offer package are:</p> <p>Location of tender box: Dawid Kruiper Municipality</p> <p>Physical address: Mark Street</p> <p>Identification details: Civic Centre</p> <p>Postal Address: Private Bag X6003, Upington, 8800</p> <p>Sealed tenders with the description "TENDER NO. TN041/2022: SUPPLY MATERIAL, LABOUR AND EQUIPMENT FOR THE INSTALLATION OF 11kV SWITCHGEAR (DELTA AND FIRE BRIGADE SUBSTATIONS)" on the envelope must be placed in the appropriate official tender box at the above mentioned address.</p> <p>Responsibility lies with the bidders to ensure the Tender offers are placed in the tender box op of the Dawid Kruiper Municipality if tenders are posted or couriered.</p>
F.2.13.10	<i>Add the following sub-clause after F.2.13.9:</i> By signing the offer part of C1.1 Form of Offer and Acceptance the tenderer declares that all information provided in the tender submission is true and correct.
F.2.15	The closing time for submission of tender offers is as per Notice and Invitation to Tender T1.1.
F.2.15	Telephonic, telegraphic, telex, facsimile or e-mailed tender offers will not be accepted.
F.2.16	The tender offer validity period is 90 days.
F.2.19	Access will be provided for inspections, tests and analysis as may be required by the Employer.
F.2.23	<p>The tenderer is required to submit with his tender the following compulsory documents and failure to submit the documents will render the bidder's bid non-responsive:</p> <ul style="list-style-type: none"> • Contractor registration and grading issued by the Construction Industry Development Board (CIDB) with unique registration number • Letter from SARS including access PIN to validate TAX clearance and VAT registration • National Treasury's Central Supplier Data Base (CSD) registration • CIPC documents confirming valid registration for the Tenderer • Letter of good standing in respect of Compensation for Occupational Injury and Disease from the Compensation Commissioner. • A copy of the Municipal account not older than 3 months and not in arrears for more than 90 days. • Proof of current and valid registration (i.e. original or certified copy of membership confirmation letter or the registration certificate) at the National Bargaining Council for the Electrical Industry of South Africa (N.B.C.E.I). • Proof of current and valid registration with the Department of Labour as an Electrical Contractor in terms of the Occupational Health and Safety Act, 1993, Electrical installation Regulation No. 6(4) (i.e. original or certified copy of registration certificate from the Department of Labour)

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	<ul style="list-style-type: none"> • Certified copy of the intended Electrician's Wireman's Licence as issued by Department of Labour. The intended electrician must be registered for three-phase type works. • Certified copy of designated personnel member's (preferably the intended Electrician) training and certification to work on Medium Voltage networks up to 11kV as per ORHVS Regulations, certified as an authorised operator. • Certified copy of valid registration with the SACPCMP as a Construction Health and Safety Officer's (CHSO). Candidates for registration as CHSO will not be accepted in this regard. • Certificates of completion and/or practical of completion certificates for at least 6 installation of MV switchgear projects in the last 5 years. The certificates must indicate the number of switchgear and the value of the contract specifically attributed to the Tenderer for that project, even if the project work was performed by the Tenderer under a sub-contract for or in joint venture with others. • Documents listed in T2.1: List of Returnable Documents.
F.3.4.1	<p>The time and location for opening of the tender offers are:</p> <p>14H00 on Friday, 09 December 2022 in the Council Chamber of Dawid Kruiper Municipality, Upington</p>
F.3.11	<p>The procedure for the evaluation of responsive tenders is Method 2.</p> <p>The financial offer (price) will be scored using Formula 2 Option 1 where the value of W1 is: 80 where the financial value inclusive of VAT of all responsive tenders received have a value below R 50 000 000.00</p>
F.3.13.1	<p>Tender offers will only be accepted if:</p> <ol style="list-style-type: none"> a) the Tenderer is registered with the Construction Industry Development Board in an appropriate contractor grading designation; b) the Tenderer or any of its directors is not listed on the Register of Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector; c) the Tenderer has not: <ol style="list-style-type: none"> i) abused the employer's supply chain management system; or ii) failed to perform on any previous contract and has been given a written notice to this effect; and d) the Tenderer has completed the Compulsory Enterprise Questionnaire, MBD1, MBD 4, MBD 5, MBD 6.1, MBD 6.2 (and Annexures), MBD 7.1, MBD 8, MBD 9 and there are no conflicts of interest which may impact on the Tenderer's ability to perform the contract in the best interests of the Employer or potentially compromise the tender process; and e) the Tenderer has submitted the documentation listed in F2.23
F.3.18	<p>Provide to the Contractor one copy of the signed contract document.</p>
	<p>Additional Conditions of Tender</p>
F.4.1	<p>Compliance with Occupational Health and Safety Act 1993 including Amendments and Revisions.</p> <p>Tenderers are to note the requirements of the Occupational Health and Safety Act No. 85 of 1993 and the Construction Regulations 2003 issued in terms of Section 43 of the Act. The tenderer will be deemed to have read and fully understood the requirements of the above Act and Regulations and to have allowed for all costs in compliance therewith.</p> <p>In this regard the Tenderer will submit with his tender, appended to Schedule 11 : Health and Safety Plan in T2.2 : Returnable Schedules, a detailed Health and Safety Plan in respect of the Works in order to demonstrate the necessary competencies and resources to perform the construction work all in accordance with the Act and Regulations. Such Health and Safety Plan will cover inter-alia the following details:</p> <p>Management Structure, Site Supervision and Responsible Persons including a succession plan. Contractor's induction training programme for employees, sub-contractors and visitors to the Site. Health and safety precautions and procedures to be adhered to in order to ensure compliance with the Act, Regulations and Safety Specifications. Regular monitoring procedures to be performed. Regular liaison, consultation and review meetings with all parties.</p>

Clause number	
	<p>Site security, welfare facilities and first aid. Site rules and fire and emergency procedures. Tenderers are to note that the Contractor is required to ensure that all sub-contractors or others engaged in the performance of the contract also comply with the above requirements.</p> <p>The Contractor will prepare and maintain a Health and Safety File in respect of the project, which will be available for inspection on Site at all times and handed over to the Employer on Final Completion of the project.</p> <p>The Contractor is required to submit to the Employer the Occupational Health and Safety Agreement (included in C1.4 of the Contract Document) and a letter of good standing from the Compensation Commissioner, or a licensed compensation insurer, within 14 days after the Commencement Date of the contract.</p>
F.4.2	<p>Claims arising after submission of tender</p> <p>No claim for any extras arising out of any doubt or obscurity as to the true intent and meaning of anything shown on the Contract Drawings or contained in the Conditions of Contract, Scope of Work and Pricing Data, will be admitted by the Employer/Employer's Agent after the submission of any tender and the Tenderer will be deemed to have:</p> <ol style="list-style-type: none"> 1) Inspected the Contract Drawings and read and fully understood the Conditions of Contract. 2) Read and fully understood the whole text of the Scope of Work and Pricing Data and thoroughly acquainted himself with the nature of the works proposed and generally of all matters which may influence the Contract. 3) Visited the site of the proposed works, carefully examined existing conditions, the means of access to the site, the conditions under which the work is to be done, and acquainted himself with any limitations or restrictions that may be imposed by the Municipal or other Authorities in regard to access and transport of materials, plant and equipment to and from the site and made the necessary provisions for any additional costs involved thereby. 4) Requested the Employer or his duly authorised agent to make clear the actual requirements of anything shown on the Contract Drawings or anything contained in the Scope of Work and Pricing Data, the exact meaning or interpretation of which is not clearly intelligible to the Tenderer. <p>Before submission of any tender, the Tenderer shall check the number of pages, and if any are found to be missing or duplicated, or the figures or writing indistinct, or if the Pricing Data contain any obvious errors, the tenderer must apply to the Employer/Employer's Agent at once to have the same rectified, as no liability will be admitted by the Employer/Employer's Agent in respect of errors in any tender due to the foregoing.</p> <ol style="list-style-type: none"> 5) Received any Addenda to the tender documents which have been issued in accordance with the Employer's Supply Chain Management Policy.
F.4.3	<p>Imbalance in tendered rates</p> <p>In the event of tendered rates or lump sums being declared by the Employer to be unacceptable to it because they are either excessively low or high or not in proper balance with other rates or lump sums, the Tenderer may be required to produce evidence and advance arguments in support of the tendered rates or lump sums objected to. If, after submission of such evidence and any further evidence requested, the Employer is still not satisfied with the tendered rates or lump sums objected to, it may request the tenderer to amend these rates and lump sums along the lines indicated by it.</p> <p>The Tenderer will then have the option to alter and/or amend the rates and lump sums objected to and such other related amounts as are agreed on by the Employer, but this will be done without altering the tender offer as tendered or, if applicable, the corrected total of prices in accordance with F.3.9.3.</p> <p>Should the Tenderer fail to amend his Tender in a manner acceptable to the Employer, the Employer may reject the Tender.</p>

Clause number	
F.4.4	<p>Invalid tenders</p> <p>Tenders will be considered invalid and will be endorsed and recorded as such in the tender opening record, by the responsible official who opened the tender, in the following circumstances:</p> <ul style="list-style-type: none"> a) if the tender offer (the tender price/amount) is not submitted on the Form of Offer and Acceptance bound into this tender document (form C1.1, Part C1: Agreements and Contract Data); b) if the tender is not completed in non-erasable ink; c) if the Form of Offer and Acceptance has not been signed; d) if the Form of Offer and Acceptance is signed, but the name of the tenderer is not stated or is indecipherable.
F.4.12	<p>Signing of the Contract</p> <p>The Contractor has to sign the Form of Agreement within the period of seven (7) days after being notified that his Tender had been accepted.</p> <p>In the event where the Tenderer fails to take up the Contract when called upon by the Employer to do so, or withdrawing his Tender after the closing date and time, or failing to provide an acceptable guarantee, the Employer reserves the right to insist that the Tenderer will pay to the Employer the cost incurred by the Employer in having to award the Tender to another Contractor.</p> <p>The contract will be in effect after both Bidder and Employer have signed both Form of Offer and form of offer has signed the Form of Acceptance.</p>
F.4.16	<p>Cessions of Rights and Demands</p> <p>The Contractor undertake herewith to assign none of his claims or rights with reference to money payable or which will become payable under the Contract. The Employer would not accept such a cession.</p>
F.4.18	<p>All prices, deposits and payments will be in the currency of the Republic of South Africa (Rand) and cheques for the deposits have to be made out to DAWID KRUIPER MUNICIPALITY.</p>

Annex F
(normative)

Standard Conditions of Tender

F.1 GENERAL

F.1.1 Actions

F.1.1.1 The employer and each tenderer submitting a tender offer will comply with these conditions of tender. In their dealings with each other, they will discharge their duties and obligations as set out in F.2 and F.3, timeously and with integrity, and behave equitably, honestly and transparently, comply with all legal obligations and not engage in anticompetitive practices.

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

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

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

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

F.1.2 Tender Documents

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

F.1.3 Interpretation

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

F.1.3.2 These conditions of tender, the tender data and tender schedules which are only required for tender evaluation purposes, will not form part of any contract arising from the invitation to tender.

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

a) Conflict of interest means any situation in which:

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

b) Comparative offer means the tenderer's financial offer after all tendered parameters that will affect the value of the financial offer have been taken into consideration in order to enable comparisons to be made between offers on a comparative basis.

c) Corrupt practice means the offering, giving, receiving or soliciting of anything of value to influence the action of the employer or his staff or agents in the tender process; and

d) Fraudulent practice means the misrepresentation of the facts in order to influence the tender process or the award of a contract arising from a tender offer to the detriment of the employer, including collusive practices intended to establish prices at artificial levels.

e) Organization means a company, firm, enterprise, association or other legal entity, whether incorporated or not, or a public bod.

f) Quality (functionality) means the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs

F.1.4 Communication and employer's agent

Each communication between the employer and a tenderer will be to or from the employer's agent only, and in a form that can be readily read, copied and recorded. Communications will be in the English language. The employer will not take any responsibility for non-receipt of communications from or by a tenderer. The name and contact details of the employer's agent are stated in the tender data.

F.1.5 The employer's right to accept or reject any tender offer

F.1.5.1 The employer may accept or reject any variation, deviation, tender offer, or alternative tender offer, and may cancel the tender process and reject all tender offers at any time before the formation of a contract. The employer will not accept or incur any liability to a tenderer for such cancellation and rejection, but will give written reasons for such action upon written request to do so.

F.1.5.2 The employer may not subsequent to the cancellation or abandonment of a tender process or the rejection of all responsive tender offers re-issue a tender covering substantially the same scope of work within a period of six months unless only one tender was received and such tender was returned unopened to the tenderer.

F.1.6 Procurement procedures

F.1.6.1 General

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

F.1.6.2 Competitive negotiation procedure

F.1.6.2.1 Where the tender data require that the competitive negotiation procedure is to be followed, tenderers will submit tender offers in response to the proposed contract in the first round of submissions. Notwithstanding the requirements of F.3.4, the employer will announce only the names of the tenderers who make a submission. The requirements of F.3.8 relating to the material deviations or qualifications which affect the competitive position of tenderers will not apply.

F.1.6.2.2 All responsive tenderers, or not less than three responsive tenderers that are highest ranked in terms of the evaluation method and evaluation criteria stated in the tender data, will be invited in each round to enter into competitive negotiations, based on the principle of equal treatment and keeping confidential the proposed solutions and associated information. Notwithstanding the provisions of F.2.17, the employer may request that tenders be clarified, specified and fine-tuned in order to improve a tenderer's competitive position provided that such clarification, specification, fine-tuning or additional information does not alter any fundamental aspects of the offers or impose substantial new requirements which restrict or distort competition or have a discriminatory effect.

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

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

F.1.6.3 Proposal procedure using the two stage-system

F.1.6.3.1 Option 1

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

F.1.6.3.2 Option 2

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

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

F.2 TENDERER'S OBLIGATIONS

F.2.1 Eligibility

F.2.1.1 Submit a tender offer only if the tenderer satisfies the criteria stated in the tender data and the tenderer, or any of his principals, is not under any restriction to do business with employer.

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

F.2.2 Cost of tendering

Accept that, unless otherwise stated in the tender data, the employer will not compensate the tenderer for any costs incurred in the preparation and submission of a tender offer, including the costs of any testing necessary to demonstrate that aspects of the offer complies with requirements.

F.2.3 Check documents

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

F.2.4 Confidentiality and copyright of documents

Treat as confidential all matters arising in connection with the tender. Use and copy the documents issued by the employer only for the purpose of preparing and submitting a tender offer in response to the invitation.

F.2.5 Reference documents

Obtain, as necessary for submitting a tender offer, copies of the latest versions of standards, specifications, conditions of contract and other publications, which are not attached but which are incorporated into the tender documents by reference.

F.2.6 Acknowledge addenda

Acknowledge receipt of addenda to the tender documents, which the employer may issue, and if necessary apply for an extension to the closing time stated in the tender data, in order to take the addenda into account.

F.2.7 Clarification meeting

Attend, where required, a clarification meeting at which tenderers may familiarize themselves with aspects of the proposed work, services or supply and raise questions. Details of the meeting(s) are stated in the tender data.

F.2.8 Seek clarification

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

F.2.9 Insurance

Be aware that the extent of insurance to be provided by the employer (if any) might not be for the full cover required in terms of the conditions of contract identified in the contract data. The tenderer is advised to seek qualified advice regarding insurance.

F.2.10 Pricing the tender offer

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

F2.10.2 Show VAT payable by the employer separately as an addition to the tendered total of the prices.

F.2.10.3 Provide rates and prices that are fixed for the duration of the contract and not subject to adjustment except as provided for in the conditions of contract identified in the contract data.

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

F.2.11 Alterations to documents

Do not make any alterations or additions to the tender documents, except to comply with instructions issued by the employer, or necessary to correct errors made by the tenderer. All signatories to the tender offer will initial all such alterations. Erasures and the use of masking fluid are prohibited.

F.2.12 Alternative tender offers

F.2.12.1 Unless otherwise stated in the tender data, submit alternative tender offers only if a main tender offer, strictly in accordance with all the requirements of the tender documents, is also submitted as well as a schedule that compares the requirements of the tender documents with the alternative requirements that are proposed. **(The alternative is only considered if the main bid is the preferred bid).**

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

F.2.13 Submitting a tender offer

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

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

F.2.13.3 Submit the parts of the tender offer communicated on paper as an original plus the number of copies stated in the tender data, with an English translation of any documentation in a language other than English, and the parts communicated electronically in the same format as they were issued by the employer.

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

F.2.13.5 Seal the original and each copy of the tender offer as separate packages marking the packages as "ORIGINAL" and "COPY". Each package will state on the outside the employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address.

F.2.13.6 Where a two-envelope system is required in terms of the tender data, place and seal the returnable documents listed in the tender data in an envelope marked "financial proposal" and place the remaining returnable documents in an envelope marked "technical proposal". Each envelope will state on the outside the employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address.

F.2.13.7 Seal the original tender offer and copy packages together in an outer package that states on the outside only the employer's address and identification details as stated in the tender data.

F.2.13.8 Accept that the employer will not assume any responsibility for the misplacement or premature opening of the tender offer if the outer package is not sealed and marked as stated.

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

F.2.14 Information and data to be completed in all respects.

Accept that tender offers, which do not provide all the data or information requested completely and in the form required, may be regarded by the employer as non-responsive.

F.2.15 Closing time

F.2.15.1 Ensure that the employer receives the tender offer at the address specified in the tender data not later than the closing time stated in the tender data. Accept that proof of posting will not be accepted as proof of delivery.

F.2.15.2 Accept that, if the employer extends the closing time stated in the tender data for any reason, the requirements of these conditions of tender apply equally to the extended deadline.

F.2.16 Tender offer validity

F.2.16.1 Hold the tender offer(s) valid for acceptance by the employer at any time during the validity period stated in the tender data after the closing time stated in the tender data.

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

F.2.16.3 Accept that a tender submission that has been submitted to the employer may only be withdrawn or substituted by giving the employer's agent written notice before the closing time for tenders that a tender is to be withdrawn or substituted.

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

F.2.17 Clarification of tender offer after submission

Provide clarification of a tender offer in response to a request to do so from the employer during the evaluation of tender offers. This may include providing a breakdown of rates or prices and correction of arithmetical errors by the adjustment of

certain rates or item prices (or both). No change in the competitive position of tenderers or substance of the tender offer is sought, offered, or permitted.

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

F.2.18 Provide other material

F.2.18.1 Provide, on request by the employer, any other material that has a bearing on the tender offer, the tenderer's commercial position (including notarized joint venture agreements), preferencing arrangements, or samples of materials,

Considered necessary by the employer for the purpose of a full and fair risk assessment. Should the tenderer not provide the material, or a satisfactory reason as to why it cannot be provided, by the time for submission stated in the employer's request, the employer may regard the tender offer as non-responsive.

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

F.2.19 Inspections, tests and analysis

Provide access during working hours to premises for inspections, tests and analysis as provided for in the tender data.

F.2.20 Submit securities, bonds, policies, etc.

If requested, submit for the employer's acceptance before formation of the contract, all securities, bonds, guarantees, policies and certificates of insurance required in terms of the conditions of contract identified in the contract data.

F.2.21 Check final draft

Check the final draft of the contract provided by the employer within the time available for the employer to issue the contract.

F.2.22 Return of other tender documents

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

F.2.23 Certificates

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

F.3 THE EMPLOYER'S UNDERTAKINGS

F.3.1 Respond to requests from the tenderer

F.3.1.1 Unless otherwise stated in the Tender Data, respond to a request for clarification received up to five working days before the tender closing time stated in the Tender Data and notify all tenderers who drew procurement documents.

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

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

F.3.2 Issue Addenda

If necessary, issue addenda that may amend or amplify the tender documents to each tenderer during the period from the date that tender documents are available until three days before the tender closing time stated in the Tender Data. If, as a result a tenderer applies for an extension to the closing time stated in the Tender Data, the Employer may grant such extension and, will then notify all tenderers who drew documents.

F.3.3 Return late tender offers

Return tender offers received after the closing time stated in the Tender Data, unopened, (unless it is necessary to open a tender submission to obtain a forwarding address), to the tenderer concerned.

F.3.4 Opening of tender submissions

F.3.4.1 Unless the two-envelope system is to be followed, open valid tender submissions in the presence of tenderers' agents who choose to attend at the time and place stated in the tender data. Tender submissions for which acceptable reasons for withdrawal have been submitted will not be opened.

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

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

F.3.5 Two-envelope system

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

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

F.3.6 Non-disclosure

Not disclose to tenderers, or to any other person not officially concerned with such processes, information relating to the evaluation and comparison of tender offers, the final evaluation price and recommendations for the award of a contract, until after the award of the contract to the successful tenderer.

F.3.7 Grounds for rejection and disqualification

Determine whether there has been any effort by a tenderer to influence the processing of tender offers and instantly disqualify a tenderer (and his tender offer) if it is established that he engaged in corrupt or fraudulent practices.

F.3.8 Test for responsiveness

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

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

F.3.8.2 A responsive tender is one that conforms to all the terms, conditions, and specifications of the tender documents without material deviation or qualification. A material deviation or qualification is one which, in the Employer's opinion, would:

- a) Detrimentally affect the scope, quality, or performance of the works, services or supply identified in the Scope of Work,
- b) Significantly change the Employer's or the tenderer's risks and responsibilities under the contract, or
- c) Affect the competitive position of other tenderers presenting responsive tenders, if it were to be rectified.

Reject a non-responsive tender offer, and not allow it to be subsequently made responsive by correction or withdrawal of the non-conforming deviation or reservation.

F.3.9 Arithmetical errors, omissions and discrepancies

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

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

- a) The gross misplacement of the decimal point in any unit rate;
- b) Omissions made in completing the pricing schedule or bills of quantities; or
- c) Arithmetic errors in:
 - i) Line item totals resulting from the product of a unit rate and a quantity in bills of quantities or schedules of prices; or
 - ii) The summation of the prices.

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

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

- a) If bills of quantities or pricing schedules apply and there is an error in the line item total resulting from the product of the unit rate and the quantity, the line item total will govern and the rate will be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line item total as quoted will govern, and the unit rate will be corrected.
- b) Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the tenderer's addition of prices, the total of the prices will govern and the tenderer will be asked to revise selected item prices (and their rates if bills of quantities apply) to achieve the tendered total of the prices.

F.3.10 Clarification of a tender offer

Obtain clarification from a tenderer on any matter that could give rise to ambiguity in a contract arising from the tender offer.

F.3.11 Evaluation of tender offers

F.3.11.1 General

Appoint an evaluation panel of not less than three persons. Reduce each responsive tender offer to a comparative offer and evaluate them using the tender evaluation methods and associated evaluation criteria and weightings that are specified in the tender data.

F.3.11.2 Method 1: Financial offer

In the case of a financial offer:

- a) Rank tender offers from the most favourable to the least favourable comparative offer.
- b) Recommend the highest ranked tenderer for the award of the contract, unless there are compelling and justifiable reasons not to do so.

- c) Re-rank all tenderers should there be compelling and justifiable reasons not to recommend the highest ranked tenderer and recommend the highest ranked tenderer, unless there are compelling and justifiable reasons not to do so and the process set out in this sub clause is repeated.

F.3.11.3 Methods 2: Financial offer and preference

In the case of a financial offer and preferences:

- a) Score each tender in respect of the financial offer made and preferences claimed, if any, in accordance with the provisions of F.3.11.7 and F.3.11.8.
- b) Calculate the total number of tender evaluation points (T_{EV}) in accordance with the following formula:

$$T_{EV} = N_{FO} + N_P$$

where: N_{FO} is the number of tender evaluation points awarded for the financial offer made in accordance with F.3.11.7;
 N_P is the number of tender evaluation points awarded for preferences claimed in accordance with F.3.11.8.

- c) Rank tender offers from the highest number of tender evaluation points to the lowest.

- d) Recommend the tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.

- e) Rescore and re-rank all tenderers should there be compelling and justifiable reasons not to recommend the tenderer with the highest number of tender evaluation points, and recommend the tenderer with the highest number of tender evaluation points, unless there are compelling and justifiable reasons not to do so and the process set out in this sub clause is repeated

F.3.11.4 Method 3: Financial offer and quality

In the case of a financial offer and quality:

- a) Score each tender in respect of the financial offer made and the quality offered in accordance with the provisions of F.3.11.7 and F.3.11.9, rejecting all tender offers that fail to score the minimum number of points for quality stated in the tender data, if any.

- b) Calculate the total number of tender evaluation points (T_{EV}) in accordance with the following formula:

$$T_{EV} = N_{FO} + N_Q$$

where: N_{FO} is the number of tender evaluation points awarded for the financial offer made in accordance with F.3.11.7;
 N_Q is the number of tender evaluation points awarded for quality offered in accordance with F.3.11.9.

- c) Rank tender offers from the highest number of tender evaluation points to the lowest.

- d) Recommend tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.

e) Rescore and re-rank all tenderers should there be compelling and justifiable reasons not to recommend the tenderer with the highest number of tender evaluation points and recommend the tenderer with the highest number of tender evaluation points, unless there are compelling and justifiable reasons not to do so and the process set out in this sub clause is repeated.

F.3.11.5 Method 4: Financial offer, quality and preferences

In the case of a financial offer, quality and preferences:

a) Score each tender in respect of the financial offer made, preference claimed, if any, and the quality offered in accordance with the provisions of F.3.11.7 to F.3.11.9, rejecting all tender offers that fail to score the minimum number of points for quality stated in the tender data, if any.

b) Calculate the total number of tender evaluation points (T_{EV}) in accordance with the following formula, unless otherwise stated in the Tender Data:

$$T_{EV} = N_{FO} + N_P + N_Q$$

where: N_{FO} is the number of tender evaluation points awarded for the financial offer made in accordance with F.3.11.7;

N_P is the number of tender evaluation points awarded for preferences claimed in accordance with F.3.11.8.

N_Q is the number of tender evaluation points awarded for quality offered in accordance with F.3.11.9.

c) Rank tender offers from the highest number of tender evaluation points to the lowest.

d) Recommend the tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.

e) Rescore and re-rank all tenderers should there be compelling and justifiable reasons not to recommend the tenderer with the highest number of tender evaluation points and recommend the tenderer with the highest number of tender evaluation points, unless there are compelling and justifiable reasons not to do so and the process set out in this sub clause is repeated.

F.3.11.6 Decimal places

Score financial offers, preferences and quality, as relevant, to two decimal places.

F.3.11.7 Scoring Financial Offers

Score the financial offers of remaining responsive tender offers using the following formula:

$$N_{FO} = W_1 \times A$$

where: N_{FO} is the number of tender evaluation points awarded for the financial offer.

W₁ is the maximum possible number of tender evaluation points awarded for the financial offer as stated in the Tender Data.

A is a number calculated using the formula and option described in Table F.1 as stated in the Tender Data.

Table F.1: Formulae for calculating the value of A

Formula	Comparison aimed at achieving	Option 1a	Option 2a
1	Highest price or discount	$A = (1 + (P - P_m)/P_m)$	$A = P / P_m$
2	Lowest price or percentage commission / fee	$A = (1 - (P - P_m)/P_m)$	$A = P_m / P$
a	where: P _m = the comparative offer of the most favourable tender offer. P = the comparative offer of tender offer under consideration.		

F.3.11.8 Scoring preferences

Confirm that tenderers are eligible for the preferences claimed in accordance with the provisions of the tender data and reject all claims for preferences where tenderers are not eligible for such preferences. Calculate the total number of tender evaluation points for preferences claimed in accordance with the provisions of the tender data.

F.3.11.9 Scoring quality

Score each of the criteria and sub criteria for quality in accordance with the provisions of the Tender Data. Calculate the total number of tender evaluation points for quality using the following formula:

$$N_Q = W_2 \times S_o / M_s$$

where: S_o is the score for quality allocated to the submission under consideration;

M_s is the maximum possible score for quality in respect of a submission; and

W_2 is the maximum possible number of tender evaluation points awarded for the quality as stated in the tender data

F.3.12 Insurance provided by the employer

If requested by the proposed successful tenderer, submit for the tenderer's information the policies and / or certificates of insurance which the conditions of contract identified in the contract data, require the employer to provide.

F.3.13 Acceptance of tender offer

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

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

F.3.14 Prepare contract documents

F.3.14.1 If necessary, revise documents that will form part of the contract and that were issued by the employer as part of the tender documents to take account of:

- a) Addenda issued during the tender period,
- b) Inclusion of some of the returnable documents, and
- c) Other revisions agreed between the employer and the successful tenderer.

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

F.3.15 Complete adjudicator's contract

Unless alternative arrangements have been agreed or otherwise provided for in the contract, arrange for both parties to complete formalities for appointing the selected adjudicator at the same time as the main contract is signed.

F.3.16 Notice to unsuccessful tenderers

F.3.16.1 Notify the successful tenderer of the employer's acceptance of his tender offer by completing and returning one copy of the form of offer and acceptance before the expiry of the validity period stated in the tender data, or agreed additional period.

F.3.16.2 After the successful tenderer has been notified of the employer's acceptance of the tender, notify other tenderers that their tender offers have not been accepted.

F.3.17 Provide copies of the contracts

Provide to the successful tenderer the number of copies stated in the Tender Data of the signed copy of the contract as soon as possible after completion and signing of the form of offer and acceptance.

F.3.18 Provide written reasons for actions taken

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

Part T2: Returnable Schedules

T2.1: List of Returnable Documents

The complete tender document as received from the employer, together with all additional documentation as requested, must be submitted. No documentation must be removed from the tender document.

The tenderer must complete the following returnable documents:

1 Returnable Schedules required only for tender evaluation purposes

Resolution of board of directors / members / partners
Resolution of Board of Directors / Members / Sole Proprietor/ Partners of Partnership (if applicable)
Special Resolution of Joint Venture Partners
Record of Addenda to Tender Documents
Proposed Amendments and Qualifications
Schedule of Subcontractors
Capacity of Tenderer
Project Team and their qualifications
Project experience (Current and previous)
Site inspection certificate
Tender sum breakdown

2 Other documents required only for tender evaluation purposes

Contractor Registration and grading issued by the Construction Industry Development Board (CIDB) – Compulsory.

Central Supplier Database registration – Compulsory.

SARS letter containing access PIN – Compulsory.

A certified copy of a valid SANAS B-BBEE Status Level verification or an original Sworn Affidavit or DTI certificate – Compulsory.

Letter of good standing from the Compensation Commissioner – Compulsory.

A complete brochure of the switchgear that the contractor will supply and install for this project, must be submitted and form part of this tender- Failure to do so will result in the bid being non-responsive.

3 C1.1 Offer and Acceptance (the offer portion of C1.1)

4 C1.2 Contract Data (Part 2)

5 C1.3 Form of Guarantee

6 C1.4 Occupational Health and Safety Agreement

7 C1.5 Pro Forma Ownership of Plant

8 C1.6 Expanded Public Works Programme- Commitment of Undertaking

9 C2.2 Bills of quantities summary page (As per tender document, completed in black ink)

10 C2.3 Technical Schedules

11 Annexure A: Bill of Quantities

12 MBD 1, MBD 4, MBD 5, MBD 6.1, MBD 6.2, Annexures C, D & E, MBD 7.1, MBD 8, MBD 9

This returnable schedule needs to be completed if the Tenderer is a company or other legal person.

Resolution of Board of Directors / Members / Partners

RESOLUTION of a meeting of the Board of *Directors / Members / Partners of:

_____ (legally correct full name and registration number, if applicable, of the Enterprise)

Held at _____ (place)

On _____ (date)

RESOLVED that:

1. The Enterprise submits a Tender to the Dawid Kruiper Municipality in respect of the following project:

_____ (project description as per Tender Document)

Tender Number: _____ (Tender Number as per Tender Document)

2. *Mr/Mrs/Ms: _____

in *his/her Capacity as : _____ (Position in the Enterprise)

and who will sign as follows : : _____

be, and is hereby, authorised to sign the Tender, and any and all other documents and/or correspondence in connection with and relating to the Tender, as well as to sign any Contract, and any and all documentation, resulting from the award of the Tender to the Enterprise mentioned above.

	Name	Capacity	Signature
1			
2			
3			
4			
5			
6			

Note:

1. * Delete which is not applicable
2. **NB.** This resolution must be signed by all the Directors / Members / Partners of the Tendering Enterprise
3. Should the number of Directors / Members/Partners exceed the space available above, additional names and signatures must be supplied on a separate page

ENTERPRISE STAMP

This returnable schedule needs to be completed if the Tenderer is a joint venture. This form must be completed by each partner of the joint venture. The name of the Principal Partner must be stated under Point 2.

Resolution of Board of Directors / Members / Sole Proprietor/ Partners of Partnership (i.e. of each legal person to comprise the Joint Venture Partnership)

RESOLUTION of a meeting of the Board of *Directors / Members / Sole Proprietor/ Partners of:

(Legally correct full name and registration number, if applicable, of the Enterprise)

Held at _____ (place)

On _____ (date)

RESOLVED that:

3. The Enterprise submits a Tender, in Joint Venture with the following Enterprises:

(List all the legally correct full names and registration numbers, if applicable, of the Enterprises forming the Joint Venture)

to the Dawid Kruiper Municipality in respect of the following project:

(Project description as per Tender Document)

Tender Number: _____ (Tender Number as per Tender Document)

4. The Principal Partner of the Joint Venture will be

(Legally correct full name and registration number, if applicable, of the Principal Partner of Joint Venture)

5. *Mr/Mrs/Ms: _____

in *his/her Capacity as: _____ (Position in the Enterprise)

and who will sign as follows: _____

be, and is hereby, authorised to sign a joint venture agreement with the parties listed under item 1 above, and any and all other documents and/or correspondence in connection with and relating to the joint venture, in respect of the project described under item 1 above.

6. The Enterprise accepts joint and several liability with the parties listed under item 1 above for the due fulfilment of the obligations of the joint venture deriving from, and in any way connected with, the Contract to be entered into with the Dawid Kruiper Municipality in respect of the project described under item 1 above.
7. The Enterprise chooses as its *domicilium citandi et executandi* for all purposes arising from this joint venture agreement and the Contract with the Dawid Kruiper Municipality in respect of the project under item 1 above:

Physical address: _____

_____ (code)

Postal Address: _____

_____ (code)

Telephone number: _____ (code)

Fax number: _____ (code)

	Name	Capacity	Signature
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Note:	ENTERPRISE STAMP
<p>1. * Delete which is not applicable</p> <p>2. NB. This resolution must be signed by <u>all</u> the Directors / Members / Partners of the Bidding Enterprise</p> <p>3. Should the number of Directors / Members/Partners exceed the space available above, additional names and signatures must be supplied on a separate page</p>	

This returnable schedule needs to be completed if the Tenderer is a joint venture.

Special Resolution of Joint Venture Partners

RESOLUTION of a meeting of the duly authorised representatives of the following legal entities who have entered into a joint venture to jointly tender for the project mentioned below: (*legally correct full names and registration numbers, if applicable, of the Enterprises forming a Joint venture*)

1. _____

2. _____

3. _____

4. _____

5. _____

6.

7.

8.

Held at _____ (place)

On _____ (date)

RESOLVED that:

- A. The above-mentioned Enterprises submit a tender in joint venture partnership to the Dawid Kruiper Municipality in respect of the following project:

(Project description as per Tender Document)

Tender Number: _____ (Tender Number as per Tender Document)

- B. Mr/Mrs/Ms: _____
in *his/her Capacity as: _____ (Position in the Enterprise)

and who will sign as follows: _____

be, and is hereby, authorised to sign the Tender, and any and all other documents and/or correspondence in connection with and relating to the Tender, as well as to sign any Contract, and any and all documentation, resulting from the award of the Tender to the Enterprises in joint venture mentioned above.

- C. The Enterprises constituting the Joint Venture, notwithstanding its composition, will conduct all business under the name and style of: _____
- D. The Enterprises to the Joint Venture accept joint and several liability for the due fulfilment of the obligations of the Joint Venture deriving from, and in any way connected with, the contract entered into with the Dawid Kruiper Municipality in respect of the project described under item A above.
- E. Any of the Enterprises to the Joint Venture intending to terminate the Joint Venture agreement, for whatever reason, will give the Dawid Kruiper Municipality 30 days written notice of such intention. Notwithstanding such decision to terminate, the Enterprises will remain jointly and severally liable to the Dawid Kruiper Municipality for the due fulfilment of the obligations of the Joint Venture as mentioned under item D above.
- F. No Enterprise to the Joint Venture will, without the prior written consent of the other Enterprises to the Joint Venture and of the Dawid Kruiper Municipality, cede any of its rights or assign any of its obligations under the Joint Venture agreement in relation to the contract with the Dawid Kruiper Municipality referred to herein.
- G. The Enterprises choose as the *domicilium citandi et executandi* of the Joint Venture for all purposes arising from the Joint Venture agreement and the contract with the Dawid Kruiper Municipality in respect of the project under item A above:

Physical address: _____

_____ (code)

Postal Address: _____

_____ (code)

Telephone number: _____ (code)

Fax number: _____ (code)

	Name	Capacity	Signature
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

Note:

1. * Delete which is not applicable
2. **NB.** This resolution must be signed by all the Duly Authorised Representatives of the Legal Entities to the Joint Venture submitting this Tender
3. Should the number of Duly Authorised Representatives of the Legal Entities joining forces in this Tender exceed the space available above, additional names and signatures must be supplied on a separate page
4. Resolutions, duly completed and signed, from the separate Enterprises who participate in this Joint venture must be attached to the Special Resolution

Record of Addenda to tender documents

I / We confirm that the following communications received from the Dawid Kruiper Municipality before the submission of this tender offer, amending the tender documents, have been taken into account in this tender offer: *(Attach additional pages if more space is required)*

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

Name	Position	Signed

Name of Tenderer	Date

Proposed Amendments and Qualifications

The Tenderer shall record any deviations or qualifications he may wish to make to the tender documents in this Returnable Schedule.

Page	Clause or item	Proposal

Name	Position	Signed

Name of Tenderer	Date

Proposed Subcontractors

In order to complete the Works under this Contract, I/we propose to employ the following subcontractors to carry out the portion/type of work as detailed.

(Note: All proposed subcontractors must be listed).

Subcontractor: Name, Address and Telephone No.	Portion/type of work to be undertaken	Estimated value of work

Name	Position	Signed

Name of Tenderer	Date

Capacity of Tenderer

1. **WORK CAPACITY:** *(The Tenderer is requested to furnish the following full particulars, attach additional pages if more space is required. Failure to furnish the particulars may result in the Tender being disregarded.)*

Skilled artisans employed		Unskilled employees employed	
Categories of artisans	Number	Categories of employees	Number
Machinery and Plant – Please attach proof	MV and LV tools – Please attach proof	Workshops – Please attach proof	

Contractor

Witness for Contractor

Employer

Witness for Employer

2. QUALIFICATIONS AND EXPERIENCE OF PROPOSED SITE SUPERVISION TEAM FOR THE PROJECT

Tenderer to provide name(s), key qualifications and experience of site supervision team that will supervise the project on behalf of the Contractor.

1. Contracts and Project Manager

Name and Surname :

Qualification :

No of years of experience :

2. Site Manager

Name and Surname :

Qualification :

No of years of experience :

3. Site Foreman (Wireman's licence)

Name and Surname :

Qualification :

Licence Registration no. :

No of years of experience :

4. MV cable jointer and termination

Name and Surname :

Qualification :

No of years of experience :

5. Health and Safety Officer

Name and Surname :

Qualification :

No of years of experience :

3. PARTICULARS OF COMMITMENTS WHICH THE TENDERER HAS PREVIOUSLY COMPLETED AND PRESENTLY ENGAGED WITH:

3.1 Current projects: (Please attached proof in terms of appointment letter and or SLA)

Project Name	Contact person	Contact Tel. No.	Contract amount	Contract period
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

a. Previous projects: (Please attached proof in terms of Practical completion and or Certificate of completion)

Project	Contact person	Contact Tel. No.	Contract amount	Contract period
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Certificate of Attendance at Tender Briefing Meeting and Site Inspection

This is to certify that I,

Representing

Company

Position

Visited the site on

I have made myself familiar with all local conditions likely to influence the work and the cost thereof. I further certify that I am satisfied with the description of the work and explanations given at the site inspection meeting and that I understand perfectly the work to be done, as specified and implied, in the execution of this contract.

<input type="text"/>	<input type="text"/>	<input type="text"/>
Name Tenderer's Representative	Position	Signed

<input type="text"/>	<input type="text"/>
Name of Tenderer	Date

<input type="text"/>	<input type="text"/>	<input type="text"/>
Name of Employer's Representative	Signature	Date

Contractor

Witness for
Contractor

Employer

Witness for
Employer

T2.2 Tender Sum Breakdown

SCHEDULE C2.2.1: SUMMARY OF PRICES FROM ANNEXURE A

Schedule No	Description	Unit	Qty	Rate	Total
A	Preliminary and General	Sum	1		
B	Delta Substation 17.5Kv,1250 Amp, 25kA Incomer	No.	1		
C	Delta Substation Feeder breakers 17.5kV, 630Amp 20kA	No.	9		
D	Fire Brigade- Alpha Substation Incomers, 17.5Kv, 1250Amp, 25kA Incomers	No.	2		
E	Fire Brigade Substation- Feeder breakers, 17.5Kv, 630Amp, 20kA X	No.	8		
F	Installation, testing and commissioning	Sum	1		
G	11Kv Cable jointing and termination work	Sum	1		
H	Transport and delivery to Uppington	Sum	1		
	Subtotal – 1				
	Contingency (15%)				
	Subtotal – 2				
	VAT (15%)				
	Total Tender Price				

2: The Contract

Part C1: Agreement and Contract Data

C1.1 Form of Offer and Acceptance

OFFER

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

SUPPLY MATERIAL, LABOUR AND EQUIPMENT FOR THE INSTALLATION OF 11KV SWITCHGEAR (DELTA AND FIRE BRIGADE SUBSTATIONS)

The Tenderer, identified in the offer signature block, has examined the documents listed in the tender data and addenda thereto as listed in the returnable schedules, and by submitting this offer has accepted the conditions of tender.

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

THE OFFERED TOTAL OF THE PRICES INCLUSIVE OF VALUE ADDED TAX IS:

.....

..... Rand (in words);

R (in figures)

The scope of works will be completed by....., Number of weeks:

This offer may be accepted by the employer by signing the acceptance part of this form of offer and acceptance and returning a copy of this acceptance form to the tenderer before the end of the period of validity stated in the tender data, whereupon the tenderer becomes the party named as the contractor in the conditions of contract identified in the contract data.

Signature Date

Name

Capacity

For the tenderer

Name and address of organization

Name and signature of witnesses

Acceptance

By signing this part of this Form of Offer and Acceptance, the Employer identified below accepts the Tenderer’s offer. In consideration thereof, the Employer will pay the contractor the amount due in accordance with the conditions of contract identified in the Contract Data. Acceptance of the Tenderer’s offer will form an agreement between the employer and the Tenderer upon the terms and conditions contained in this Agreement and in the Contract that is the Subject of this Agreement.

The terms of the contract, are contained in:

- Part C1: Agreements and Contract Data, (which includes this agreement)
- Part C2: Pricing Data
- Part C3: Scope of Work.
- Part C4: Site Information

and drawings and documents or parts thereof, which may be incorporated by reference into Parts 1 to 4 above.

Deviations from and amendments to the documents listed in the tender data and any addenda thereto as listed in the tender schedules as well as any changes to the terms of the offer agreed by the tenderer and the employer during this process of offer and acceptance, are contained in the schedule of deviations attached to and forming part of this agreement. No amendments to or deviations from said documents are valid unless contained in this schedule.

The Tenderer will within two weeks after receiving a completed copy of this agreement, including the schedule of deviations (if any), contact the Employer’s Agent (whose details are given in the Contract Data) to arrange the delivery of any bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the conditions of contract identified in the Contract Data. Failure to fulfil any of these obligations in accordance with those terms will constitute a repudiation of this agreement.

Notwithstanding anything contained herein, this agreement comes into effect on the date when the Tenderer receives one fully completed signed acceptance form, including the schedule of deviations (if any). Unless the Tenderer (now Contractor) within five working days of the date of such receipt notifies the Employer in writing of any reason why he cannot accept the contents of this agreement, this agreement will constitute a binding contract between the parties.

Signature Date

Name

Capacity

**For the Employer The Dawid Kruiper Municipality
Civic Centre
Market Street
UPINGTON, 8801**

Name and address of organization

Name and signature of witness Date

Schedule of Deviations

- 1 Subject
- Details
-

-
.....
- 2 Subject
- Details
-
-
-
- 3 Subject
- Details
-
-
-
- 4 Subject
- Details
-
-
-
- 5 Subject
- Details
-
-
-

By the duly authorized representatives signing this agreement, the employer and the tenderer agree to and accept the foregoing schedule of deviations as the only deviations from and amendments to the documents listed in the tender data and addenda thereto as listed in the tender schedules, as well as any confirmation, clarification or changes to the terms of the offer agreed by the tenderer and the employer during this process of offer and acceptance.

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

C1.2 Contract Data

The General Conditions of Contract for Construction Works (2015) published by the South African Institution of Civil Engineering is applicable to this Contract. Copies of these Conditions of Contract may be obtained from the South African Institution of Civil Engineering (Tel 011-805 5947).

The General Conditions of Contract make several references to the Contract Data for specific data, which together with these conditions collectively describe the risks, liabilities and obligations of the contracting parties and the procedures for the administration of the Contract. The Contract Data will have precedence in the interpretation of any ambiguity or inconsistency between it and the General Conditions of Contract.

Each item of data given below is cross-referenced to the Clause in the General Conditions of Contract to which it mainly applies.

The following variations, amendments and additions to the Clauses of the General Conditions of Contract are contract specific data applicable to this Contract:

DATA PROVIDED BY THE EMPLOYER

CLAUSE	DESCRIPTION / WORDING
1.1	<p>Add the following new definitions at the end of Clause 1.1:</p> <p>1.1.1.35 "Conditions of Contract" mean the General Conditions of Contract as amended in the Contract Data.</p> <p>1.1.1.36 "Schedule of Documents" means the documents so designated in and forming part of the Quotation Documents."</p>
1.1.15 & 1.2.1.2	<p>The Employer is, Dawid Kruiper Municipality</p> <p>The Employer's address for receipt of communications and notices is:</p> <p>Physical address: Dawid Kruiper Municipality Civic Centre Market Street UPINGTON 8801</p> <p>Postal Address: Private Bag X6003 Upington 8800 Telephone: (054) 338 7000 Facsimile: (054) 338 7020</p>
4.3	<p>Add the following new Clause after Clause 4.3.2:</p> <p>"4.3.3 The Employer and the Contractor hereby agree, in terms of the provisions of Section 37(2) of the Occupational Health and Safety Amendment Act, 1993 (Act 85 of 1993), hereinafter referred to as 'the Act', that the following arrangements and procedures will apply between them to ensure compliance by the Contractor with the provisions of the Act:</p> <p style="padding-left: 40px;">The Contractor undertakes to acquaint the appropriate officials and employees of the Contractor with all relevant provisions of the Act and the Regulations promulgated in terms of the Act.</p> <p style="padding-left: 40px;">The Contractor undertakes that all relevant duties, obligations and prohibitions imposed in terms of the Act and Regulations on the Contractor will be fully complied with. The Contractor accepts sole liability for such due compliance with the relevant duties, obligations and prohibitions imposed by the Act and Regulations and expressly absolves the Employer from himself being obliged to comply with any of the aforesaid duties, obligations and prohibitions, with the exception of such duties, obligations and prohibitions expressly assigned to the Employer in terms of the Act and its associated Regulations.</p> <p style="padding-left: 40px;">The Contractor agrees that any duly authorised officials of the Employer will be entitled, although not obliged, to take such steps as may be necessary to monitor that the Contractor has conformed to his undertakings as described in paragraphs (i) and (ii) above, which steps</p>

CLAUSE	DESCRIPTION / WORDING
	<p>may include, but will not be limited to, the right to inspect any appropriate site or premises occupied by the Contractor, or any appropriate records or safety plans held by the Contractor.</p> <p>The Contractor will be obliged to report forthwith to the Employer and Engineer any investigation, complaint or criminal charge which may arise as a consequence of the provisions of the Act and Regulations, pursuant to work performed in terms of this Contract, and will, on written demand, provide full details in writing, to the Employer and Engineer, of such investigation, complaint or criminal charge.</p> <p>4.3.4 The Contractor will furthermore, in compliance with Constructional Regulations 2003 to the Act:</p> <p>(i) Acquaint him with the requirements of the Employer's health and safety specification as laid down in Regulation 4(1) (a) of the Construction Regulation 2003, and prepare a suitably and sufficiently documented health and safety plan as contemplated in Regulation 5(1) of the Construction Regulations 2003 for approval by the Employer or his assigned agent. The Contractor's health and safety plan and risk assessment will be submitted to the Employer for approval within seven (7) days after the Commencement Date and will be implemented and maintained from the Commencement of the Works.</p> <p>The Employer, or his assigned agent, reserves the right to conduct periodic audits, as contemplated in the Construction Regulations 2003, to ensure that the Contractor is compliant in respect of his obligations. Failure by the Contractor to comply with the requirements of these Regulations will entitle the Engineer, at the request of the Employer or his agent, to suspend all or any part of the Works, with no recourse whatsoever by the Contractor for any damages incurred as a result of such suspension, until such time that the Employer or his agents are satisfied that the issues in which the Contractor has been in default have been rectified."</p>
4.3	<p>Add the following new Clause 4.3.5</p> <p>"With regard to the Compensation for Occupational Injuries and Diseases Act (Act no. 130 of 1993), where applicable, the Contractor will before commencement of the Works deliver to the Employer a letter, either</p> <p>(a) from his insurance company certifying that the Contractor has effected insurance with the company for the full extent of his potential liability in respect of all workmen employed by him on the contract and undertaking to notify the Employer of the expiry date of the policy at least one calendar month before such date, or</p> <p>(ii) from the Compensation Commissioner certifying that the Contractor has complied with the requirements of the above-mentioned Act and is at present in good standing with the Compensation Fund."</p>
4.11.1	<p>Replace the first paragraph of Clause 4.11.1 with the following:</p> <p>(b) "The Contractor will employ on for the purposes of the Contract, only such persons as are careful, competent and efficient in their several trades and callings."</p>
5.3.1	<p>The Contractor will commence executing the Works within fourteen (14) days after the Commencement Date (Date, the Form of Acceptance is signed by the Employer).</p> <p>Add the following after "... Commencement Date" in the fourth line:</p> <p>"subject to the Contractor having an approved project specific health and safety plan in terms of the Occupational Health and Safety Act 1993: Construction Regulations 2014 and complied with the initial requirements thereof."</p> <p>In addition, the Contractor shall submit the following documents prior to site establishment:</p> <ol style="list-style-type: none"> a) Performance Guarantee. b) Insurances and Professional Indemnity/ letters of intent from Insurer. c) Construction Programme and detailed cash flow. d) Approval from Dept. of Labour for submitting "Notice for Construction of Work" and or Construction Works permit. <p>Health and Safety plan/ document.</p>
5.4.1	<p>Between the wording "... Site," and "the location" in the second line, add the following:</p>

CLAUSE	DESCRIPTION / WORDING																												
	e) "subject to the Contractor having an approved project specific health and safety plan in terms of the Occupational Health and Safety Act 1993: Construction Regulations 2003 and complied with the initial requirements thereof,"																												
5.5.1	Bidders must provide a realistic completion period, taking into account long leading items, soil composition for cable excavations and all possible interferences during construction. The Due Completion Date shall be as indicated on the Form of Offer of Acceptance, alternatively the Due Completion Date shall be calculated from the Commencement Date and the period indicated on the Form of Offer of Acceptance.																												
5.6.1	The Contractor will deliver his Works programme within fourteen (14) days after the Commencement Date.																												
5.6.2	The programme shall specifically show the ordering and delivery dates for the major material and equipment items, including but not limited to the long-lead delivery time items. The Employer reserves the right to apply delay penalties in the event that these programme dates are not achieved or complied with. The rate applicable to such penalty shall be the same as per clause 5.13.1.																												
5.8	Delete the words "between sunrise and sunset" in the first line and replace with "within normal working hours". Add the following: "Normal working hours will be between 7h00 and 18h00. The cost of supervision by the Engineer or his representatives outside of normal (Monday to Saturday) working hours in accordance with this Clause will be for the Contractor's account".																												
5.8.1	The special non-working days are all the applicable public holidays as well as the year-end break.																												
5.12.2.2	<p>Add the following to Clause 5.12.2.:</p> <p>No extension of time will be granted in respect of any delays attributed to normal climatic conditions. Normal Climatic Conditions shall be deemed to include normal rainfall and associated wet conditions and materials, strong winds and extremes of temperature. However, extension of time shall be granted in accordance with the provisions of Clause 5.12 in the event that delays to critical activities exceed the number of working days listed below for each month, then abnormal conditions shall be deemed to exist. The number of working days quoted below for each calendar month shall be regarded as a fair estimate of the delays to be anticipated and allowed for under normal climatic conditions by the Contractor.</p> <table border="1" data-bbox="475 1379 1238 1655"> <thead> <tr> <th>Month</th> <th>Working Days</th> <th>Month</th> <th>Working Days</th> </tr> </thead> <tbody> <tr> <td>January</td> <td>0</td> <td>July</td> <td>3</td> </tr> <tr> <td>February</td> <td>0</td> <td>August</td> <td>3</td> </tr> <tr> <td>March</td> <td>0</td> <td>September</td> <td>1</td> </tr> <tr> <td>April</td> <td>1</td> <td>October</td> <td>0</td> </tr> <tr> <td>May</td> <td>3</td> <td>November</td> <td>0</td> </tr> <tr> <td>June</td> <td>3</td> <td>December</td> <td>0</td> </tr> </tbody> </table> <p>Extension of time in terms of Clause 5.12 based on abnormal rainfall or wet conditions shall be calculated separately for each calendar month or part thereof according to the formula given below, for the full contract period including any extension thereof.</p> $V = (N_w + N_n) + \frac{(R_w - R_n)}{X}$ <p>V : Extension of time in calendar days regarding the calendar month under consideration.</p> <p>Nw : Actual number of days during the calendar month whereupon a rainfall of Y mm or more was recorded.</p>	Month	Working Days	Month	Working Days	January	0	July	3	February	0	August	3	March	0	September	1	April	1	October	0	May	3	November	0	June	3	December	0
Month	Working Days	Month	Working Days																										
January	0	July	3																										
February	0	August	3																										
March	0	September	1																										
April	1	October	0																										
May	3	November	0																										
June	3	December	0																										

CLAUSE	DESCRIPTION / WORDING
	<p>Nn : Average number of days during the relevant calendar month whereupon, according to existing rainfall data, a rainfall of Y mm or more was recorded.</p> <p>Rw : Actual rainfall in mm, for the calendar month under consideration.</p> <p>Rn : Average rainfall in mm, for the calendar month derived from existing rainfall data.</p> <p>X : This is regional factor and shall vary from 5 mm/calendar month for dry areas to 20 mm/ calendar month for wet areas. Clay soil must have a lower value than a lower value as sandy granular soil, since it will take longer to dry out.</p> <p>Y : This is the intensity of rain that will cause the cessation of work and can be about 10 mm/day.</p> <ul style="list-style-type: none"> ▪ For the purpose of the contract, Nn, Rn, X and Y shall have the values as provided in the Annexures to the tender and/or the specifications. ▪ The total extension of time is the algebraic sum of the monthly totals for the subject period under consideration. ▪ Extension of time for part of a month shall be calculated by using the pro-rata values of Nn and Rn for the relevant calendar month. If the algebraic sum of the monthly totals is negative, no reduction in contract completion time will be applicable due to abnormal rainfall conditions. <p>The formula does not take into account any delays because of flood damage that will result in further or simultaneous delays. The delays because of flood damage must be handled separately for the purposes of extension of time on the completion time.</p>
5.13.1	The penalty for failing to complete the Works within the abovementioned time limit, plus approved extensions of time or condonation hereof is R 6 500.00 per calendar day of the Tender award sum including VAT
6.2.1	The Contractor shall furnish the Engineer with a Performance Guarantee from a recognised financial institution, insurer or a commercial bank, subject to the Employer's acceptance and approval e.g. Lombard's or a commercial bank.
6.2.1	The security for due performance of the Contract shall be in the form of a Performance Guarantee to the value of 10% of the Contract Sum, which shall be delivered by the Contractor prior to Commencement of Works. The Contractor shall maintain the validity of the performance guarantee until the Certificate of Completion for the whole of the works is issued.
6.3.4.1	Add the following: The Employer retains the right to revise the scope of works to suit the available funding, if tender offers surpass the allocated available funding.
6.8.2	Contract Price Adjustment will not be applicable.
6.8.3	Price adjustments for variations in the cost of special materials will not be allowed on this Contract.
6.10.1.3	<p>Replace the contents of Clause 6.10.1.3 with the following:</p> <p>"Any amounts, by addition or deduction, to those referred to in this Clause which are due to the Contractor or the Employer and will include the deduction of penalties in terms of Clause 5.13.1."</p>
6.10.1.5	The percentage advance on materials not yet built into the Permanent Works is 80%.
6.10.3	The percentage retention on the amounts due to the Contractor is 10% of interim payment certificates,
6.10.5	5% of the Contract Price shall be withheld upon completion of the project and be released upon lapsing of the defects and liability period after 12 months.
6.2.1	A retention money guarantee is not permitted.
7.1.1	<p>Add the following at the end of Clause 7.1.1:</p> <p>"Unless otherwise directed in writing by the Engineer, all materials for the Permanent Works will be new and unused."</p>
1.1.1.13 & 7.8.1	The Defects Liability Period is 12 calendar months, starting after the issue of a Certificate of Practical Completion.
8.6.1	The Contractor shall provide proof of insurances for the duration of the contract as stipulated in 8.6
8.6.1.1.2	The value of materials supplied by the Employer amounts to Zero rand. (R 0,00)
8.6.1.1.3	The amount to cover professional fees in terms of this Clause amounts to:

CLAUSE	DESCRIPTION / WORDING
	10% of the original Contract Price (Contract Sum).
8.6.1.2	Coupon policy for special risks insurances is not required.
8.6.1.3	<p>The limit of indemnity will be R 10,000,000.</p> <p>Add the following to Clause 8.6.1.3</p> <p>"The minimum amount of insurance required in terms of this Clause will be per event, the number of events being unlimited."</p>
8.6.1.5	None.
8.6.6	The insurance policies and proof of due payment will be produced to the Engineer within fourteen (14) days after the Commencement Date.
8.6.8	<p>Add the following new Clause 8.6.8</p> <p>"In the event of any claim arising under the policies held in terms of this Clause, the Contractor will forthwith take all necessary steps to lodge his claim on the joint behalf of himself and the Employer, and to secure settlement of such claim, and he will submit to the Engineer copies of all claims and associated documents.</p> <p>The claim submitted by the Contractor will cover the cost of repairing and making good as required in terms of Clauses 8.2.1 and 8.2.2."</p>
9.1.2	<p>Replace the contents of Clause 9.1.2 with the following:</p> <p>"Up to the time of termination of the Contract by either party in terms of this Clause, or until the Contractor gives notice in terms of this Clause to terminate the Contract and the Contractor is precluded from exercising his right to terminate the Contract because the Employer agrees to bear any resultant additional costs provided for in Clause 54.2.2 hereof, the Contractor:</p> <p>a) will be entitled to an extension of calendar time for working days lost as may be approved by the Engineer, and</p> <p>b) will be reimbursed the cost of delays per working day, where the number of working days will be determined pro rata the effect the delays have on the progress of the work as agreed with the Engineer. Payment in full and final settlement will be made at the rates tendered for the payment items specially provided in the Bill of Quantities.</p> <p>Where the circumstances described in Clauses 9.1.1 are applicable only to a certain portion of the Contract, the Engineer will decide after consulting the Contractor, to what extent the Contract as a whole is affected and whether or not a claim in terms of this Clause can be submitted.</p> <p>No payment will be made in terms of this Clause after the expiry of the Due Completion Date."</p>
9.2.1.3.6	The Contractor's obligations under the Contract shall include compliance with approved programme and achievement of critical milestones of the programme.
10.4 & 10.5	Dispute resolution will be by amicable settlement or adjudication, as so decided by both parties in writing.
10.7	The determination of unresolved disputes in terms of Clauses 10.4 & 10.5 will be referred for final settlement to arbitration.
10.7	Special disputes will be referred for final settlement to arbitration.

C1.3 Form of Guarantee

WHEREAS THE CHIEF EXECUTIVE, DAWID KRUIPER MUNICIPALITY

(hereinafter referred to as "the Employer") entered into a Contract with

.....

(hereinafter called "the Contractor") on the..... day of 20... for **CONTRACT NO. TN041/2022** for the

SUPPLY MATERIAL, LABOUR AND EQUIPMENT FOR THE INSTALLATION OF 11KV SWITCHGEAR (DELTA AND FIRE BRIGADE SUBSTATIONS)

AND WHEREAS it is provided by such Contract that the Contractor will provide the Employer with security by way of a guarantee for the due and faithful fulfilment of such Contract by the Contractor;

WHEREAS WE, (name of Insurance Company/Bank)

have at the request of the Contractor, agreed to give such guarantee;

NOW THEREFORE WE do hereby guarantee and bind ourselves jointly and severally as Guarantor and Co principal Debtors to the Employer under renunciation of the benefits of division and excussion for the due and faithful performance by the Contractor of all the terms and conditions of the said Contract, subject to the following conditions:

1. The Employer will, without reference and/or notice to us, have complete liberty of action to act in any manner authorized and/or contemplated by the terms of the said Contract, and/or to agree to any modifications, variations, alterations, directions or extensions of the Due Completion Date of the Works under the said Contract, and that its rights under this guarantee will in no way be prejudiced nor our liability hereunder be affected by reason of any steps which the Employer may take under such Contract, or of any modification, variation, alterations of the Due Completion Date which the Employer may make, give, concede or agree to under the said Contract.
2. This guarantee will be limited to the payment of a sum of money.
3. The Employer will be entitled, without reference to us, to release any guarantee held by it, and to give time to or compound or make any other arrangement with the Contractor.
4. This guarantee will remain in full force and effect until the issue of the Certificate of Completion in terms of the Contract, unless we are advised in writing by the Employer before the issue of the said Certificate of his intention to institute claims, and the particulars thereof, in which event this guarantee will remain in full force and effect until all such claims have been paid or liquidated.
5. Our total liability hereunder will not exceed the sum of
.....(R.....)
6. The Guarantor reserves the right to withdraw from this guarantee by depositing the Guarantee Sum with the beneficiary, whereupon the Guarantor's liability hereunder will cease.
7. We hereby choose our address for the serving of all notices for all purposes arising hereof as

.....

IN WITNESS WHEREOF this guarantee has been executed by us at

on this day of 20.....

As witnesses:

1. Signature

2. Duly authorized to sign on behalf of

..... Address

.....

.....

C1.4 Occupational Health and Safety Agreement

(To be completed and signed by all Mandatories)

OCCUPATIONAL HEALTH AND SAFETY ACT NO. 85 of 1993

Note: Section 1(1)(xxviii) of the Act defines a "Mandatory" as including "an Agent, a Contractor or a Contractor for Work".

The Employer and the Contractor hereby agree, in terms of the provisions of Section 37(2) of the Occupational Health and Safety Act, Act No. 85 of 1993, herein after referred to as "the Act", that the Contractor as an employer in its own right and in its capacity as Contractor the execution of the works, shall have certain obligations and that the following arrangement shall apply between them to ensure compliance by the Contractor with the provisions of the Act, namely:

1. The Contractor undertakes to acquaint the appropriate officials and the employees of the Contractor with all relevant provisions of the Act, and the regulations promulgated in terms of the Act, and
2. The Contractor undertakes that all relevant duties, obligations and prohibitions imposed in terms of the Act and regulations will be fully complied with, and
3. The Contractor hereby accepts sole liability for such compliance with the relevant duties, obligations and prohibitions imposed by the Act and regulations and expressly absolves the Employer and the Employer's Consulting Engineers from being obliged to comply with any of the aforesaid duties, obligations and prohibitions in respect of the work included in the Contract, and
4. The Contractor shall be obliged to report forthwith to the Employer any investigations, complaint or criminal charge with may arise as a consequence of the provisions of the Act and regulations pursuant to work performed on behalf of the Employer, and shall, on written demand, provide full details in writing of such investigation, complaint or criminal charge.

As witnesses:

1. Signature

2. Duly authorized to sign on behalf of

on this day of..... 20....

..... Address

.....

.....

C1.5 Pro forma Ownership of Plant

I/We, the undersigned,
..... (Name of the Contractor)

hereby declare that the materials for which payment is claimed in terms of Clause 49.1.5 of the General Conditions of Contract that:

- 1. The material as listed in the Bill of Quantities supplied pursuant to the Contract shall become the property of the Client after payment.
- 2. The material and equipment paid by the Client are set aside and are marked as the property of the Client.
- 3. It is confirmed that such material and equipment are in the care of the Contractor solely for the purposes of the Contract and shall not be within the ownership of or disposition of the Contractor.
- 4. Any interim certificate issued by the Engineer shall be without prejudice of the exercise of any power of the Engineer contained in the Contract to reject material and/or equipment which is not in accordance with the Contract and upon any such rejection the property in the rejected material and/or equipment shall immediately revert to the Contractor.
- 5. That we shall be liable for loss of or damage to any of the Contractor's equipment which may happen otherwise than through the default of the Employer.

Address where the material/equipment will be held:

.....
.....

Signed in the presence of the subscribing witnesses:

At for and on behalf of the Contractor on this day of

1. Signature

2. Duly authorized to sign on behalf of

on this day of 20....

..... Address

.....

.....

C1.6 Expanded Public Works Programme- Commitment of Undertaking

I/We the undersigned,

.....

..... (Name of the Contractor),

hereby commits to the use local labour in the specific Wards wherein the proposed construction works/ developments will take place. Appointments will be done;

1. In conjunction with the specific Ward Councillor and CLO, if applicable.
2. According to the latest Guidelines from the Department of Labour and Occupational Health and Safety Act.
3. According to the latest Guidelines from the Expanded Public Works Programme.
4. With proper and appropriate compensation according to the latest EPWP regulations and guidelines including amendments thereof for Civil works.
5. With Health and Safety inductions according to the Occupational Health and Safety Act and Construction Regulations.

Address where appointments will be managed:

.....

.....

Signed in the presence of the subscribing witnesses:

At for and on behalf of the Contractor on this day of

1. Signature

2. Duly authorized to sign on behalf of

on this day of 20....

..... Address

.....

.....

NOTE: EPWP REGISTRATION FORMS MUST BE SUBMITTED WHEN CONSTRUCTION STARTS. LABOUR REPORTS AND EPWP REPORTS MUST BE SUBMITTED AT THE END OF THE MONTHS DURING CONSTRUCTION IN WORD/ EXCEL.

Part C2: Pricing Data

C2.1 Pricing Instructions

The measurement and payment clauses of the SANS 1200 Standardized Specifications and the Standard and Particular Specifications will be deemed to form part of and included in the Pricing Instructions.

PREAMBLE TO BILL OF QUANTITIES

C2.1.1 General

1. The Contract Data, the Scope of the Work and the Site Information are to be read in conjunction with the Bill of Quantities. **The Bill of Quantities is attached as Annexure A.**
 - a. The Bill of Quantities comprises items covering the Contractor's profit and costs of general liabilities and of construction of temporary and permanent Works.
 - b. All rates in the Bill of quantities should only include the rate for unskilled, semi-skilled and skilled labour employed full time by the Tenderer. All other Labour cost in terms of Local labour temporarily employed as set out in the tender Conditions is addressed in the Preliminary and General section of the Bill of quantities.
 - c. The Tenderer is at liberty to insert a rate of his own choosing for each item in the Bill but his attention is drawn to the fact that the Contractor has the right, under various circumstances, to payment for additional works carried out and that the Engineer is obliged to base his assessment of the rates to be paid for such additional work on the rates inserted in the Bill.
 - d. The measurement and payment clauses of each Specification, read together with the relevant clauses of the Specification Data, set out what ancillary or associated activities are included in the rate for the operations specified.
2. The Bill of Quantities has been drawn up generally in accordance with the latest issue of the SANS Standardized Specifications. Descriptions in the Bill are abbreviated and must be read in conjunction with the measurement and payment clauses of the applicable Specifications.
3. Unless otherwise stated, items are measured net in accordance with the Drawings, and no allowance has been made for waste.
4. Except that they will not include Value Added Tax (VAT), the prices and rates to be inserted in the Bill of Quantities are to be the full inclusive prices to the Employer for the work described under each item. Such prices will cover all costs and expenses that may be required in and for the construction of the work described and will cover the cost of all general risks, liabilities, and obligations set forth or implied in the documents on which the tender is based. Provision is made in the Summary to the Bill of Quantities for VAT to be added.
5. A price or rate is to be entered against each item in the Bill of Quantities, whether the quantities are stated or not. An item against which no price is entered will be considered to have a price or rate of R0,00.
6. The Schedule of Quantities forms part of, and must be read in conjunction with the Specification and must be submitted, duly completed, on the closing date of tenders.
7. Tenderers must complete the Schedule of Quantities and detail all required rate. The "Amount" will constitute the tender price for adjudication. Note: The Tenderer must price and extend each item, total each page and carry the total of each section in the Bill of Quantities to the Summary page. Arithmetical errors occurring in the priced Schedule of Quantities will be corrected and the tender price adjusted accordingly.
8. No alteration, erasure or addition is to be made in the text. Should any alteration, erasure or addition be made it will not be recognized and the original wording of the Schedule of Quantities will be adhered to.

Construction

9. Attention is drawn to Clause 44.1 of the General Conditions of Contract and the Contractor must not order the quantities of materials stated in the Bill of Quantities until he has confirmed from the construction drawings or measurement on Site that such quantities are in fact the correct quantities.
10. Items in the Schedule of Quantities are deemed to include supply, delivery, installation and connection where

appropriate, unless stated to the contrary.

11. The quantities given in the Schedule of Quantities will be considered as provisional and cannot be regarded as exact and are subject to measurement on site after completion of the service and adjustments will be made according to the unit rates given in the Schedule of Quantities.
12. Materials
 - a. Supply of materials: The onus is on the Contractor to order material well in advance to ensure timely delivery. No extension of time will be allowed for late delivery of material due to orders not placed on time.
 - b. Items for approval: Where the specification refers to a specific brand name "or similar and equivalent" or "Other approved type" and alternative equipment is offered in lieu of that specified the written approval must be obtained from the Engineer before such equipment is installed.
 - c. In certain cases, the Contractor may be required to submit samples and where necessary, tests will be performed to establish the quality of the material offered.
 - d. Quality of materials: Only new, good quality materials may be used and where applicable materials must comply with the specifications of the South African Bureau of Standards SABS/SANS, the British Standards Specifications (BSS), the International Organization for Standardization (ISO) or the International Electro technical Commission (IEC). Wherever possible, S.A. manufactured material must be used
13. In the event of discrepancies between the drawings, specifications and Schedule of Quantities the Engineer will decide whether the work as executed will be measured on site or whether re-measurement will be effected from the working drawings only.
14. Provisional sums will be expended only as directed by Engineer and any balance remaining will be deducted from the amount of the contract Sum.
15. Where Prime Cost (P.C.) amounts are specified, no part of these amounts will be used without the written approval of the Engineer. Unused amounts will be omitted from the contract.
16. Where variation orders are necessary, instructions will be issued by the Engineer and all variations will be calculated according to the priced Schedule of Quantities. All the items in the bill must be priced by the Tenderer. Non-compliance with this requirement will deem the tender as non-responsive.
Where no provisions are made for rates pertaining to specific variation orders, the successful bidder will furnish the Engineer with at least three competitive quotes with accompanying specifications.
All Variation orders will be approved by the Employer and Engineer prior to execution of the scope of works of the Variation Order.
17. No work, for which "Provisional" items are provided, will be commenced without written instruction from the Engineer.
18. The following will be considered for excavation: -
 - a. Measurement will be to the bottom side of cables and measurement in m³ will be calculated from the minimum dimensions in accordance with the specification and drawings.
 - b. The rates will allow for additional costs like storing, protection of other services, pumping, smoothing of sides and bottoms, removal of rocks, bedding layer, clearing and removal of waste and all work incidental but not specifically mentioned in the schedule.
 - c. The rates will allow for frequent removal of unsuitable backfilling in trenches, barricading of excavations and general housekeeping of the construction site during the construction period.
 - d. The excavations will be protected as required by health and safety requirements and construction regulations.
19. The excavations will be measured according to the following types:-
 - a. Normal excavation
 - b. Intermediate excavation
 - c. Extra over item for hard rock excavation

Bidders are required to excavate test holes on the planned cable routes to determine the type of excavation machines that will be used during construction. The rates for the rock classifications in 19. must be calculated according the

appropriate machinery to reach the anticipated completion date.

20. The meaning of the above are as follows: -

a. Normal Excavation (i.e. Soft excavation)

Soft excavation shall be all material not falling into the category of hard rock or intermediate excavation.

b. Intermediate excavation

No provision shall be made for the classification of Intermediate material for the purpose of this contract.

c. Extra over item for hard rock excavation:

Hard rock excavation shall be excavation in material (including boulders exceeding 0.15 cubic metres in individual volume) that cannot be efficiently removed without blasting or without wedging and splitting or be in material, which cannot be excavated by Excavator up to a 30 Ton capacity with rock-bucket, or by a scraper without prior ripping.

The responsibility rests with the Contractor on the method to be used to perform hard rock excavations and should the Contractor choose a method other than blasting, the rates for both the alternative method and for blasting must be provided for in the Bill of Quantities.

The method of hard rock excavation must be agreed upon by the Contractor and the Employer or the Engineer after a written request with sufficient motivation is submitted to the Engineer before any hard rock excavations is performed by the Contractor on site. The Contractor shall bear full responsibility to provide any substantiating and/or necessary documentation with regards to blasting and/or alternative hard rock excavation methods to the Engineer in writing for his approval.

21. Local Labour

Bidders are required to take the minimum wage according to the EPWP guidelines for Civil Works into consideration when determining excavation rates.

22. Sub-Contracting and Sub- Contracting Agreements

Bidders will include managing costs for sub-contractors in the relevant sections or items defined for sub-contracting. Rates will be fixed after the tender offer is submitted. No rates will be changed or additional items be added for sub-contractor mark ups or management costs.

23. Additional Items

Any additional items, bidders see fit to add to the contract or tender must be motivated by means of a cover letter.

C2.2 Summary of Prices

DAWID KRUIPER MUNICIPALITY

TN041/2022: SUPPLY MATERIAL, LABOUR AND EQUIPMENT FOR THE INSTALLATION OF SWITCHGEAR (Delta and F

SCHEDULE C2.2.1: SUMMARY OF PRICES FROM ANNEXURE A

Schedule No	Description	Unit	Qty	Rate	Total
A	Preliminary and General	Sum	1		
B	Delta Substation 17.5Kv,1250 Amp, 25kA Incomer	No.	1		
C	Delta Substation Feeder breakers 17.5kV, 630Amp 20kA	No.	9		
D	Fire Brigade- Alpha Substation Incomers, 17.5Kv, 1250Amp, 25kA Incomers	No.	2		
E	Fire Brigade Substation- Feeder breakers, 17.5Kv, 630Amp, 20kA X	No.	8		
F	Installation, testing and commissioning	Sum	1		
G	11Kv Cable jointing and termination work	Sum	1		
H	Transport and delivery to Upington	Sum	1		
	Subtotal – 1				
	Contingency (15%)				
	Subtotal – 2				
	VAT (15%)				
	Total Tender Price				

Completion of the Scope of Works:..... (Date) Number of weeks.

Totals to be carried over to T2.2: Tender sum breakdown and the total tender price to C1.1: Form of Offer and Acceptance

Signature Date

Name

Capacity

For the tenderer

Name and address of organization

Name and signature witnesses

C2.3 Technical Schedules

C2.3.1 Guaranteed delivery times

Weeks

1. Construction period (Completion)
.....
2. PILCSWA MV Cable 3x120mm and 3x70mm, Table 19
.....
3. MV Switchgear- ABB or similar
.....
4. Cable terminations and jointing kits
.....

C2.3.2 11kV cables

- 1 Name of Manufacturer
.....
- 2 Type of Cable according to SANS 97
.....
- 3 Rated Voltage between Phases kV
.....
- 4 Rated Voltage between Phases and screen kV
.....
- 5 Conductor size mm²
.....
- 6 Frequency Hz
.....
- 7 Neutral point system
Solid
- 8 Conductor details:
 - a) Material
.....
 - b) Shape
.....
 - c) No and size of strands
.....
 - d) Diameter of conductor mm
.....
- 9 Insulation:
 - a) Compound used
.....
 - b) Average thickness mm
.....
 - c) Minimum thickness mm

		
	d) Approx. diameter	mm	
		
10	Lead Sheath:		
	a) No & approx. thickness of shield tapes		
		
	b) Cross-sectional area of sheath	mm ²	
		
11	Armouring:		
tapes	a) Material used		Steel
	b) No & approx. thickness of tapes		
		
	c) Cross sectional area of tapes	m ²	
		
12	Material used as bedding between sheath and armouring		
		
13	Outer sheath:		
(black)	a) Compound used		PVC
	b) Average thickness	mm	
		
	c) Minimum thickness	mm	
		
	d) Approx. overall diameter of cable		mm
		
14	Minimum bending radius of cable	m	
		
15	Approx. nett weight of finished cable		kg/m
		
16	Type testing of cable in factory		
		
17	Test Voltage kV:		
	a) AC	Time/kV.....	
	b) DC	Time/kV.....	
	c) Impulse 1,2/50	kV	
		
18	Min insulation resistance at 20°C		
	Megohm/km.....		
19	Max DC conductor resistance at 20°C		
	Ohm/km.....		
20	Max capacity	Microfarads/km.....	

21	Inductance of 3 core cable	mH/km	
22	Impedance of 3 core cable ohms/km.....		
23	in corona extinction level	kV	
24	Max charging current per phase	A/km	
25	Loss current to earth of 11kV 3 Phase System	A	
26	Charging power of 11kV 3 Phase system		kVA/km
27	Short circuit current of screen: a) For 1 sec kA b) For 10 secs kA		
28	Short circuit current rating of cable with the conductor at the initiation of the short circuit at 60°C for the following duration 0,2 sec kA 0,5sec kA 1,0 sec kA 5,0 sec kA		
29	Equivalent Star reactance of 3 Phase circuit at 50 Hz Ohm/km.....		
30	Max admissible conductor temperature	°C	
31	Admissible conductor temperature in emergency operation	°C	
32	Period cable can be operated in unearthed systems under emergency conditions : a) With 3 Phase at equal potentials to earth b) With one phase fully earthed	hour	hour

-
- 33 Current carrying capacity when installed under the following conditions
- a) Laid direct in ground 1,0m deep, specific soil resistivity 1,20°C m/W soil temperature 25°C, load factor 0,9. A
-
- b) As in (a) but load factor 0,7 A
-
- c) Installed in sleeve A
-
- d) Installed in air (ambient temp 30°C) A
-
- 34 Losses of cable under conditions as detailed in 33(a) with specified current carrying capacity:
- a) Conductor kW/km
-
- b) Dielectric kW/km
-
- c) Lead screen kW/km
-
- d) Total cable kW/km
-
- 35 Maximum dielectric loss of 3 Phase current of cable when laid direct in ground at 11kV, 50 Hz at 60°C conductor temperature
-
- 36 Withstand restriking voltage or breaking:
- a) 250 MVA fault
-
- b) Full load
-
- 37 Additional information Tenderer wishes to submit:
-

C2.3.3 11kV cable terminations

- 1 Name of Manufacturer
-
- 2 Type no Outdoor

3	Current carrying capacity	A
4	Flashover voltage (50Hz):	
	a) Dry kV	
	b) Wet kV	
5	Creepage distance mm	
6	AC withstand voltage	kV
7	Impulse withstand voltage 1,2/50 Wave	kV
8	Corona extinct voltage	kV
9	Dimension:	
	a) Length mm	
	b) Diameter mm	
	c) Mass kg	
10	Additional information Tenderer wishes to submit:	

C2.3.4 11kV cable joints

1	Name of Manufacturer	
2	Type no	Heat Shrinkable
3	Type of Material	
4	Type of Jointing conductors	
5	AC withstand voltage	kV
6	Impulse withstand voltage	kV

-
- 7 Corona extinct voltage kV
.....
- 8 Dimension:
- a) Length mm
.....
- b) Diameter mm
.....
- 9 Additional information Tenderer wishes to submit:
.....
.....

C2.3.5 MV Switchgear complete panels with breakers and electronic relays

- 1 Name of Manufacturer
.....
- 2 Voltage rating kV
- 3 Normal rated Amps Feeder Breakers A
Normal rated Amps Incomer Breakers A
- 4 Short circuit withstanding Feeders kA/ 3secs
- 5 Short circuit withstanding Incomers kA/ 3secs
- 6 Insulation type of all MV breakers _____
- 7 Size of panels LxHxW _____
- 8 Electronic protection relay manufacturer _____
- a) Voltage sensors
.....
- b) Arc protection
.....
- c) Current sensors
.....
- 9 Additional information
.....
.....
.....
.....
-

C2.3.10 SCHEDULE OF VARIATION RATES FOR DAY WORK

The rates will be applicable only in no rate exists in the Schedule of Quantities.

Item Rate	Description		
1	Labour charge for Foremen	per hour	
2	Labour charge for Artisan		per
3	Labour charge for Apprentice	per hour	
4	Labour charge for Labourer	per hour	
5	All inclusive rate for Engineers	per hour	
6	Percentage profit charge on additional material		
7	Charge for private car	per km	
	.....	per day	
8	Charge for truck not exceeding 1 ton, including driver	per km	
	.....	per day	
9	Charge for truck not exceeding 5 tons, including driver	per km	
	.....	per day	
10	Machinery and equipment:		

Part C3: Scope of Work

C3.1 List of Applicable Specifications

C.3.1.1 Specification data

The specification data is set out in two portions.

Portion 1: Quality standards

Portion 2: Guidelines and recommended practices

Should any requirement of the Specification Data conflict with any requirement of the specifications listed below, the requirement of the Specification Data will prevail.

C.3.1.2 Standardised specifications

Although not bound in nor issued with this document, the following standardized specifications, amendments thereof or updated versions for electrical Engineering construction form part of this document and the edition specified below will apply:

C.3.1.2.1 Table 1 – Quality standards - General

<u>Reference</u>	<u>Description</u>
NRS 02:2000	Graphical symbols for electrical diagrams.
M 33 A:1992	The international metric system (SI). Guide to the use of the SI in South Africa.
NRS 040-6:2009	High-voltage operating instructions Part 6: Code of practice for earthing. (Establishes and promotes the uniform use, understanding and implementation of the different types of medium-voltage and high-voltage earthing).
NRS 059:2002	Recommendations to minimize problems associated with the theft of transformer neutral and neutral earthing copper conductors.
SANS 1019:2008	Standard voltages, currents and insulation levels for electricity supply.
SANS 61936-1:2008 IEC 61936-1:2002	Power installations exceeding 1 kV a.c. Part 1: Common rules.
NRS 060:2005	Code of practice for clearances for electrical systems with rated voltages up to and including 145 kV, for the safety of persons.

C.3.1.2.2 Distribution within residential areas – General

<u>Reference</u>	<u>Description</u>
NRS 047-1:2005	Electricity supply - Quality of service Part 1: Minimum standards. (Outlines various service activities and minimum standards for measuring the quality of service provided to customers by electricity utilities in South Africa.
NRS 034 -1 2001	Electricity distribution - Guidelines for the provision of electrical distribution networks in residential areas Part 1: Planning and design of distribution systems.
NRS 034-0:2001	Electricity distribution - Guidelines for the provision of electrical distribution networks in residential areas Part 0: Definitions.

C.3.1.2.3 MV cables

<u>Reference</u>	<u>Description</u>
NRS 013:2007 - Medium-voltage cables	Details the preferred requirements for single-core and three-core, mass-impregnated non-draining (MIND) paper-insulated, lead-sheathed electric cables with stranded annealed copper or aluminium conductors, based on the requirements of SANS 97, or cross-linked polyethylene (XLPE)- insulated electric cables with stranded annealed copper or aluminium conductors, based on the requirements of SANS 1339.
NRS 012:2002	Cable terminations and live conductors within air-insulated enclosures (insulation co-ordination) for rated a.c. voltages of 7,2 kV and up to and including 36 kV.
NRS 028:1993	Cable lugs and ferrules for copper and aluminium conductors.
NRS 053:2008	Accessories for medium-voltage power cables (3,8/6,6 kV to 19/33 kV)
SANS 10198-1:2004	The selection, handling and installation of electric power cables of rating not exceeding 33 kV Part 1: Definitions and statutory requirements.
SANS 10198-10:1988 (1999-04-30)	The selection, handling and installation of electric power cables of rating not exceeding 33 kV Part 10: Jointing and termination of paper-insulated cables.
SANS 10198-11:1988 (1999-04-30)	The selection, handling and installation of electric power cables of rating not exceeding 33 kV Part 11: Jointing and termination of screened polymeric-insulated cables.
SANS 10198-13:1988 (1999-04-30)	The selection, handling and installation of electric power cables of rating not exceeding 33 kV Part 13: Testing, commissioning and fault location.
SANS 10198-3:2004	The selection, handling and installation of electric power cables of rating not exceeding 33 kV Part 3: Earthing systems – General provisions.
SANS 10198-7:2004	The selection, handling and installation of electric power cables of rating not exceeding 33 kV Part 7: Safety precautions.
SANS 10198-8:2007	The selection, handling and installation of electric power cables of rating not exceeding 33 kV Part 8: Cable laying and installation.
SANS 10198-9:1988 (1999-04-30)	The selection, handling and installation of electric power cables of rating not exceeding 33 kV Part 9: Jointing and termination of extruded solid dielectric-insulated cables up to 3,3 kV.
SANS 60840:2006 IEC 60840:2004	Power cables with extruded insulation and their accessories for rated voltages above 30 kV ($U_m = 36$ kV) up to 150 kV ($U_m = 170$ kV) -Test methods and requirements.
NRS 012:2002	Cable terminations and live conductors within air-insulated enclosures (insulation co-ordination) for rated a.c. voltages of 7,2 kV and up to and including 36 kV.

C.3.1.2.4 Miniature substations

<u>Reference</u>	<u>Description</u>
NRS 004-1	Mini-substations – Part 1: Mini-substations for rated a.c. voltages up to and including 12 kV;
SANS 60439-2:2006 IEC 60439-2:2005	Low-voltage switchgear and control gear assemblies Part 2: Particular requirements for bus bar trunking systems (bus ways).
SANS 60439-3:2007 IEC 60439-3:2001 (2010-11-02)	Low-voltage switchgear and control gear assemblies Part 3: Particular requirements for low-voltage switchgear and control gear assemblies intended to be installed in places where unskilled persons have access for their use - Distribution boards.
SANS 10200:1985 (SABS 0200)	Neutral earthing in medium voltage industrial power systems.

C.3.1.2.5 LV cables

<u>Reference</u>	<u>Description</u>
NRS 074-1:2005	Low-voltage (600/1 000 V) cable systems for underground electrical distribution Part 1: Cables.
SANS 60227-1:2006 IEC 60227-1:1998	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V. Part 1: General requirements.

C.3.1.2.6 Aerial Bundled Conductors

<u>Reference</u>	<u>Description</u>
NRS 018-1:2002	Fittings and connectors for low-voltage overhead power lines using aerial bundled conductors Part 1: Strain and suspension fittings for self-supporting conductors
NRS 018-2:1995	Fittings and connectors for low-voltage overhead power lines using aerial bundled conductors Part 2: Strain and suspension fittings for insulated neutral supporting conductors.
NRS 018-3:1995	Fittings and connectors for low-voltage overhead power lines using aerial bundled conductors Part 3: Strain and suspension fittings for bare neutral supporting conductors.
NRS 018-4:1996	Fittings and connectors for low-voltage overhead power lines using aerial bundled conductors Part 4: Strain and suspension fittings for aerial service cables.
NRS 018-5:1996	Fittings and connectors for low-voltage overhead power lines using aerial bundled conductors Part 5: Current-carrying connectors and joints
NRS 020:2002	Electricity distribution - Cable ties for use with low voltage aerial bundled conductors
NRS 051:1999	Suspension and strain fittings for insulated neutral supporting conductors used in medium-voltage aerial bundled conductor systems.
SANS 10198-14:1996 (2001-11-07)	The selection, handling and installation of electric power cables of rating not exceeding 33 kV Part 14: Installation of aerial bundled conductor (ABC) cables

C.3.1.2.7 Table 2 – Guidelines and recommended practices

<u>Reference</u>	<u>Description</u>
NRS 044:2002	Working procedures and standards in respect of the installation of new electrical works and telecommunication facilities, or the extension or modification of such existing works and facilities. (Covers the working procedures and standards for the execution of all projects in respect of the installation of new electrical works and telecommunication facilities or the extension or modification thereof. Prescribes the minimum safety clearances and requirements that have to be.
ARP 063:2005 IWA 4:2005	Quality management systems - Guidelines for the application of SANS 9001:2000 in local government.
ARP 22399:2008 ISO/PAS 22399:2007	Societal security - Guideline for incident preparedness and operational continuity management.
NRS 080:2004	Quantifying and reporting of energy losses in electricity distribution networks
NRS 047 – 2:2001	Electricity supply - Quality of service Part 2: Reporting guidelines (Contains recommended reporting formats for the quality-of-service activities stipulated in NRS 047-1, which the licensees in South Africa should use to report to the National Electricity Regulator.
SANS 100013:2003 ISO/TR 10013:2001 (2008-11-14)	Guidelines for quality management system documentation.
ARP 077:2006	Long-term preservation of electronic document-based information.

ISO/TR 18492:2005

ARP 23081-2:2008
ISO/TS 23081-2:2007

Information and documentation - Records management processes - Metadata for records Part 2: Conceptual and implementation issues.

NRS 002:2000

Graphical symbols for electrical diagrams.

M 33 A:1992

The international metric system (SI). Guide to the use of the SI in South Africa

NRS 040-6:2009

High-voltage operating instructions Part 6: Code of practice for earthing (Establishes and promotes the uniform use, understanding and implementation of the different types of medium-voltage and high-voltage earthing.

NRS 082:2004

Recommended maintenance policy for electricity networks.

NRS 059:2002

Recommendations to minimize problems associated with the theft of transformer neutral and neutral earthing copper conductors.

C.3.1.2.8 Distribution within residential areas – General

Reference

Description

NRS 034-0:2001

Electricity distribution - Guidelines for the provision of electrical distribution networks in residential areas Part 0: Definitions.

NRS 047-1:2005

Electricity supply - Quality of service Part 1: Minimum standards. (Outlines various service activities and minimum standards for measuring the quality of service provided to customers by electricity utilities in South Africa.

NRS 033:1996

Electricity distribution - Guidelines for the application design, planning and construction of medium voltage overhead power lines up to and including 22 kV, using wooden pole structures and bare conductors.

SANS 1019:2008

Standard voltages, currents and insulation levels for electricity supply.

NRS 060:2005

Code of practice for clearances for electrical systems with rated voltages up to and including 145 kV, for the safety of persons.

NRS 034 -1 2001

Electricity distribution - Guidelines for the provision of electrical distribution networks in residential areas Part 1: Planning and design of distribution systems.

NRS 034 -3: 1999

Electricity distribution - Guidelines for the provision of electrical distribution networks in residential areas Part 3: Overhead distribution in very low, low and moderate consumption areas, including rural areas and informal settlements.

SANS 10280-1:2008
NRS 041-1:2008

Overhead power lines for conditions prevailing in South Africa Part 1: Safety.

C.3.1.2.9 MV cables

Reference

Description

NRS 013:2007 -
Medium-voltage
cables

Details the preferred requirements for single-core and three-core, mass-impregnated non-draining (MIND) paper-insulated, lead-sheathed electric cables with stranded annealed copper or aluminium conductors, based on the requirements of SANS 97, or cross-linked polyethylene (XLPE)- insulated electric cables with stranded annealed copper or aluminium conductors, based on the requirements of SANS 1339.

SANS 10198-1:2004

The selection, handling and installation of electric power cables of rating not exceeding 33 kV Part 1: Definitions and statutory requirements.

SANS 10198-10:1988
(1999-04-30)

The selection, handling and installation of electric power cables of rating not exceeding 33 kV Part 10: Jointing and termination of paper-insulated cables.

SANS 10198-11:1988
(1999-04-30)

The selection, handling and installation of electric power cables of rating not exceeding 33 kV Part 11: Jointing and termination of screened polymeric-insulated cables.

SANS 10198-13:1988 (1999-04-30)	The selection, handling and installation of electric power cables of rating not exceeding 33 kV Part 13: Testing, commissioning and fault location.
SANS 10198-3:2004	The selection, handling and installation of electric power cables of rating not exceeding 33 kV Part 3: Earthing systems – General provisions.
SANS 10198-7:2004	The selection, handling and installation of electric power cables of rating not exceeding 33 kV Part 7: Safety precautions.
SANS 10198-8:2007	The selection, handling and installation of electric power cables of rating not exceeding 33 kV Part 8: Cable laying and installation.
SANS 10198-9:1988 (1999-04-30)	The selection, handling and installation of electric power cables of rating not exceeding 33 kV Part 9: Jointing and termination of extruded solid dielectric-insulated cables up to 3, 3 kV.

C.3.1.2.10 Miniature substations

<u>Reference</u>	<u>Description</u>
NRS 004-1, Mini-substations	Part 1: Mini-substations for rated a.c. voltages up to and including 12 kV;
SANS 60439-3:2007 IEC 60439-3:2001 (2010-11-02)	Low-voltage switchgear and control gear assemblies Part 3: Particular requirements for low-voltage switchgear and control gear assemblies intended to be installed in places where unskilled persons have access for their use - Distribution boards.

C.3.1.2.11 LV cables

<u>Reference</u>	<u>Description</u>
SANS 60227-1:2006 IEC 60227-1:1998	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V Part 1: General requirements.

C.3.1.2.12 Aerial Bundled Conductor

<u>Reference</u>	<u>Description</u>
SANS 10198-14:1996 (2001-11-07)	The selection, handling and installation of electric power cables of rating not exceeding 33 kV Part 14: Installation of aerial bundled conductor (ABC) cables

C3.2 Specification Data

Portion 1: The works

C3.2.1 Description of the works

This contract covers the **SUPPLY MATERIAL, LABOUR AND EQUIPMENT FOR THE INSTALLATION OF SWITCHGEAR (Delta and Fire Brigade Substations)**

C3.2.2 Scope of the works

The scope of work comprises the following:

- Supply, delivery and installation of:
 - medium voltage Vacuum, spring operated Switchgear, including 11 kV cable jointing and 11kV termination work at Delta and Fire Brigade substations..
 - Testing and commissioning of all protection relays and switchgear
 - Supply of all drawings on wiring of panels on each substation
 - associated works
- Testing, commissioning and handing over of completed infrastructure, including documentation
- Planning, implementation and management, including formal reporting, of the construction works

The scope also includes the upholding, during the 12-month defects liability period, of all equipment referred to in this document either explicitly or implicitly and as shown on the drawings.

The scope specifically includes the following

- **Delta Substation – 11kV Vacuum, 110V motorized spring operated Switchgear replacement- 1200 Amp minimum Busbar rating**

1 x Main Transformer 20MVA Incomer and 9 x Feeders to the following areas

- Capacitor bank feeder- 12-17.5kV, 630 A, 25A/1sec rating x 1
- DS1 nr.1 feeder- 12-17.5kV. 630A, 25kA/ 1sec rating x1
- DS1 nr.2 feeder- 12-17.5kV. 630A, 25kA/ 1 sec rating x1
- DS2 nr.1 feeder- 12-17.5kV. 630A, 25kA/ 1 sec rating x1
- Main Transformer (Incomer)- 12-17.5Kv, 1250A, 25kA/ 1 sec rating x 1
- BS4 nr.1 feeder- 12-17.5kV. 630A, 25kA/ 1 sec rating x1
- BS4 nr.2 feeder- 12-17.5kV. 630A, 25kA/ 1 sec rating x1
- BS nr.1 feeder- 12-17.5kV. 630A, 25kA/ 1 sec rating x1
- BS nr.2 feeder- 12-17.5kV. 630A, 25kA/ 1 sec rating x1
- BS4 nr.3 feeder- 12-17.5kV. 630A, 25kA/ 1 sec rating x1

- **Fire Brigade Substation – 11kV Vacuum, spring operated Switchgear replacement- 1200 Amp minimum Busbar rating**

2 x Incomers from Alpha substation and 8 x Feeders to the following areas

- Alpha substation nr. 2 Incomer- 12-17.5kV, 1250A, 20kA/ 1 sec rating x 1
- Tin Street feeder- 12-17.5kV. 630A, 25kA / 1 sec rating x1
- Spare feeder nr. 1- 12-17.5kV. 630A, 25kA/ 1 sec rating x1
- CS1 feeder- 12-17.5kV. 630A, 25kA/ 1 sec rating x1
- Fire Brigade Transformer feeder- 12-17.5kV. 630A, 25kA/ 1 sec rating x1
- Bus coupler- 12-17.5Kv, 1250A, 25kA/ 1 sec rating x 1
- Swartmodderweg feeder- 12-17.5kV. 630A/ 3 sec, 25kA / 1 sec rating x1
- Spare feeder NR. 2- 12-17.5Kv, 630A, 25kA/ 1 sec rating x 1
- DS11 Slagpale feeder- 12-17.5kV. 630A, 20kA/ 1 sec rating x1
- Alpha substation nr. 1 Incomer- 12-17.5kV. 1250A, 20kA/ 3 sec rating x1

Replacement switchgear (similar to ABB ZS1 or ZS9) must have the 12kV-17.5kV vacuum circuit breaker in the mid-section or on the bottom (FLOOR trolley type) of the panel, with access to the busbar and cable connections in front of the user. The circuit breakers must be able to be withdrawn from the busbar/cable section, with the front door on panel in the closed position, with the necessary interlocking in place to do so. If a mid-section type switchgear is supplied, a separate trolley to completely withdraw the breaker from the panel must also be supplied.

All panels must have electronic REF 615 similar Protection relays, for Overcurrent, Earth fault and Solkor protection. Arc Protection, Voltage and current sensors must also form part of each unit. All Protection relays must conform to the IEC 61850 communication standards for future automation of substations. Arc protection, voltage and current sensors must be connected via suitable cabling to the protection relays.

Test blocks must be fitted on the switchgear panels with an automatic "make before break" design. All test blocks must be IP40 rated with lid closed and IP20 rated with lid opened.

All Switchgear supplied must also comply with the following standards:

- IEC 62271-1 for general purposes
- IEC 62271-200 for the switchgear
- IEC 62271-102 for the earthing switch
- IEC 62271-100 for the circuit-breakers
- IEC 60071-2 for the insulation coordination
- IEC 62271-106 for the contactors
- IEC 60265-1 for the switch - disconnectors
- IEC 60529 for degree of protections
- IEC 60044-7 for electronic voltage transformers (sensors)
- IEC 60044-8 for electronic current transformers (sensors)
- IEC 61869-2 for instrument current transformers
- IEC 61869-3 for instrument voltage transformers
- IEC 60255 for electrical relays
- IEC 61850 for Ethernet technology in substation automation communication

A complete brochure of the switchgear that the contractor will supply and install for this project, must be submitted and form part of this tender- Failure to do so will result in the bid being non-responsive.

MV SWITCHGEAR		DESCRIPTION		10 X MV PANELS DELTA SUBSTATION UPINGTON		SPECIFICATION		
MAIN BOARD LABEL		DELTA SUBSTATION				COLOUR	G29 GREY	ORDER #
PANEL REF #		WIDTH	550-630mm	550-630mm				
VOLTAGE:-	11KV	CIRCUIT						
FAULT LEVEL:-	25KA	LABEL	INCOMER PANEL X 1	FEEDER PANEL X 9				
IAC AFLR	1.0s		MAIN TRANSFORMER INCOMER	FEEDER PANEL				
IMPULSE LEVEL:-	95KVip							
BUSBAR RATING		2000A SINGLE						
CIRCUIT BREAKER/SWITCH	TYPE							
	MEDIUM		VACUUM	VACUUM				
	CURRENT RATING		1250A	630A				
	MECHANISM		M.W.S	M.W.S				
	HRC STRIKER PIN FUSES							
	MOTOR/CONTACTOR VOLTAGE		110VDC	110VDC				
	SHUNT TRIP COIL		110VDC	110VDC				
	SPRING RELEASE COIL		110VDC	110VDC				
	UNDERVOLTAGE TRIP COIL							
	AUTO RECLOSE							
AUXLLARY CONTACTS		4 N/O & 4 N/C	4 N/O & 4 N/C					
INTERGRAL CABLE EARTH		CABLE	CABLE					
BUSBAR EARTHING		N/A	N/A					
INSTRUMENT PANEL EQUIP	CONTROL SWITCH		T/N/C	T/N/C				
	VCB OPEN/CLOSE LED & PBUTTON		GREEN/RED	GREEN/RED				
	REMOTE TRIP CLOSE PLUG		SCAME	SCAME				
	SELECTOR SWITCH		L/R	L/R				
	TRIP HEALTHY PUSHBUTTON AND LAMP		WHITE	WHITE				
	PANEL HEATERS							
	CABLE/BUSBAR LIVE INDICATION		YES	YES				
	POWER FACTOR METER							
	AMMETER (M.D.I)		3 x 0-1000A	9X 0-300A				
	AMMETER SEL SWITCH							
AMMETER LOOSE SCALE								
VOLTMETER		1 x 0-12KV	9 X 0-12kv					
VOLTMETER SEL SWITCH		YES	YES					
ENERGY METER		N/A	N/A					
CURRENT TRANSDUCER (0-10mA)								
VOLTAGE TRANSDUCER (0-10mA)								
WATT TRANSDUCER								
REACTIVE POWER TRANSDUCER								
RELAYS	IDMT O/C & E/F RELAY (IEC 61850)		ABB REF 615	ABB REF 615				
	TX DIFFERENTIAL		YES	N/A				
	VOLTAGE SELECTION RELAY							
	ARC PROTECTION			YES				
	TEST BLOCK ARC PROTECTION		1 X PK2 4 WAY	1 X PK2 4 WAY				
	TEST BLOCK PROTECTION		1 X PK2 4 WAY	1 X PK2 4 WAY				
	TEST BLOCK METERING		1 X C & H 13 WAY	1 X C & H 13 WAY				
VTS	FUNCTION		11000/110V					
	BRD+ACC		50VA CLASS 0.2					
	LOCATION		CABLE SIDE					
CTS	ARC PROTECTION CLASS 5P20 10VA		3 X 1200/1	3 X 600/1				
	PROTECTION CLASS 5P20 10VA		3 X 1200/1	3 X 600/1				
	METERING CLASS 0.2 10VA		3 X 1200/1	3 X 600/1				
CABLE TERM	BOTTOM		BOTTOM REAR	BOTTOM REAR				
	SURGE ARRESTORS - METAL OXIDE CLAMP/GLAND/COMPOUND		WOOD CLAMP	WOOD CLAMP				
	QUANTITY No/CORES/SIZE		2 x 3C	2 x 3C				
	CABLE TYPE		PILC	PILC				
COMPILED								
CHECKED								
DATE	2022/10/10							

MV SWITCHGEAR		DESCRIPTION		10 X MV PANELS FIRE BRIGADE SUBSTATION UPINGTON		SPECIFICATION	
MAIN BOARD LABEL		FIRE BRIGADE SUBSTATION		COLOUR	G29 GREY	ORDER #	
PANEL REF #		WIDTH	550-630mm		550-630mm		
VOLTAGE:-	11KV	CIRCUIT					
FAULT LEVEL:-	25KA	LABEL	INCOMER PANEL X 2	FEEDER PANEL X 8			
IAC AFLR	1.0s		MAIN TRANSFORMER INCOMER	FEEDER PANEL			
IMPULSE LEVEL:-	95KVip						
BUSBAR RATING		2000A SINGLE					
CIRCUIT BREAKERS/SWITCH	TYPE		VACUUM	VACUUM			
	MEDIUM		VACUUM	VACUUM			
	CURRENT RATING		1250A	630A			
	MECHANISM		M.W.S	M.W.S			
	HRC STRIKER PIN FUSES						
	MOTOR/CONTACTOR VOLTAGE		110VDC	110VDC			
	SHUNT TRIP COIL		110VDC	110VDC			
	SPRING RELEASE COIL		110VDC	110VDC			
	UNDERVOLTAGE TRIP COIL						
	AUTO RECLOSE						
AUXILLARY CONTACTS		4 N/O & 4 N/C	4 N/O & 4 N/C				
INTERGRAL CABLE EARTH		CABLE	CABLE				
BUSBAR EARTHING		N/A	N/A				
INSTRUMENT PANEL EQUIP	CONTROL SWITCH		T/N/C	T/N/C			
	VCB OPEN/CLOSE LED & PBUTTON		GREEN/RED	GREEN/RED			
	REMOTE TRIP CLOSE PLUG		SCAME	SCAME			
	SELECTOR SWITCH		L/R	L/R			
	TRIP HEALTHY PUSHBUTTON AND LAMP		WHITE	WHITE			
	PANEL HEATERS						
CABLE/BUSBAR LIVE INDICATION		YES	YES				
INSTRUMENTS	POWER FACTOR METER						
	AMMETER (M.D.I)		3 x 0-1000A	9X 0-300A			
	AMMETER SEL SWITCH						
	AMMETER LOOSE SCALE						
	VOLTMETER		1 x 0-12KV	9 X 0-12kv			
	VOLTMETER SEL SWITCH		YES	YES			
	ENERGY METER		N/A	N/A			
	CURRENT TRANSDUCER (0-10mA)						
	VOLTAGE TRANSDUCER (0-10mA)						
	WATT TRANSDUCER						
REACTIVE POWER TRANSDUCER							
RELAYS	IDMT O/C & E/F RELAY (IEC 61850)		ABB REF 615	ABB REF 615			
	TX DIFFERENTIAL		YES	N/A			
	VOLTAGE SELECTION RELAY						
	ARC PROTECTION			YES			
	TEST BLOCK ARC PROTECTION		1 X PK2 4 WAY				
	TEST BLOCK PROTECTION		1 X PK2 4 WAY	1 X PK2 4 WAY			
	TEST BLOCK METERING		1 X C & H 13 WAY	1 X C & H 13 WAY			
VT'S	FUNCTION		11000/110V				
	BRD+ACC		50VA CLASS 0.2				
	LOCATION		CABLE SIDE				
CTS	ARC PROTECTION CLASS 5P20 10VA		3 X 1200/1	3 X 600/1			
	PROTECTION CLASS 5P20 10VA		3 X 1200/1	3 X 600/1			
	METERING CLASS 0.2 10VA		3 X 1200/1	3 X 600/1			
CABLE TERM	BOTTOM		BOTTOM REAR	BOTTOM REAR			
	SURGE ARRESTORS - METAL OXIDE						
	CLAMP/GLAND/COMPOUND		WOOD CLAMP	WOOD CLAMP			
	QUANTITY No/CORES/SIZE		2 x 3C	2 x 3C			
	CABLE TYPE		PILC	PILC			
COMPILED							
CHECKED							
DATE	2022/10/10						

C3.3 Standardised Specification

Section A: General Technical Specification

C3.3.1 General

This part of the specifications gives the general requirements for electrical installation work. These requirements are based on the relevant quality specifications given in Part C3.3 and are augmented by the specific requirements for this contract given in Part C3.4

C3.3.2 Drawings

The drawings, as listed in Part C3.5 of this document, form an integral part of this project specification. Tenderers are advised to visit the site and thoroughly acquaint themselves with the nature and extent of the work to be done.

C3.3.3 Standards

In view of the fact that this installation is to be operated and maintained by others it is a condition of this contract that the standard of workmanship and quality of materials will comply with the relevant specifications and standards and will be subject to the approval of the Engineer and the party finally responsible for the operation and maintenance of the system. All correspondence in this regard will however be directed to the Engineer and the final approval will only be granted by him.

C3.3.4 Damage to other services

The Contractor will be held liable for all damage to other services and if such damage is not replaced to the satisfaction of the Engineer within a reasonable period the Engineer will be entitled to appoint another Contractor to repair such damage and debit the account of the electrical contract. It is essential that the Contractor shall liaise with the Engineer and other Contractors on site in order to minimize such damage.

C3.3.5 Outages

Power outages will be required to perform some of the tasks involved on this project. Outages are to be planned allowing sufficient notice to the Employer and in compliance with any reasonable stipulations required. Liaison with the Engineer, Employer, other Contractors and the supply authority is compulsory.

C3.3.6 Standard of workmanship

All installation work in this Contract is to be executed by qualified electricians and cable jointers in accordance with modern techniques.

The Engineer will have the right to reject any work, which does not meet with his approval.

C3.3.7 Infrastructure provided by employer

A site will be indicated for the establishment of a site office and stores. The site is not serviced and the Contractor is required to make the necessary provision for sanitation, portable water and electricity.

C3.3.8 Plant supplied by employer for incorporating into the works

The Contractor must supply all Plant required for the erection and completion of the Works.

C3.3.9 Additional safety regulations

The Contractor hereby agree, in terms of the provisions of Section 37(2) of the Occupational Health and Safety Act, Act No.85 of 1993, hereinafter referred to as "the Act", to comply with the Act in all respects with specific reference to the Construction Regulations promulgated under the Act.

The Contractor hereby accepts sole liability for such due compliance with the relevant duties, obligations and prohibitions imposed by the Act and regulations and expressly absolves the Employer and the Employer's consulting Engineers from being obliged to comply with any of the aforesaid duties, obligations and prohibitions in respect of the work included in the contract.

The Contractor undertakes to acquaint all his officials and employees whether temporary or permanent with all relevant provisions of the Act and the regulations and specifically the Construction Regulations promulgated in terms of the Act.

The contractor will inter alia ensure that:

Before starting on site present the Employer with an approved Health and Safety Plan based on the Health and Safety Specification compiled by the Agent (Consultant).

Any potential contractors submitting tenders have made provision for the cost of health and safety measures during the construction process.

Submit a copy of the Notification of the construction work to the Department of Labour (DOL) to the Client.

Submit proof that he/she and every contractor is registered and in good standing with the compensation fund or a licensed compensation insurer prior to the commencement of work and that all employees are ensured with the Unemployment Insurance Fund

Indicate who his/her competent Site Supervisor is. (Every contractor will appoint a full-time competent employee designated in writing as the construction supervisor, with the duty of supervising the performance of the construction work as well as other employees to assist with the supervision work.)

No principal contractor will appoint a contractor to perform construction work unless the principal contractor is reasonably satisfied that the contractor he or she intends to appoint, has the necessary competencies and resources to perform the construction work safely.

Every contractor will ensure that a health and safety file, which will include all documentation required in terms of the provisions of the Act and these Regulations, is opened and kept on site and made available to an inspector, client, client's agent or principal contractor upon request.

A principal contractor will ensure that in addition to the documentation required in the health and safety file as determined in sub-regulations (7) and (8), a comprehensive and updated list of all the contractors on site accountable to the principal contractor, the agreements between the parties and the type of work being done is included and available.

The principal contractor will hand over a consolidated health and safety file to the client upon completion of the construction work and will, in addition to the documentation referred to in sub-regulation (7), include a record of all drawings, designs, materials used and other similar information concerning the completed structure

The Contractor will be obliged to report forthwith to the Employer any investigation, complaint, or criminal charge which may arise as a consequence of the provisions of the Act and regulations pursuant to work performed on behalf of the Employer and will, on written demand, provide full details in writing of such investigation, complaint or criminal charge.

The Contractor will furthermore comply with all the Employer's requirements for security and safety. An active accident prevention programme will be maintained. A responsible person will be appointed in terms of the Occupational Health and Safety Act and he is to co-operate fully with the Engineers Representative in all matters pertaining to accident prevention.

C3.3.10 Limitations on the contractor's performance of the work

The Contractor will control his activities and processes in such a way as to ensure compliance with the specifications. He will carry out, as a minimum requirement; all the tests laid down in the specifications and will submit all the test results to the Engineer.

The Contractor will be responsible for the relevant Quality Assurance requirements to be imposed on his Sub-Contractors and suppliers of materials.

The Employer's personnel as well as other Contractors will be active on site during the execution of this contract. The inherent problems associated with this type of interaction must be taken into account and shall be allowed fully for in tender prices and the Tenderer shall take note of the fact that his program will be altered from time to time to accommodate the needs of the other Contractors and site conditions, everything to ensure the best co-ordination of the works in total, however not necessarily to the advantage of this electrical contract.

C3.3.11 Division of the works

It shall however be noted that the official take over by the Client will only be at completion of this total contract and that partial take over will not be done.

The exception is portions of the works, which are handed over to the Client after completion thereof.

C3.3.12 Contract administration, completion, testing and commissioning

C3.3.12.1 Quality control during the execution of the contract

Daily inspection of the works by the Contractor is expected to ensure that all work is executed in accordance with the drawings and specifications.

These inspections will be monitored by the Engineer or his duly authorised representative.

The onus is on the Contractor to clarify any uncertainties with the Engineer to ensure that the work is executed as intended by the Engineer and to the required standards.

Failure to comply might result in the Contractor redoing unsatisfactory work for his own account.

C3.3.12.2 Maintenance of As-built drawings

During execution of the contract the Contractor will update a set of drawings daily with all the relevant information regarding cable routes, joints, sleeves, etc.

At the end of the contract, the Contractor will provide the necessary information to enable the Engineer to prepare as-built drawings of the installation together with 3 sets of any other drawings, wiring diagrams, services and instruction manuals for equipment supplied by him.

C3.3.12.3 Setting of protective devices and controls

- a) All protective devices installed throughout will be correctly adjusted by the Contractor to the approval of the Engineer before any circuit is energized. The Contractor is required to obtain all data necessary to establish the correctness of the settings. Where doubts exist the Engineer's confirmation is to be sought.
- b) Data with regard to all commissioning documentation and diagrams of all control, alarm and indication circuits are to be provided for approval prior to their installation.
- c) These diagrams will include:
 - (i) Wiring diagram.
 - (ii) Schematic wiring diagram.
 - (ii) Device operating sequence diagram.
 - (iii) Operational narrative of the control and protective devices.

C3.3.12.4 Preliminary testing of major equipment

All items of major equipment are where feasible, to be factory tested prior to delivery to site, and results of such tests, in a format to be agreed in advance, are to be produced before the equipment is delivered.

All such tests are to be in accordance with the relevant codes of practice, and with any other requirements as set out in this documentation.

C3.3.12.5 Completion of installation

Before the commencement of any test or commissioning procedures, the Contractor is to ensure that all nuts and bolts are securely fastened, and that paintwork on all items supplied has been touched up where damage has occurred.

C3.3.12.6 Inspection and testing

On completion of the entire installation or any particular section thereof, as may be decided by the Engineer the following minimum tests will be carried out in the presence of the Mining Engineer and the Consulting Engineer or his authorized Representative.

(a) Switchgear testing

- (i) Factory test results and certificates as required by SANS 1029 will be furnished.
- (ii) Megger testing (10000 V) of insulation (MV/LV and LV/E).
- (iii) The recording and marking of phase rotation and voltage on the secondary side.
- (iv) MV and LV transformer earth resistance.

(b) Cable testing. MV and LV cables will be tested by the Contractor for:

- (i) Continuity.
- (ii) Insulation.
- (iii) Phase rotation.

(c) LV testing. The tests on the LV system to be conducted are as follows:

- (i) Operation tests of all circuit breakers.
- (ii) Continuity tests.
- (iii) Megger tests (not less than 1 000 volt).
- (iv) Measuring and recording of clearances.

C3.3.12.7 Documentation

All instrumentation necessary for testing will be provided by the Contractor.

The results of all the tests must be clearly recorded, signed and handed to the Engineer or his authorised Representative. Where available standard or specifically designed forms should be used and in this regard Contractor is referred to any forms, included in this document, alternatively, such forms shall be agreed to during the contract period.

C3.3.12.8 Commissioning, testing and documentation

- (a) On completion of the entire installation or any particular section thereof, as may be decided by the Engineer, test will be carried out before commissioning, in the presence of the Engineers or his authorized Representative.'
- (b) The Contractor shall note that where applicable at least the following test must be carried out:

- i. Insulation test
- ii. Continuity test
- iii. Ductor test
- iv. Primary and secondary injection testing
- v. Polarity test
- vi. Earth termination test

- (c) Any further tests to meet the Supply Authorities requirements or as deemed necessary by the Engineer.
- (d) All instrumentation necessary for testing will be provided by the Contractor.

- (e) The results of the above tests must be clearly recorded, signed and handed to the Engineer or his authorized Representative together with the Certificate Compliance or any such form of forms required by the local supply authority or Engineer.

(f) The Engineer requires at least the following:

- i. Schedule of protection and control settings.
- ii. Set of schematic wiring and function diagrams.
- iii. Sequence diagram and control functional narrative for each control panel.
- iv. Drawings of the installation marked "As Built" and signed.

- v. File of distribution legends.
- vi. Operating and maintenance instructions on equipment.
- vii. Health and Safety file in accordance with the Construction Regulations
- viii. Guarantees ceded to the Employer.

Once the Engineer has inspected the complete installation and satisfied himself that all testing has been completed and the contract is complete in all aspects can the Employer be approached in writing, with the above documentation, with a view to arrange a hand-over date.

(g) Unacceptable tests and abortive handing over

Should the Employer find at the time of handing over that work is defective to the extent that they have to return for further inspections and the handover aborted, then the Employer reserves the right to claim expenses in whole or part from the Contractor.

(h) Labelling

All new Switchgear, LV cubicles and attendant circuits, circuit breakers, transformers, cables, etc. will be clearly labelled. The inscriptions to be used will be provided in Part 3.4 of the specification or after the award of tender.

(i) Training of institutional staff

Where applicable and as detailed in Part 3.4 of this specification allowance is to be made by the Contractor for the training of Institutional Staff in the setting up and operation of the various items of equipment supplied under the contract, as well as the full maintenance and upkeep of such equipment and the installation. At least three (3) full days shall be allowed for in the tender price.

C3.3.13 Program of work

A program will be finalised during a meeting within **14 days** after a tender has been awarded. The Contractor will only deviate from this program if the Engineer approves. However, the Engineer reserves the right to alter the program if necessary. This program will be regarded as a binding document and the handover date will be the date stipulated on the program. The penalty clause will be applied from the "Handover date".

The program will not be drawn up in isolation but the Contractor must take cognisance of the program of the civil and other Contractors on site and shall make provision to accommodate their requirements.

C3.3.14 Requirements regarding other contracts

Co-ordination between other contracts, which might run concurrently, is of the utmost importance and thus in those cases the following procedure will be followed:

As soon as tenders are awarded a meeting will be arranged during which the various construction programs will be co-ordinated to the satisfaction of the Employer, the Project Co-ordinator, the contractors and the consultants.

The contractors will have weekly meetings during which minor problems will be sorted out.

The consultants will hold their monthly site meetings together, so that mutual problems can be addressed immediately.

Money's provided for this item in the bill, will only be paid out at the end of the contract under the discretion of the Engineer.

The electrical Contractor will have no claims against the Employer due to bad planning on his part, which resulted in delays, either of his own contract or those of other parties. Thus if any delays are foreseen the Contractor must give the Engineer early warning i.e. at least 7 days and shall act proactively to prevent such a delay.

C3.3.15 Off-loading, stacking and liability for breakages

The Contractor will be required, at his own expense, to make all arrangements for off-loading and carefully stacking all plant and materials delivered under this contract on the Site of the Works. The off-loading and stacking will be carried out strictly in accordance with the requirements of the Engineer so as to permit a thorough and careful examination and testing of all items for breakages, fractures, etc.

Plant and materials will be stored on site at the cost of the Contractor who will be fully responsible for its protection against theft or damage by water, weather, fire and any interference until such time as it is erected and installed, put into satisfactory operation and accepted by the Employer as complete.

C3.3.16 **Storage**

Facilities for extended storage on site for plant and materials may not always be available and the Contractor will therefore make his own arrangements for any off-site storage, which may be required for plant, and materials, which become available before delivery to the Site and installation thereof can be commenced.

No additional payment will be allowed for off-site storage.

C3.3.17 **Inspection at site**

All plant and materials will be carefully examined upon delivery at the site and all items showing defects or damage of any description will be laid aside as not being in accordance with the requirements of the contract and these will be removed and replaced by the Contractor at his own cost.

C3.3.18 **Erection, installation, adjustment and operation**

The erection and installation of the plant is to be carried out by skilled artisans, experienced in this type of work and under the personal supervision of the Contractor's site foreman, whose qualifications and experience to supervise this work must be acceptable to the Engineer. The plant, when erected and installed, will be of neat and workmanlike appearance, solidly and evenly supported, true to line and level, plumb and in proper working order. The drilling and grouting of all structural bolts, channels, etc. will be the responsibility of the Contractor under this contract.

Before handing over the Plant, the Contractor is to ensure that every component is operating satisfactorily. The Contract will not be deemed to have been completed until the Engineer is fully satisfied in this regard.

C3.3.19 **Brand names**

Brand names and references to catalogues are made to determine a standard for material to be delivered and are not prescriptive as the exact type to be used. Alternatives may be presented for approval.

C3.3.20 **Name board**

When applicable an approved name-board will be erected and maintained by the Contractor at a position indicated by the Engineer or his representative.

The board will comply with the requirements of the South African Association of Consulting Engineers. The board will be in English and will bear the names of the Employer, the Consulting Engineer, the Contractor as well as the type of work being carried out.

C3.3.21 **Laying of cables and excavations**

C3.3.21.1 **Handling**

The storage, transportation, handling and laying of cables will be according to first class practice, and the Contractor will have adequate and suitable equipment and labour to ensure that no damage is done to cables during such operations.

Twisted, kinked or cables damaged in any way will be rejected.

Cable will be removed from the drum in such a way that no twisting, tension or mechanical damage is caused, and must be adequately supported at short intervals during the whole operation.

Particular care must be exercised where it is necessary to draw cables through pipes and ducts, to avoid abrasion, elongation or distortion of any kind.

The ends of such pipes and ducts will be sealed to approval of the Engineer after drawing in of the cables. The manufacturer's recommended bending radii for cables are to be adhered to.

C3.3.21.2 **Excavations**

The excavations of cable trenches will be carried out by the Contractor, along the routes and in the servitudes as shown on the drawings or as indicated on site.

The bottom of the trench will be level and clear and the bottom and sides will be free from rocks, stones, or other objects liable to cause damage to the cable.

All MV cables, unless otherwise specified, will be laid at a depth of at least 1000 mm and LV cables at 800 mm

below FINAL FINISHED GROUND LEVEL.

Trenches will not be less than 400 mm wide for one or two cables, and the width will be increased where more than two cables are to be laid together so that the cables may be placed at least 150 mm apart throughout the run.

Where the nature of the ground does not permit the excavation of cable trenches to the specified depth without excessive blasting, the matter will be referred back to the Engineer, whose decision will be final.

The Contractor must take all necessary precautions to prevent trenching work being in any way a hazard to the public or hampering the progress of other Contractors on site and to safeguard all structures, roads, railways, sewers, works or other property from any risk of subsidence and damage.

Volumetric measurements for excavations will not be done and trenches will be measured on a cost per meter of trench, basis.

The Contractor will be responsible to remove all excess ground left over after trenches have been backfilled. He will ensure that the surface is left in the same condition in which it was handed to him.

No guarantee can be given that blasting will not be necessary. This item will be the full responsibility of the Contractor and he will be required to adhere to all laws, regulations and bylaws regarding this type of work. The onus is on the Contractor to visit the site before submitting his tender, to make an assessment of the soil type and to allow for blasting if deemed necessary as no extra claims will be considered.

C3.3.21.3 Bedding

In all trenches a layer of at least 100 mm of clean sand will be laid below the cable/sleeve, followed by a layer of at least 100 mm clean approved bedding laid above the cable/sleeve.

The Mining Engineer must inspect the first 100 mm bedding and approve before the cable can installed and must also inspect the second layer of bedding and approve before the trench can be closed.

C3.3.21.4 Cable warning tape

A yellow PVC cable warning tape will be installed at least 300 mm above all cables in trenches

C3.3.21.5 Backfilling

Backfilling after bedding and laying of concrete slabs and warning tape, where applicable, is to be carried out with a proper grading of material to ensure settling without voids, and the material is to be properly compacted after the addition of every 150 mm.

The surface is to be made good as previously described. Backfilling may not commence until the entire trench has been inspected by the Engineer, where necessary and the route recorded onto the "As Built" drawing.

C3.3.21.6 Recording and installation of joint and cable markers

Each length of power cable will be numbered with the drum number and its exact position entered on a route drawing, and after site testing these numbers will appear on the test sheet covering the respective length of cable and the test result.

Full details of all joints are to be submitted and each joint is to be numbered and the position, type and number recorded on the route drawing.

The jointer's name and date of jointing as well as the weather conditions are to be recorded on such a drawing.

At the completion of each cable section the Contractor will install a concrete, pyramid type cable joint marker at every joint position. Cable markers will also be placed at every deviation and branch-off or where indicated on the drawings. The position of each joint or cable marker must be exactly indicated on the "as built" cable route drawing.

C3.3.21.7 Cable sleeves

Sleeves will be supplied and installed by the Contractor or by others as detailed in Part D.3 where cable routes cross roads or permanent hard slab construction. It is however the responsibility of the Contractor to ensure that the installation is done in accordance with this specification where this work is performed by others.

All sleeves will be installed at a final depth of 900 mm (to the bottom of the sleeve) fitted with a galvanised steel

draw wire and both ends must be sealed off with glass fibre cloth "Think Pink" before backfilling.

Sleeves will consist of 110 mm diameter PVC water pipe and will extend to 1m on both sides of the road.

All damaged tarmac, concrete or other surfaces will be reinstated by the Contractor at his cost or by the person responsible for the installation of the sleeves and early notice will be given to the Local Authority as to when this work is to be carried out.

C3.3.22 Cables (MV & LV)

C3.3.22.1 MV cables

Medium voltage cables of the impregnated paper insulated type will be manufactured according to SANS 97 as amended, and will bear the SANS mark.

The following designation code will be used when identifying cables specified.

NOTE: All cables will have stranded copper conductors and will have a dielectric voltage grading for "unearthed" systems, unless otherwise stated.

C3.3.22.2 Identification

<u>Component</u>	<u>Code Letters</u>
Impregnated paper dielectric	P
Lead sheath	L
Lead-alloy B Sheath	B
Lead-alloy E sheath	E
Fibrous helical bedding or serving	S
Fibrous braided serving	X
Double steel tape armour (DSTA)	T
Single wire armour (SWA)	W
Double wire armour (DWA)	D
Anti-corrosion bedding or over sheath	C

When there is any doubt about identifying a type of cable required for a particular project, the Contractor will immediately contact the Engineer for clarification of the code.

C3.3.22.3 Medium voltage accessories

Medium voltage cable accessory kits in accordance with NRS 053 are required for the installation of joints and terminations in the medium voltage cable network comprising of copper and aluminium conductor, paper insulated cores and belted paper cable manufactured to SANS 97: Table 19. Cable accessories will be suitable for cable with either steel wire armouring (SWA) and Polyethylene outer sheath.

- (a) Cable joints and termination kits are required for use on the cable ranges indicated below:
- (i) Joint kits:
- Item 1: 6.6/11kV 25 -35mm² 3C.
 - Item 2: 6.6/11kV 50-95mm² 3C
 - Item 3: 6.6/11kV 120-185mm² 3C
 - Item 4: 22/22kV 25 -35mm² 3C.
 - Item 5: 22/22kV 50 – 95mm² 3C
 - Item 6: 22/22kV 120-185mm² 3C
- (ii) Termination kits with tail 1200mm length for: (i) outdoor use and (ii) for use within air insulated enclosures of outdoor substations:
- Item 7: 6.6/11kV 25 -35mm² 3C.
 - Item 8: 6.6/11kV 50-95mm² 3C
 - Item 9: 6.6/11kV 120-185mm² 3C
 - Item 10: 22/22kV 25-35mm² 3C.
 - Item 11: 22/22kV 50 – 95mm² 3C
 - Item 12: 22/22kV 120-185mm² 3C
- (b) Screened terminations with 800mm tail length for use within air insulated enclosures fitted with current transformers for the outdoor ring main unit tee-off circuit for 6.6/11kV and 22/22kV cables:
- (i) Unscreened separable connectors (USC) for use within air insulated enclosures (aka concertina boot). (NRS 012):

- (ii) Unscreened separable connector suitable for use with the Type C bushing (set of 3).
- (iii)

C3.3.22.4 Operating conditions

All accessories will be suitable for operation under the following operating conditions:

Nominal Voltages	6.6 kV	11 kV	22 kV
Rupturing Capacity	20 kA	20 kA	20 kA
Impulse Level	95 kV	95 kV	125 kV
Highest System Voltage	7.6 kV	12 kV	24 kV
Rated Short Time Current (3 s)	6 kA	6 kA	6 kA
Frequency	50 Hz		
Phases	3		
Atmospheric Temperature	-5°C minimum +45°C maximum		
Altitude	800 m minimum to 1 100m maximum		
Lightning & Dust	severe		
Average Power Factor	0,8		
Maximum Humidity	95%		

C3.3.22.5 General requirements for the jointing and termination of cables

- (a) It is essential that all cable-jointing work, and especially all cable termination work, will only be done by qualified and experienced cable jointers.
- (b) Before commencing with the jointing work, the jointer will ensure -
 - that he has sufficient and suitable material at his disposal to make and to complete a proper and an effective joint;
 - that the jointing chamber is dry;
 - that all stones, loose soil, sticks, leaves, etc., be removed from the jointing chamber;
 - that the walls and banks of the jointing chamber are reasonable solid and reasonable free from loose soil, stones, gravel, etc., that may fall into the jointing chamber;
 - that the necessary coffer dams or retaining walls have been constructed to keep run-off water out of the jointing chamber;
 - that the necessary tents or groundsheets have been secured over the jointing chamber at all times to effectively protect the chamber against unexpected rains and dust, and that sufficient lighting or illumination is available;
 - that he has the necessary means to provide effective waterproof seals for the joint or for the termination if he is suddenly overcome by unexpected storms or heavy rains, regardless of how far the joint or the work has progressed;
 - that the cable and other material are dry, undamaged and in all other ways suitable for jointing work or termination;
- (c) Paper-insulated cables will be tested for moisture by means of a crackle test, viz by dipping a piece of the insulation into hot cable oil (110 °C - 135 °C). If any moisture is present, a characteristic crackling or excessive foaming will result. The paper insulation around all three cables will be tested first, where after the filling material between the cores will be tested. Lastly the paper insulation around each core will be tested.
- (d) If the cable contains moisture or is found to be unsuitable in any other way for jointing or termination, the Engineer will be notified thereof immediately and will issue the necessary instructions he may deem fit.
- (e) Once a joint has been commenced with, the jointer will continue with the work until the joint has been completed before leaving the site.
- (f) The jointing or termination of paper-insulated cable may not be commenced with in rainy weather without prior permission or approval by the Engineer.

C3.3.22.6 Cable termination tail lengths will be as specified in table 1

Table 1 – Tail length for three-core cable terminations

Rated voltage U/U kV	Tail length (mm)	
	Indoor	Outdoor/indoor
6.6/11	800 (item 7/8/9)	1200 (item 4/5/6)
11/11	800 (item 7/8/9)	1200 (item 4/5/6)
22/22	800 (item 7/8/9)	1200 (item 4/5/6)

C3.3.22.7 Accessory earthing

The main earthing conductor supplied with indoor and outdoor terminations will be 1000mm long and will be terminated with a tinned copper connector having an M12 fixing hole.

C3.3.22.8 Cable joints

Three-core cable joints required for item 1 to 3, will be designed to accommodate crossing of cable cores within the joint. The method of core crossing will be indicated in the jointing instruction.

C3.3.22.9 Cable terminations

- (a) The specific creepage for indoor and outdoor terminations will be at least 31 mm/kV. The actual creepage distance offered will be stated in schedule B Annexure A of the enquiry document.
- (b) Three-core (indoor and outdoor) cable terminations will be designed to accommodate crossing of cable cores within the screened section of the three cores. The method of core crossing along with minimum clearances will be indicated in the termination instruction.
- (c) The design of (indoor and outdoor) cable termination will ensure that no part of the armour or lead sheath of the cable is exposed once the termination is completed.

C3.3.22.10 Cable outdoor/indoor terminations

- (a) Tail lengths “L” of 1200 mm.
- (b) For impregnated paper-insulated cable, semi-conductive tubes that cover the paper core screen from the break-out boot to the stress control tube;
- (c) Tinned copper braiding of length 1000mm for earthing. Cross sectional area 70mm².
- (d) Outdoor cable terminations for paper-insulated cables will be provided with crutch support to prevent damage to the cable crutch and core insulation from over tri-furcating.
- (e) Cable terminations will be provided with a method of sealing the interface between the termination tail insulating tube and the lug barrel by allowing for at least 140 mm of additional length of non-tracking tube that covers the lug barrel and overlaps the stress control tube.

The method used and application will be clearly indicated in the termination instruction.

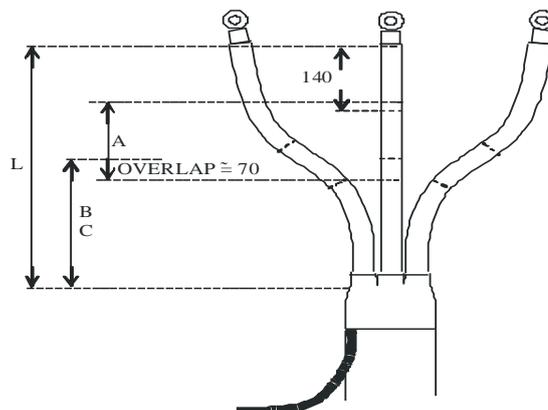


Figure 1: Minimum dimension for top down measurement

L= Tail length
A=Stress control tube
B=Semi-conductive tube
C=Screened tube
140mm=Non-tracking tube

C3.3.22.11 The indoor termination for impregnated paper-insulated cable is to be supplied with:

- (a) Conductive tubes that cover the paper core screen from the break-out boot to the stress control tube;
- (b) Tail lengths' of 800mm, for use within air-filled enclosures fitted with low-voltage current transformers as indicated in drawing A9 of NRS 012 and outdoor substations.
- (c) For impregnated paper-insulated cable, semi-conductive tubes that cover the paper core screen from the break-out boot to the stress control tube;
- (d) Tinned copper braiding of length 1000mm. Cross sectional area 70mm².

C3.3.22.12 Crimped ferrules and lugs

All installation instructions will clearly indicate how to install the crimped ferrules and lugs in the respective joints and terminations.

C3.3.22.13 Unscreened separable connectors (USC)

USC will be manufactured to form **one** piece of material.

C3.3.22.14 Special requirements

- (a) Where heat shrink materials are used for the purpose of electrical insulation they will have a minimum wall thickness of at least the same thickness of the cable insulation (PI, PVC) material after application.
- (b) An installation instruction will be provided with every accessory supplied.
- (c) The jointing and termination instructions for accessories used with PILP-insulated cables will clearly indicate the cable preparation required for cables having an outer sheath made of PVC.
- (d) Cleaning material for cable joints, terminations and tri-furcating kits will be provided.
- (e) Principle Manufacturer's written approval for any locally manufactured materials that are supplied in the above MV accessories will be provided to ensure that material electrical properties are not changed in any way due to different manufacturing processes. Proof of this written approval will be provided.

C3.3.22.15 Marking, packaging and documentation

Will be in accordance with NRS 053

C3.3.22.16 Training

Training will be provided as required as per NRS 053 when required.

C3.3.22.17 Quality management

Cable accessories will comply with the requirements of NRS 053. Cable accessories will carry valid product certification in terms of compliance with NRS053, by an independent 3rd party product certification body which possesses the necessary international accreditation. Such certification will be issued in terms of the relevant certification body's mark scheme. A copy of the relevant mark scheme permit and accompanying schedules will be submitted as proof of compliance.

The supplier will have implemented quality management system (QMS), which meets with the minimum requirements of SANS 9001.

C3.3.23 LV PVC insulated cables

C3.3.23.1 General

All low voltage cables will be manufactured according to **NRS 074-1:2005** - Low-voltage (600/1 000 V) cable systems for underground electrical distribution Part 1: Cables and **SANS 60227-1:2006 / IEC 60227-1:1998** - Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V Part 1: General requirements, and will bear the SABS/IEC mark.

The voltage gradient of the PVC dielectric will be for 600/1 000 Volts and for general purpose use unless otherwise stated.

All low voltage PVC insulated cables will have stranded copper annealed conductors unless otherwise called for.

The following code will be used for identifying cables:-

C3.3.23.2 Identification

<u>Component</u>	<u>Code Letters</u>
PVC di-electric	PVC
PVC sheath or extruded bedding	PVC
PVC tape bedding	PVCT
Single wire armour	SWA
Earth continuity conductor in armour	ECC/SWA
Double wire armour	DWA
Concentric neutral or earth conductor	N, NE or ECC as relevant
PVC outer sheath	PVC
Where a supplementary earth core is included	G/Y

C3.3.23.3 Joints and terminations of PVC SWA cables

The ends of these cables will be made off in the conventional way with an earth bond between the armour, and the cores jointed through by means of crimping ferrules, colour to colour (no taping required).

PVC jointing kits will be used and these will consist of a celluloid jointing mould which will be placed around the joint. Into this mould will be poured a clear plastic compound which will be allowed to set after which the jointing mould will be removed. No joint will be permitted in any run of cable unless specifically specified or specifically approved by the Engineer.

Terminating PVC cable will only be by means of glands and shrouds. Connecting of cable cores to bolted type terminals will be affected by means of suitably sized lugs which will either be sweated or crimped onto the relevant conductor ends.

C3.3.23.4 Testing of cable terminations

The following tests are required:

- (a) Before terminations. Prior to jointing or termination the insulation and continuity tests by means of resistance will be done:

MV cable : 10000V
LV cable : 1000V

- (b) After terminations. The following tests will be carried out on completed cable sections of laid and jointed cable.

The Contractor will be responsible for all necessary test equipment and instruments and the necessary electricity supply to carry out the test.

- (c) Paper insulated cables. A test voltage (either A.C. or D.C.) will be applied between conductors and between each conductor and the metal sheath, which shall be held at earth potential. The voltage shall be increased to the full appropriate value, and maintained at this value for 15 minutes.

	2	3	4	5	6	7
Voltage rating of cable	Test voltage					
	Belted cables				Single-core and Screened cables	
	Between conductors		From conductor To sheath		Between conductor and Sheath or screen	
	a.c	d.c	a.c	d.c	a.c	d.c
3.3/3.3	7	9	7	9	-	-
3.8/6.6	13	19	8	11	8	11
6.6/6.6	13	19	13	19	-	-
6.35/11	22	31	13	19	13	19
11/11	22	31	22	31	-	-
12.7/22	-	-	-	-	25	36
19/33	-	-	-	-	38	54

NOTE: Direct current tests shall NOT be applied on cross-linked polyethylene cables. All cables will be discharged immediately after each and every test.

- (d) PVC insulated cables. A 2 000V Megger will be used and the insulation between phases and phases to earth will be measured.
- (e) Rejected cables. If breakdown of any cable occurs during testing it will be replaced and/or the cable end will be re-done. This will be to the Contractor's account.

C3.3.23.5 Handling

During loading and off-loading the cable drums must be handled carefully to avoid damage to the inner layers of the cable. Drums must not be dropped onto or off the delivery vehicle. If no winch, hoist or other mechanical means is available then drums must be gently rolled down suitable ramp or rails.

When rolling a drum of cable on the ground, it must always be rolled in the direction of the arrow stencilled by the manufacturer on the drum flange.

Periodic rotation of wooden drums is essential to avoid drum timbers from rotting through rising damp.

Incorrect handling of drums could result in rejection of the cable by the Engineer, without additional time for the contract, or any other compensation being granted.

C3.3.23.6 Installation of cables

The following points must be adhered to for the correct installation of cables.

Robust cable jacks with a spindle strong enough to carry the total load, will be securely mounted and operated with the spindle level.

The securing ropes must be cut so as to leave the inner end free to move, during unrolling operations.

Correct wire mesh pulling stockings must be used for the drawing in of cables.

The use of adequate, (approximately every 2 metres) well-oiled cable rollers, of the correct size or larger, will be used.

All pipe ducts must be cleared of all foreign matter before cables are pulled in.

Adequate protection and attention at the entrance and exit to pipe ducts is essential.

Maximum pulling forces specified by the manufacturers must not be exceeded.

No cables must be laid when temperature is 10°C or lower unless the special conditions is required by the Engineer, have been fully met.

The following bending radii are the absolute minimum and under no circumstances must the radii be less than these dimensions for the size of cable specified.

- PVC insulated cable = 10 x D
- Paper insulated lead covered = 12 x D
- XLPE insulated cables = 15 x D

Where D = overall sheath diameter

The Engineer reserves the right to reject any cables which have been twisted, kinked or damaged in other way, without additional time being granted for completion of the contract.

When laying the cable, a certain “snaking” must be permitted so that contraction during cold weather will not detrimentally affect joints, etc. Due allowance for this has been made in this specification.

C3.3.23.7 Depth of cables

Existing and proposed Post & Telecommunications (GPO) cables are laid at a depth of 600 mm. The minimum or shortest distance between a P & T cable and any other service will be at least 300 mm. The provision of a vertical concrete slab with a P & T cable on one side and an electrical cable on the other side, would meet the above requirement.

Unless authorised otherwise in writing, cable depths to underside of cable will be as follows:

	Single or 3 per trench (max)	
(i) MV Cables	1000 mm	1 050/900 mm
(ii) Pipes/ducts under roads for cables	900 mm	900 mm
(iii) LV Kiosk supply cables only	800 mm	900/750 mm
(iv) Street-lighting, high mast or service connection cables only in street reserves	750 mm	900/750 mm
(v) Cables in common trench with MV cables	800 mm	900/750 mm
(vi) MV Cables, across domestic public open spaces, Church, schools, etc. sites	1 200 mm	1 200/1050 mm
(vii) LV Cables across domestic, public open spaces, Church, school, etc. sites	900 mm	900/750 mm

Where the above conditions cannot be met, the Engineer may approve one of the following:

- i) Cement slabs over the cables or
- ii) Cable duct pipe encased in 300 mm square concrete.

Reference must be made to detailed specifications relative to road crossings and trenching.

C3.3.23.8 Marking of cables

All cable joint and route markers will be approximately 300 mm long and 230 x 230 mm at the base and 150 x 150 mm at the top.

Cast into the top of the cable marker will be a 100 x 100 mm x 1,6 mm stainless steel insert on which the details of the cable will be clearly stamped. Insert to be noticed to assist holding.

Letter sizes on route markers will be approximately 10 mm minimum.

Joints will be marked showing the size of the cable, as well as the voltage, i.e.

- i) 150 mm² LV Joint
- ii) 35 mm² 11kV Joint

Route markers will show the direction of the cable run, the size of the cable and the number of cores.

- i) 150 mm² LV Cable
- ii) 35 mm² 11kV Joint

Cable route markers will be placed at

- i) Approximately every 30 metres along a straight run and
- ii) Above every change of direction of the cable.

Where cables terminate at a substation or a kiosk, the cable will be marked by means of 10 mm wide copper or stainless steel strap fixed approximately 500 mm above ground level showing the circuit designation with

reference to the drawing. PVC or plastic markers will not be permitted.

C3.3.23.9 Protection of cables

Where 11 000 Volt or higher voltage cables are installed then the cable will be covered with cement slabs or bricks as detailed in the schedule of quantities. The cement slabs will be approximately 300 mm wide x 50 mm thick.

The cement slabs or bricks will be approximately 300 mm above the MV cable.

All cables will be covered with the 300 mm wide PVC danger tape irrespective of any other protection required.

The PVC danger tape will be placed approximately 300 mm below natural ground level.

PVC Danger tape will be 300 mm wide, 800 gauge thick and printed with the words, DANGER, GEVAAR, INGOZI, plus the skull and crossbones.

C3.3.23.10 Measurement of cables

Quantities as shown on the Schedule of Quantities are approximate and the Contractor will physically measure the route on site before ordering his cable.

All surplus cable at the end of the contract must be removed by the Contractor and the quantities for payment will be adjusted accordingly.

Cables will be measured by the clerk of works by means of a measuring wheel once the trenches have been closed.

In addition to the cable lengths measured in the trenches, THE FOLLOWING SLACK WILL BE ALLOWED:

i) Slack in cable trenches	+X%
ii) 6.6/11/22 kV at miniature substations	+ 3 m
iii) 6.6/11/22 kV at brick substations (actual measurement)	
iv) 6.6/11/22 kV at overhead poles	+ 10 m

C3.3.23.11 Thermal resistivity

Cable current carrying capacity is affected by the thermal resistivity of the substances encountered.

The following table of values will be used:

(g) Thermal Res. °Cm/W

Water logged ground	0,50
Concrete	0,90
Gravel	1,00
Sandy soil	1,20
Clay	1,60
Chalky soil	1,80

Impurities such as slag, ash and intense vegetation in the cable trench cause an increase of "g" and must be avoided, particularly close to the cable.

C3.3.23.12 Positions of cables

The centre line of the trench for a single cable will be 1 000 mm from the official property boundary line pegs (fences may not be correct) unless written instructions to the contrary, are issued.

Where two or more cables are placed in a single trench and the cable are spaced at 150 mm centres, then the trench centre line will be 1 000 mm from the official property boundary line pegs.

C3.3.23.13 Testing on completion

Tests on completion will be carried out on site in the presence of the Engineer, and the test results properly recorded and submitted in triplicate.

On each completed section of laid and jointed cable, the insulated resistance will be tested on approval, with an approved "Megger" type instrument of not less than 10 000 Volts for MV and LV Low voltage has reference to 1 000 Volts and less while MV medium voltage has reference to more than 1 000 Volts.

On each completed section of laid and jointed MV cable a high voltage test will be carried out.

The test will be performed in the same manner as that described in clause 8.3 of SABS 97: 1959 (as amended) but alternating or direct current may be used. See the appropriate test voltages in C3.3.31.4.

All MV and LV switchboards will be "Megger" tested to approval after erection and installation on site, using the applicable test voltages.

C3.3.23.14 Installed route plan and cable schedules

The Contractor is responsible to submit a final cable route plan (as installed) to the satisfaction of the Engineer. Due to allowance will be made in the tender price for this work.

Failure to comply with this requirement will result in the delay of the issuing of the acceptance certificate. No completion certificate will be issued if these requirements are not met.

The following will be indicated on this route plan in a satisfactory manner for all installed cables:

- a) The route length for each cable as well as distances between joints.
- b) Cable route with references to fixed points.
- c) Cable joints with references to fixed points.
- d) The cable drum number for each length.
- e) Positions of cable route markers with reference to fixed points. The route markers will be numbered and a separate drawing showing the face plates of all route markers (numbered), with North reference will be submitted.

A site plan will be provided to the Contractor for this work, who will submit a plastic film and our (4) paper prints of the route plan.

Cable schedules will be submitted on A1 sized sheets containing information as required by the Engineer.

Any uncertainty in this respect will be subject to clarification by Engineer.

C3.3.24 Miniature substations

C3.3.24.1 Scope

This specification covers the minimum requirements for the manufacture, testing and supply and delivery of miniature substations (Minisubs) suitable for use in areas accessible to the public.

Minisubs will comply with the requirements of SANS 1029:2008. Only new Mini-substns will be accepted. Each MS will be supplied complete with a plinth. Plinths will be casted on site. No pre-fabricated plinths will be used.

The standard transformer power ratings for Minisubs will be:

- a) 200kVA
- b) 315 kVA
- c) 400 kVA
- d) 500kVA
- e) 630 kVA
- f) 800 kVA

C3.3.24.2 System and environmental requirements

System parameters

Primary Nominal Voltage	6.6kV	11 kV	22kV
Secondary nominal voltage	420/230	420/242	420/242
Rupturing Capacity	25kA	25kA	25kA
Impulse Level	95kV	95 kV	95kV
Highest System Voltage	7.6kV	12 kV	24kV
Rated Short Time Current (3 s)	18.3kA	18.3kA	18.3kA
Frequency	50Hz	50 Hz	50H
Phases	3	3	3
Earthing			

The Minisubs will be manufactured to be in use continuously under all weather and climatic conditions

throughout the year, which conditions will be as follows:

Atmospheric Temperature	-5°C minimum +45°C maximum
Altitude	800 m minimum to 1 100m maximum
Lightning & Dust	Severe
Average Power Factor	0,8
Maximum Humidity	95%
Earthing	Neutral earth. Max 1 Ohm

C3.3.24.3 Abbreviations

Minisubs = Miniature substations
MV = Medium Voltage
RMU = Ring main unit
HV = High Voltage
LV = Low Voltage
EFI = Earth Fault Indicator

C3.3.24.4 Legal requirements

The Contractor shall comply with all the State laws and in particular the will be required to comply with the requirements of the Occupational Health and Safety Act, Act 85 of 1993 and regulations as amended.\\\

C3.3.24.5 Construction requirements

- (a) Minisubs of type A layout will comprise the following:
- (b) A MV compartment for housing the RMU
- (c) A transformer of one the following power ratings, CT ratios and fuse ratings on the RMU T-off is applicable:
 - i) 200kVA 300:5
 - ii) 315kVA 500:5
 - iii) 400kVA 600:5
 - iv) 500kVA 800:5
 - v) 630kVA 1000:5
 - iv) 800kVA 1200:5
- (d) LV Compartment for a rated voltage up to 1000V.
- (e) Streetlight compartment reserved exclusively for streetlight control equipment. All of the above are to be mounted on a common 75mm channel iron galvanised steel base covered with black epoxy tar paint.
- (f) MV compartment
 - (i) The RMU will comply with the requirements of SANS 1874 for use with 11kV vacuum circuit breaker for the transformer feeder and two on load switches:
 - (ii) The RMU will have integral cable test facilities and an EFI will be provided.
 - (iii) The RMU will be supplied complete with one-piece unscreened separable connectors (ring switches and circuit-breaker).
 - (iv) Termination of MV cables: Provision will be made for the support (clamping) of two incoming (ring) cables in the MV compartment.
- (g) Transformer

The transformer will comply with the following requirements:-

 - i) Insulation temperature class H – Side Glass for monitoring
 - ii) Breather with silica crystals
 - iii) Top cover bolted sealed.
 - iv) Oil drainage facility at the bottom of the transformer
 - v) Oil top up facility with cap.
 - vi) Tap changer
 - vii) Vector group Dyn 11
 - viii) Copper primary and secondary windings
 - ix) ONAN cooling
 - x) Hermitically sealed
 - xi) Dial type thermometer with trip relay to Main LV circuit breaker
- (h) LV compartment

- (i) Provision will be made for the installation of at least one main and eight outgoing LV circuit-breakers.
- (ii) Three Maximum demand Ammeters.
- (iii) LV Indicating- with thermal maximum demand ammeters will be provided for all three phases.
- (iv) One voltmeter will be provided with a selector switch. (Phase to Phase and Phase to Neutral)
- (v) Provision will be made for mounting of LV circuit breakers having sufficient space between the rows for accommodating cable terminations. Cover plates will be provided for both rows.
- (vi) Municipal Specified SL 7000 Digital Maximum Demand and Statistical metering must also be installed and programmed to Municipal specification.

C3.3.24.6 Paint colour

The colour will be avocado green.

C3.3.24.7 Plinth

The plinth for the miniature substations will be casted with a 25 MPa cement mixture and cured for the appropriate amount of days to reach the desired strength. Test cube results will be submitted to the Engineer on a frequent basis.

Plinths will be casted to suit the equipment being installed on the surface of the plinth

Plinths shall be:

Casted in undisturbed subsoil 150 mm beneath the natural ground level.

Casted with 150 mm above the natural ground level.

Fitted with 12 mm galvanised bolts to facilitate fixture of the miniature substation/ ring main unit

Chamfered to a 30° on the edges.

Level and have a smooth and level finish.

The final measurements of the plinths shall be in accordance with the manufacturers' measurements and specifications in addition with the related Eskom D-DT drawings.

The abovementioned specs are also applicable to the ring-main-unit.

C3.3.24.8 Inspection

Routine inspection, quality control and testing of the Minisubs will be conducted by the Client on all delivered MSS

C3.3.24.9 Marking labelling and notices

- (a) The following safety notices will be provided:
 - (i) The main circuit breaker will have a Trafalite plate engraved with: "Alive", mounted on the supply side.
 - (ii) The LV busbars will be color-coded in the colours of red, yellow, blue and black by a clearly visible painted-on spot at least 20 mm diameter.
 - (iii) The MV and LV compartment doors will be labelled with "MV" and "LV", respectively. Note that "MV" and not "HV" will be used for the MV compartment doors. The labels will be clearly and indelibly stencilled on both the inside and outside of all the compartment doors.
 - (iv) The LV streetlight compartment door will be labelled with "STREETLIGHT COMPARTMENT". The labels will be clearly and indelibly stencilled on outside of the streetlight compartment door.
 - (v) The Minisubs nameplate, having dimensions of 50X200mm, manufactured from Trafalite, will be located on the inside of the MV compartment door.
- (b) Safety notices
 - (i) A label depicting "Treatment and Full First Aid Instructions" will be permanently attached to the inside of the kiosk compartment main access door.
 - (ii) The letters MV must be displayed clearly and indelibly in red on the inside of the door of the kiosk.
 - (iii) External Chromadek electrical symbolic warning signs (WW7, Table 2 of SABS 1186 (in English, Afrikaans and Xhosa) will be permanently attached to all the doors.
- (c) Transformer rating plate information

In addition to the relevant requirements of SANS 780, the following information will be clearly shown on the transformer rating plate:

 - (i) Client order number;
 - (ii) Mass of the Minisub.

C3.3.24.10 Documentation and drawings

Provision will be made for the safe-keeping of all relevant documentation (i.e. the installation, operating and maintenance instructions for the ring main unit and all routine test certification) on the inside of the Minisubs MV compartment door.

The following details must be provided on an A4 hard paper form protected by a plastic cover:

- a) Volume of oil in RMU
- b) Mass of oil in RMU
- c) Volume of oil in Transformer
- d) Mass of oil in transformer
- e) Mass of plinth
- f) Total mass of Minisubs

C3.3.24.11 Transport and delivery

The Minisubs will be delivered and off-loaded complete at the address specified.

C3.3.25 Low voltage distribution and metering kiosks

C3.3.25.1 Scope

This specification covers the minimum requirements for the manufacture, supply and delivery of low-voltage 3CR12 steel service distribution boxes (SDB), suitable for ground mounting and safe for use in areas accessible to the public.

The distribution kiosks for this contract will have no paint applied and be similar or equal to Power Process Systems Marshalling Kiosk.

C3.3.25.2 System and environmental requirements

System parameters	
Secondary nominal voltage	420/242
Rupturing Capacity	6 kA
Rated Short Time Current (3 s)	6 kA
Frequency	50 Hz
Phases	3
Earthing	Neutral/earth

The SDB will be manufactured to be in use continuously under all weather and climatic conditions throughout the year, which conditions will be as follows:

Atmospheric Temperature	-5°C minimum +45°C maximum
Altitude	800m minimum to 1 100m maximum
Lightning	Severe
Dust/sand	Severe
Average Power Factor	0,8
Maximum Humidity	95%

C3.3.25.3 Consumer cables

Provision will be made for the connection of the customer cables, normally 10-16mm², 2-core armoured cable for a single-phase supply or a 16mm², 4-core armoured cable with separate earth continuity conductors for a 3-phase supply. Cable sizes will be shown on the applicable drawings.

C3.3.25.4 Cable compartment

That part of a meter SDB where the feeder cables are terminated onto the busbars. All incoming and outgoing cables to and from the SDB will be connected to the busbar.

C3.3.25.5 Low voltage SDB supply cables

Provision will be made for the supplier's 3-phase, low voltage cable/s to be connected onto the busbars. The SDB's must be designed for 120 - 10mm² copper, 4-core armoured supply cables.

C3.3.25.6 SDB construction

(a) General

- i) SDB's will be manufactured from 2mm thick; 3CR12.

- ii) The SDB will include a door for access to the circuit breaker compartment of the SDB. The door's surround will incorporate a splash proof channel.
- iii) A rain sill that protrudes past the door will be installed above the door, to prevent rain falling on to the top surface of the door when it is closed. This sill will be sturdy enough to be used as a handle to lift the SDB.
- iv) The SDB will be constructed from pickled, passivated 3CR12.
- v) The completed SDB will have an IP rating of 3 for protection against touching live parts and it will have an IP rating of 3 for protection against ingress of liquids [IP33].
- vi) All cutting, forming, forging, machining, welding, fastening, annealing, stress relieving, post weld cleaning will comply with the internal standards of the manufacturer of 3CR12 steel.
- vii) Adequate vermin proof ventilation holes will be provided in the SDB.
- viii) The circuit breakers must be installed vertically and be accessible from the front of the distribution kiosk.

(b) Door

- i) The door will be fitted with two "Bullet" hinges of non-ferrous metal. The hinges used will be internal hinges, i.e. they will only be accessible from inside the SDB. The door will be hinged from the left hand side.
- ii) The door will be mounted flush with the surface of the lid.
- iii) The door will be fitted with a night latch.
- iv) The locking mechanism will make use of the 3 point locking principle (B & N type 24132E). The rods used for the 3 point locking system will be a minimum of 8 mm round bars. All the components of the locking mechanism will be of pickled and passivated 3CR12 or stainless steel.
- v) The door will be braced using the remnants of the 2 mm 3CR12 sheet in order to improve its rigidity.
- vi) A sturdy door stay will be provided on the front door to ensure that the door can be kept in a 90° open position. This door stay will be manufactured from a non-ferrous metal.

C3.3.25.7 SDB electrical equipment

- (a) The SDB will be supplied with all busbars and insulators fitted.
- (b) In the LV cable compartment, there will be 3 LV phase busbars, earth busbar and a neutral busbar.
- (c) The phase and neutral busbars will be constructed from 15mm thick copper to carry at least 400A and fastened by means of suitable insulators.
- (d) The neutral busbar will be connected to earth busbar with a 70 mm² bridge piece. The neutral busbar will be insulated from earth in the same manner as the phase busbars.
- (e) The busbars will come fitted with a stainless steel set screw, complete with 20 tinned steel washers, a stainless steel spring washer and cadmium plated steel nut, in each pre-drilled hole.
- (f) From top to bottom, the phase order of the busbars will be red, yellow, blue and black.
- (g) All wiring connections will be made by phase coloured 16 mm² PVC insulated copper conductors, lugged and connected to the correct busbars. The ends of the conductors that are intended for connection to equipment in the metering compartment will not be stripped, and will be protected with heat shrink end caps that can only be removed by cutting them off.

C3.3.25.8 Circuit breaker mounting

- (a) The SDB will be designed to house top hat (TH35-7.5) rail-mounted circuit-breakers.
- (b) The top hat rails will conform to IEC 60715 and will be supplied and installed by the manufacturer.
- (c) The breaker compartment will be lockable with a separate lock as to prevent unauthorized access to the breakers.

C3.3.25.9 Samples

If requested to do so, a sample of each SDB will be provided for assessment purposes. The samples must please be collected after the tender has been awarded.

C3.3.25.10 Marking and labelling

- (a) Notices will be provided as required by the Occupational Health and Safety Act. All notices will be secured to the SDBs using rivets.
- (b) The following information will appear in legible and indelible marking as follows:

The manufacturer's name or trademark;

- A danger sign of minimum size 100 mm x 60 mm that forms an integral part of the housing and/or all doors. The sign will be as specified in table1, WW7 of SANS 1186-1; and;
- Appropriate SANS mark(s) of approved performance.

- (c) A label showing the name of the manufacturer and the date of manufacture will be placed on the inside of the SDB door.

- (d) Each circuit breaker must have a removable blank trifoliate to be engraved with a stand number.

C3.3.25.11 Drawings

The tenderer must submit for approval a complete drawing of every SDB offered. Manufacturer's brochures will be submitted.

C3.3.25.12 General

Any amendment to or deviation from the specification must be shown in full.

C3.3.26 Earthing systems

C3.3.26.1 Scope

This section covers the earthing of electrical installations in buildings or other structures. The total earthing system of any electrical installation will be in complete accordance with SANS 10142.

C3.3.26.2 General requirements of an effective earth

An effective earth must prevent dangerous over voltages arising between metallic structures, frames, supports or enclosures of electrical equipment and the ground during fault conditions.

An effective earth must be able to permit fault currents of sufficient magnitude to flow so as to operate protective devices to isolate the fault before damage can occur.

The ohmic resistance of an effective earth must be low enough to ensure that the step potential on the ground in the vicinity of the earthing point is within safe limits under fault conditions i.e. a voltage gradient not exceeding 40 V/m for fault durations exceeding 1s.

C3.3.26.3 Recommendations on the practical installation of earth electrodes

There are generally three types of earth electrodes.

(a) Trench earths

Trench earths comprise a bare copper or galvanised iron conductor laid at a minimum of 800mm below ground level, usually when underground cables are installed. This type of earth electrode provides a relatively large contact area between electrode and surrounding ground, makes contact with a variety of types of soil and soils of varying moisture content en route and is economical to install.

(b) Spike earths

Spike earths comprise rods of bare copper, copper-coated steel, stainless steel or galvanised steel designed for the purpose of penetrating ground to depths of up to several metres.

A low resistance earth may sometimes be obtained by driving multiple spikes at some distance from each other in order to provide parallel paths.

In hard or rocky ground, it is usually necessary to drill holes into which earth spikes are inserted and then packed with soft soil.

(c) Foundation earths

Foundation earths comprise bare copper or galvanised iron conductors laid under the foundations of buildings, miniature substations, distribution pillars, bases of wooden, concrete or steel poles and structures. Because soil under foundations usually retains moisture, foundation earths are located to take advantage of this favourable condition. Furthermore, they are economical to install.

C3.3.26.4 Materials for earth electrodes

Bare copper, either in stranded, strip or rod form, is considered the most suitable general purpose material for earth electrodes. Its main disadvantage is its cost and susceptibility to theft.

Bare galvanised iron and steel, either in stranded, strip or rod form, has a satisfactory record of survival in non-aggressive soils and is more economical than copper. Bare aluminium is unsuitable as electrode material.

C3.3.26.5 Corrosion

Because galvanised ferrous metals corrode sacrificially to copper, galvanised iron and steel electrodes shall not be buried in close proximity to bare copper.

C3.3.26.6 Technical requirements of neutral earthing

C3.3.26.6.1 Distribution systems

Multiple Earthed Neutral (MEN) and Protective Multiple Earthing (PME) systems.

Distribution equipment associated with transformer substations that are either ground mounted or pole mounted and fed by underground cable or overhead line, with or without an earth continuity conductor, (ECC), shall be installed, connected and earthed in accordance with the following requirements:

- (a) Where the resistance to earth of the HV equipment earth is 1 ohm or less, it is permissible to earth the LV neutral to the HV earth electrode.
- (b) Where the HV equipment earth exceeds 1 ohm the LV neutral will be earthed at a minimum distance of 6m from the HV equipment earth (i.e. 6m from the HV electrode/s and also from any earthed metalwork connected thereto).
- (c) Notwithstanding the requirements of (a) above, where transformers are associated with HV overhead lines, it is considered good practice to separate the HV and LV earth electrodes. The minimum earth separation shall be 6m or one LV span.
- (d) The overall resistance to earth of the neutral of an LV distributor or distribution system must not exceed 10 ohms.
- (e) The LV neutral may be connected to other supply neutrals, earth electrodes, cable sheaths and armouring and these connections used to obtain the required earthing value of 10 ohms or less specified in par. (d) above.
- (f) The neutral of underground and overhead LV distributors must be earthed at the remote ends of each distributor.
- (g) Where the overall resistance to earth of the neutral of the distribution system exceeds 10 OHMS, the neutral will be earthed at intermediate positions on the distributor/s to reduce its resistance to earth to below this limit.
- (h) The cross-sectional area of the neutral of all LV distributors must not be less than that of a phase conductor.
- (i) No circuit-breakers, isolators, fuses, switches or removable links will be installed in the neutral between the transformer star point and the remote end of any LV distributor or service connection.
- (j) All metallic sheathing and armouring of cables and all metalwork associated with meter cabinets, fuse pillars, etc., supporting or enclosing LV cables will be bonded to the distributor neutral conductor.
- (k) Where a Separate Neutral Earth (SNE) cable is part of an MEN or PME system, the armouring and/or metallic sheath and any ECC will be bonded to the neutral at the supply end of the cable.
- (l) To ensure the integrity of the neutral, it is recommended that all connections and joints on or to overhead line conductors be made by compression fittings or, alternatively double bolted connectors.
- (m) MEN or PME may be applied to any single LV distributor without alterations to other LV distributors supplied from the same transformer.

Protective neutral bonding (PNB) system

Since the neutral is earthed at one point only, the question of multiple earthing does not arise and there is therefore no necessity to meet the MEN/PME technical requirements.

C3.3.26.6.2 Service connections

MEN System

The following conditions apply to consumers' service connections as well as service connections to traffic signals, road signs, street lighting and other power-consuming equipment installed in public places:

- (a) All service connections must be by means of cable with an insulated phase, an insulated neutral conductor and an ECC.
- (b) A single phase service connection comprises a live, a neutral and an ECC.
- (c) A polyphase service connection comprises two or three phase conductors, a neutral and an ECC.
- (d) The service neutral and ECC must be solidly and separately connected to the distributor neutral at the tee-off point.
- (e) The consumer's earthing lead is connected to the Supply Authority's earth terminal which is in turn connected to the ECC in the service cable at the consumer's supply point.
- (f) The neutral must not be connected to earth at the consumer's supply point.

- (g) If required by the Supply Authority, and earth electrode must be installed at the consumer's supply point.
- (h) In a service connection to traffic signals, street light and other power-consuming equipment installed in public places, such equipment is earthed to the ECC of the service connection.

C3.3.26.6.3 PME System

- (a) All service connections must be by means of a cable with an insulated phase and an insulated neutral conductor.
- (b) A single phase service comprises a live conductor and a neutral.
- (c) A polyphase service connection comprises two or three phase conductors and a neutral.
- (d) The consumer's earthing lead is connected to the supplier's neutral and to a mandatory earth electrode at the consumer's supply point.
- (e) A label must be attached at the consumers supply point on his premises indicating that the installation is part of a PME system.

Note: It is not recommended that the PME system be applied to supply traffic signals, street signs or other power-consuming equipment installed in public places, because the PME system is inherently unsafe under "broken-neutral" conditions.

C3.3.26.7 Earthing of an electrical installation

(a) General

All earth conductors will be stranded copper with or without green PVC insulation. The conductors will be determined in accordance with SANS 10142, par. 4.6 where the earth does not form an integral part of the cable.

(b) Switchboards

A separate earth connection will be supplied between the earth busbar of the main switchboard and the earth busbar of every sub-switchboard. These connections will consist of bare or insulated stranded copper conductors installed along the same routes as the supply cables or in the same conduit as the supply conductors.

Alternatively armoured cables with earth continuity conductors included in the armouring may be utilised.

(c) Sub-circuits

The earth conductors of all sub-circuits will be connected to the earth busbar in the supply switchboard in accordance with SANS 10142.

(e) Connections

Under no circumstances will connection points, bolts, screws, etc. used for earthing be utilised for any other purpose. It will be the responsibility of the Contractor to supply and fit earth terminals or clamps on equipment and materials that must be earthed where these are not provided. Unless earth conductors are connected to proper terminals, the ends will be tinned and lugged. Lugs may be crimped, using mechanical or pneumatic tools designed for this purpose, on condition that evidence is submitted that the method used complies with the performance requirements of BS 4579, Part 1: "COMPRESSION JOINTS IN COPPER."

(f) Non-metallic conduit

Where non-metallic conduit is specified or allowed, stranded copper earth conductors will be installed in the conduits and fixed securely to all metal appliances and equipment, including switch boxes, socket-outlet boxes, draw-boxes, switchboards, luminaries, etc. The securing of earth conductors by means of self-threading screws will not be permitted.

(g) Flexible conduit

An earth conductor will be installed in all non-metallic flexible conduits. This earth conductor will not be installed external to the flexible conduit but within the conduit with the other conductors. The earth conductor will be connected to the earth terminals at both ends of the circuit.

(h) Water pipes

Metal cold water mains will be bonded to the earth bus-bar in the Main Switchboard by solid 15 x 2mm copper

strapping. All other hot and cold water pipes will be connected by 12 x 0,8mm perforated or solid copper strapping (not conductors) to the nearest switchboard. The strapping will be fixed to the pipe work by brass nuts and bolts and against walls be brass screws at 150mm centres. In all cases where metal water pipes, down pipes, flues, etc. are positioned within 1,6 m of switchboards, an earth connection consisting of copper strapping will be installed between the pipe work and the board. In vertical building ducts accommodating both metal water pipes and electrical cables, all the pipes will be earthed at each switchboard.

(i) Roofs

Where service connections consist of overhead conductors, all metal parts of roofs, gutters and down pipes will be earthed. One bare 10mm² copper conductor will be installed over the full length of the ceiling void, fixed to the top purlin and connected to the main earth conductor of each switchboard. The roof and gutters will be connected at 15m intervals to this conductor by means of 12 x 0,8mm copper strapping (not conductors) and galvanised bolts and nuts. Self-tapping screws are not acceptable. Where service connections consist of underground supplies, the above requirements are not applicable.

C3.3.27 Aerial Bundled Conductor Lines

C3.3.27.1 SCOPE

This specification covers the construction of the aerial bundled transmission lines as indicated on the design drawings. All material and construction tools and equipment shall be provided by the contractor. All the appropriated regulations detailed in the Occupational Health and Safety Act, Act No 85 of 1993 shall be complied with.

C3.3.27.2 SYSTEM AND ENVIRONMENTAL REQUIREMENTS

System parameters

Primary Nominal Voltage	420/242V
Impulse Level	75kV
Highest System Voltage	420V
Rated Short Time Current (3 s)	15kA
Frequency	50Hz
Phases	3

The transmission/distribution lines shall be operating continuously under all weather and climatic conditions throughout the year, which conditions shall be as follows:

Atmospheric Temperature	-5°C minimum +45°C maximum
Altitude	0 m minimum to 850m maximum
Lightning & Dust	Severe
Average Power Factor	0,8
Maximum Humidity	95%
Height above sea-level	0m to 850m above sea level
Maximum environmental temperature	45° C
Ultra violet radiation	Severe

C3.3.27.3 GENERAL STANDARDS

- Wooden poles shall be used in urban areas when specified.
- Wooden poles shall be used when constructing rural lines.
- Wooden cross arms shall be installed throughout rural lines.

C3.3.27.4 CONSTRUCTION OF THE LINES AND INSTALLATION OF STAYS

Refer to the relevant parts of the Specification for Overhead Transmission Line

C3.3.27.5 CLEARANCES

All clearances shall be in accordance with the Electrical Machinery Regulations (Regulation 1593) of the OHSA. The table in the Regulation is repeated hereunder, but shall be read with the provisions in the Act and the Regulations, as well as any amendments which may occur from time to time.

C3.3.27.6 CLEARING OF SERVITUDES

The area of all servitudes of 6m wide, 3m on either side of the centre line of the route of the 11kV and 22kV overhead lines, shall be cleared of trees, plants, shrubs and other vegetation.

The servitude shall be free of trees and any other foreign material from ground level to 3m above the 11/22kV as well as in case of all bare conductor LV overhead lines.

C3.3.27.7 STEELWORK

All galvanized metal work that is cut on site shall have anti-corrosion treatment applied immediately i.e. cold galvanizing.

C3.3.27.8 AERIAL BUNDLE CONDUCTORS

ABC has an insulated neutral and separate street light conductor. ABC shall be of size as specified in the Project Specifications.

C3.3.27.9 ABC FITTINGS AND CLAMPS

ABC shall be fitted to poles via an ABC bracket fitted to the pole with stainless steel straps as per the Municipality material specifications. A double steel tape separately buckled shall be used on strain structures. Strain clamps shall be tied in, in the closed position with three additional cable ties on the clamp itself and one additional cable tie on the wedge. These cable ties ensure the wedge will not release when the strain on the clamp is released.

Cable ties shall be installed on both sides of the strain clamps to ensure the ABC does not untangle and to ensure neatness of the installation. A minimum of three cable ties shall be used. This complies with both strain and suspension clamps.

All clamps shall be fixed to the neutral of the ABC.

Care shall be taken to ensure suspension clamps are locked in place after installation.

All IPC's shall be fastened until the plastic nut strips. No IPC shall be removed once installed. If installed incorrectly the secondary conductor connected to the ABC shall be cut off and sealed with a suitable end cap. IPC's shall be installed at least 100mm apart with a cable tie fastening all conductors in between. Care shall be taken when installing IPC to ensure no damage is done to other conductor insulation when the IPC is closed and fastened. Any damage to conductor insulation shall be reported to the Engineer. Conductor separation equipment shall be left in place until the IPC is fully tightened.

C3.3.27.10 SPACING OF POLES

Poles shall not be spaced more than 45m apart for single ABC configuration and 30m for double ABC configuration.

C3.3.27.11 INSTALLATION OF CONDUCTORS

C3.3.27.12 PLANNING

The installation shall be planned in such a way that the remnants/off cuts can be used for other installations to minimize the quantity of conductor wasted. The cost of unnecessary off cuts will not be for the account of the Municipality.

C3.3.27.13 METHOD

The cable drum shall be broken during running out to prevent overrun and damage to the conductor. The conductor shall not be dragged on the ground when being drawn between the poles.

A pulley shall be mounted below each ABC bracket on the intermediate poles. Conductor shall not be drawn over the brackets. After the conductor has been drawn up to a terminal pole, it shall be lifted to the brackets with suspension clamps from the pulleys.

The conductor shall be tensioned to the prescribed tension. Manufacturers' stringing and tension charts shall be used. Initial tensioning of conductors shall be by means of suitable rated winches or chain ratchet pullers and "come along" designed for the type and size of conductor specified.

The slack in the conductor shall be rolled onto the conductor drum.

Care shall be taken to ensure that the LV conductors shall have the same sag as the HV conductors on any particular route where they are running along a common route. Records of temperature sag and tension for

each strain section shall be kept and three copies of such a record shall be submitted on completion.

The contractor shall make suitable arrangements for temporary staying of poles and anchoring of conductors when necessary.

Complete drum lengths of conductor shall be used as far as possible without cutting to reduce the number of joints.

All cable and bundle ends shall be supported onto the pole to prevent tension on the conductor and to control the bending radius. Bundle conductor ends shall be strapped with 6 x PVC banded straps before rolled from the drum to prevent uncoiling.

The minimum bending radius of each bundle shall not exceed the radius prescribed by the manufacturer. Care shall be taken that the bundle maintains its' normal coil after installation.

Phase rotation shall be the same on each transformer connection.

C3.3.27.14 JOINTS AND TERMINATIONS

All joints of conductors shall be of approved materials only but shall be limited to the absolute minimum. No mid-span joints shall be made without the approval of the Engineer, and no joints shall be made in spans crossing roads, railway lines or other overhead services.

No joints shall be permitted in a service connection unless specifically approved.

The Contractor shall keep a record of the spans in which joints are made, as well as drum numbers and position in line during the stringing. Three copies of the records are to be submitted and brought onto the as-built drawings on completion of the project.

C3.3.27.15 DRAWINGS

The drawings applicable are attached in the tender document.

C3.3.27.16 WARNING SIGNS

A danger sign of minimum size 100 mm x 60 mm that forms an integral part of the lid shall be provided (WW7 of SANS 1186).

C3.3.28 Consumer Connections and Installations

C3.3.28.1 POLE MOUNTED CIRCUIT BREAKER BOXES

Circuit breaker box must be installed on a single 9m wooden pole. The construction of the box shall be weatherproof and vandal resistant. The back of the kiosk shall consist of brackets and clamps for the fitment on the wooden pole. The front of the pole mounted circuit breaker box shall be accessible with a door that can be locked with a padlock.

The circuit breaker box shall have sufficient dimensions to accommodate the equipment specified in the Project Specifications.

The following shall be installed in the pole mounted circuit breaker box:

1. Three insulators for the connection of phase conductors.
2. A neutral busbar with a 200A rating on which neutral conductors can be connected and terminated.
3. A busbar on which all earth conductors can be connected and terminated.
4. Installation brackets for the mounting of 6kA circuit breakers similar to the CBi/Heinemann QF series. The Circuit breaker boxes shall make provision for the amount of service connections specified in the Project Specifications.
5. Installation of split unit prepaid meters with the circuit breakers.
6. The bottom of the circuit breaker box shall have cable entries. The cable feeders for the circuit breaker boxes are 35mm² x 4 aluminium conductors insulated with XLPE and or equivalent. Service connection feeders are 10mm² concentric "Airdac" cable.

C3.3.28.2 SERVICE CONNECTION CABLE

The service connection cables shall be appropriate for installation on a kicker pole and for connection in the pole mounted distribution kiosk and consumer installations. The maximum length over which the cable may be installed is 80m.

Additional 7m kicker poles will be required where house structures are at the far side of each stand.

The service connection cable shall adhere to SANS1507-6 and will have a separate neutral and earth (SNE) according to the ABERDARE range of cable and conductors.

The composition of the cable must be as follows:

1. 10mm² stranded copper conductor insulated with XLPE
2. Seven insulated copper conductors with an effective cross-sectional area of 10mm² for the neutral conductor.
3. Three bare copper electrical conductors with an effective cross-sectional area of 7.5mm²
4. Outer cable sheath covered with ultraviolet stabilized polyethylene.

C3.3.28.3 AIRDAC STRAIN CLAMPS

The strain clamps for the service connection cable shall be installed on the pole on which the pole mounted circuit breaker box is installed, the kicker pole and at the dwelling where the cable is terminated at the consumer installation inside the dwelling.

The strain clamps shall be fitted with wedges and installed so that the cable is fastened as the strain on the cable increases. The inside surface of the wedges must be lined to prevent insulation damage of the "Airdac" cable.

The construction of the strain clamps must make provision for installation on a pig tail or eye nut and be of the Sicame PP63R17 range.

C3.3.28.4 AIRDAC SUSPENSION CLAMP

Suspension clamps must be installed where the Airdac cable is suspended without deviation in the line route. The suspension clamp must be installed with a pigtail.

Suspension clamps shall be of the Sicame BD63 range.

C3.3.28.5 AIRDAC CABLE TERMINATIONS

Terminations shall be done where the "Airdac" cable is terminated at the consumer connections and at the pole mounted circuit breaker boxes. The cable terminations must provide firm clamping and seals of the cable entries.

C3.4 Particular (Project) Specifications

C3.4.1 General

Information regarding the scope of the project, the site, alterations and additions to the General Specification and other aspects relevant to the construction are given below.

Tenderers must take due cognisance of these and tender rates must make provision for any additional costs due to the factors mentioned.

Notwithstanding the information given, it remains the responsibility of the Tenderer to ascertain the actual conditions on site before submitting a tender.

The various items and materials will adhere to the standardised specifications listed in section C3.1.

C3.4.2 Supply authority

Dawid Kruijer Municipality is the Supply Authority and they will be responsible for the operation and maintenance of the electrical infrastructure on completion.

C3.4.3. Other contractors

No development is currently planned on the proposed site of works. The Engineer will notify the successful bidder of such developments.

C3.4.4 MV cable feeders

C3.4.4.1 General

An underground MV cable feeder is used to connect the new miniature substations to the nearest 11 000 V supply point.

The planned medium volt network will have an operating voltage of 11 000 V. Refer to drawings.

C3.4.4.2 Cables

The 11 000 V cable feeder consists of 70 mm² x 3 core and 35 mm² x 3 core copper paper insulated, lead insulated, steel taped armoured, screened, PVC bedded, cables.

Refer to drawings for the cable routes and cable sized for each cable route.

Installation of all cables will be in accordance with the manufacturer's specifications.

C3.4.4.3 Bare copper earth conductor

An annealed and stranded conductor of high conductivity copper with cross diameter as indicated on the drawings will be installed at the bottom of the trench at a depth of 100 mm directly underneath the full route length of the MV cable. All joints must be cad welded.

The BCEC will have a cross sectional area of 70 mm² and installed as shown on the enclosed drawings. The BCEC terminates onto the RMU and miniature substation's earth studs were applicable.

C3.4.4.4 Cable joints

MV cable joints will be permitted based on 300 m drum lengths. All cable joints are to be carried out by certified cable jointing artisans in the presence of the Engineer. Positions of cable joints are indicated on drawings. Cable joints shall be made at a distance of 6 meters from MV equipment and from pole positions with overhead cable terminations.

Cable joints will be marked with a cable marker with the appropriate symbol and size of cable.

C3.4.4.5 Cable terminations

Cable terminations at miniature substations and RMU's will be of the outdoor heat shrink termination type suitable for the type of cable specified. Full particulars for the proposed termination will be submitted with the tender.

C3.4.4.6 Proposed cable route

The proposed 11000 V cable route is shown on drawings will be established on site by the Contractor and the Engineer. The proposed cable route will be inspected for crossings with existing underground services before any excavations are done. Where service crossings are indicated the excavation will be done by hand for all existing services.

C3.4.5 Miniature substations

C3.4.5.1 General

All miniature substations will be Type-B substations and only manufacturers, which carry the SABS mark, will be acceptable.

Outline drawings as well as drawings of the rating and diagram plate will be submitted for the miniature substations prior to manufacturer for approval by the Engineer.

Test certificates for the miniature substation will be submitted prior to dispatch.

The miniature substation colour will be Avocado Green. The miniature substation designation will be engraved on a steel plate in 50 mm stencilled letters. The plate will be riveted to the door of the high voltage compartment door.

C3.4.5.2 Medium voltage compartment

The medium voltage compartment of proposed miniature substations will be equipped with a SF₆ gas insulated ring main unit with a fuses t-off switch for the transformer feeder. Detailed specifications and drawings will accompany the miniature substation drawing for approval by the Engineer.

a) Switch disconnectors

The switch disconnections for the cable feeders and transformer feeder breaker combination must be suitable for the specified system and shall include all labels as specified.

b) Cable termination

The cable connection cubicles shall be suitable for terminating a 120/70/35 mm² x 3 core PILCSTA cable by means of heat shrinkable connections including a galvanized support frame with wooden cable blocks. The support frame will be designed in such a way that it will be possible to install the wood block at 500 mm, 600 mm or 700 mm below the switchgear bushings.

Any departure from the requirements of these specifications will be specifically stated in the tender otherwise it will be assumed to comply with specifications and if found to be otherwise, the units will be replaced for the suppliers/Contractor's account including consequential loss.

Specification	Feeder Switches	T- off Feeder Switch
Maximum Service Voltage	12kV	12kV
Impulse Level	95kV	95kV
Switch Rated Current	630A	Appropriate sized Fuses for differed transformers.
Unit Fault Rating	350MVA	350MVA
Short Time Current: Main Contacts (3s)	25kA	-----
Peak Making Current: Main Contacts	50kA	-----
Load Break Capacity	630A	-----

c) Transformer protection

The transformer feeder to in the ring main unit will be equipped with HRC fuses adequately sized for each transformer Specified in the Bill of Quantities and drawings.

Provide a label reading "TRANSFORMER".

C3.4.5.3 Transformer compartment

The transformers will comply with the following detail:

a) Miniature substation

All miniature substations must adhere to the following specifications together with the general and technical specifications.

Specification – SABS 780 as amended

Number of Phases – 3

Frequency – 50 Hz

Ratio, Primary – 11 000 kV

Ratio, Secondary – 420/ 242 V

Secondary and Primary Windings - Copper

Connections – MV Bushings & LV Bushings

Vector group – Dyn11 according to NRS 005 and SABS 780

No Load Loss – SABS, normal loss group

Tapping's – Off load, $\pm 2.5\%$, $\pm 6\%$

Ambient – 55° C

Dial type thermometer with trip contacts for connection to the main LV circuit breaker by means of a relay.

The scope of works allows for the supply, delivery, installation and commissioning following miniature substations with concrete foundations:

Transformer #1, #2 & #3: 500 kVA 11000/ 420 V, including a 3-way ABB SF₆ Ring Main Unit

Transformer #4: 630 kVA 11000/ 420 V, including a 3-way ABB SF₆ Ring Main Unit

C3.4.5.4 LV compartment

The LV compartments of the respective miniature substations will house all equipment as detailed below.

a) **500 & 630 kVA 11 000 / 420 V, Fault Level 20 kA.**

Purpose	Description	Quantity
Main Breaker With Trip Relay	600 -1000 A adjustable, 20 kA, 3 pole MCCB	1 each
Bus Bars	HD Copper Bus Bars (R, W, B & N) HD Copper Bus Bars, pre-drilled (Earth)	4 1
Surge Protection	FLT-CP-3C-350, Class 1 & 2 Remote Indication	1 (set)
Trip Supply	10 A HRC Fuse	1 (set)
Voltage Indication	2 A HRC Fuses 5 A selector Switch (3 positions) 0–500 V Voltmeter	3 1 1
Current Indication	1000/ 5 A class 5 VA CT's 0–1000 A ammeters with max. demand and instantaneous indication	3 3
Digital Statistical Maximum Demand meter	Municipal Spec SL7000 with appropriate CT's and VT's as specified in the user manual	1
Miniature Substation Feeder Description		
Feeder Breaker # 70 x 4C	J25S, 150 A, 25 kA, 3 pole MCCB	As per design
Feeder Breaker # 95 x 4C	J25S, 200 A, 25 kA, 3 pole MCCB	As per design
Feeder Breaker # 120 x 4C	J25S, 225 A, 25 kA, 3 pole MCCB	As per design
Feeder Breaker # 185 x 4C	J25S, 300 A, 25 kA, 3 pole MCCB	As per design

C3.4.5.5 Labelling

The miniature substations including all equipment in the different compartments shall be labelled as per detail drawings and labels and text sizes will be according to Part C3.2, General Technical Specifications.

All labels will consist of galvanized or stainless steel metal strips fixed with pop-rivets. Circuit breaker designations and other equipment will be engraved on the metal strip with black letters and numbers.

C3.4.5.6 Earth mat and earth resistivity tests

Earth resistivity tests at the miniature substation position will be conducted by the Contractor to the Engineer's satisfaction.

No earth mat is required at the miniature substation positions except for bonding of the BCEC trench earth to the RMU and each substation earth bar.

C3.4.6.5 TESTS

C3.4.6.5.1 Test certificates

- i) Type test certificates shall be submitted with the tender.
- ii) Routine test certificates shall be provided with each RMU supplied. Original manufacturer's test certificates/reports shall be provided with the equipment supplied.
- iii) Routine inspection, quality control and testing of these units shall be conducted by Dawid Kruijer Municipality personnel on all delivered units.

C3.4.6.6 DOCUMENTATION

C3.4.6.6.1 Technical schedules

- i) Technical Schedule and the Deviation Schedule (if required) shall be completed by the bidder.
- ii) Deviations/modifications/alterations from the requirements specified or the rest of the specification shall be documented in the deviation schedule.

C3.4.7 LV cable reticulation

C3.4.7.1 General

The LV cables are used for the cable reticulation at miniature substations. All cables, terminations and BCEC necessary are measured in the Schedule of Quantities.

All incoming and outgoing cables to and from the distribution kiosks will be connected to the busbar.

Bare copper electrical conductors will be connected to the earth bar.

Terminations, wiring and installations will be carried out by Electricians in possession of a valid wiremen's license.

The cable routes are indicated on drawings.

C3.4.7.2 Cables and BCEC

All low voltage cables consists of SWA PVC Cu cables as per SANS 1507-3. The required cable sizes will be as shown on the applicable drawing.

An annealed and stranded conductor of high conductivity Cu with cross diameter as indicated on the drawings will be installed at the bottom of the trench at a depth of 100 mm directly underneath the full route length of all LV cables except where the MV cable is installed in the same trench. In that case the MV earth will be used for earth purposes by utilising Cadweld T-joints or suitable line taps between the MV and LV BCEC.

The BCEC will be installed between each distribution kiosk and miniature substation as shown on the enclosed drawings. The BCEC terminates onto the distribution kiosks and miniature substation's earth studs by means of a suitably sized crimped lug solidly bolted.

C3.4.7.3 Terminations

Cables will be terminated by means of K-clamps on the cable mounting rail at the bottom of the LV kiosk while the armouring will be terminated onto the earth bar by means of a suitable lug. Examples in existing LV distribution kiosks will be shown to the successful bidder

C3.4.7.4 Low voltage distribution kiosks

The low voltage distribution kiosk and pole boxes will be installed at the positions as indicated by drawings . The following additional equipment will be installed in each respective distribution kiosk:

12 x CBI QA-1 6kA, 50A Single Pole Circuit breaker
12 x Itron Split unit PLC prepayment meters (Model: Enlight Sienna SSP DIN - R PLC with Common Base CIU

Outline drawings as well as drawings of the single line diagram for each respective distribution kiosk will be submitted to the Engineer for approval prior to manufacturer for approval by the Engineer.

The Contractor will wire 1 x kiosk with breakers meters and cables in the presence of the Engineer or a representative of the Engineer for approval.

All wiring of installations will be carried out by a certified electrician or installation electrician. Installations wired by unauthorized personnel or found to be not satisfactory will be rejected.

C3.4.8 **420 ABC overhead line**

All new Aerial Bundle Conductor lines will be of ABC conductor with insulated neutral that complies with the General Technical Specifications in Part D.2 of this document. The type and size will be shown on the drawing as follows:

150ABC = 150mm² x 3 + 70 mm²
120ABC = 120mm² x 3 + 70 mm²
95ABC = 95mm² x 3 + 54,6 mm²
70ABC = 70mm² x 3 + 54,6 mm²
35ABC = 35mm² x 3 + 54,6 mm²

The ABC line shall be erected on 9m wooden poles with pole top diameters between 140 and 160mm. Stays for the low voltage ABC lines shall be adjustable.

The installation method and all fittings and clamps required are specified in General Technical Specifications.

Proposed ABC line routes are not applicable on this project.

C3.4.9 **Service connections**

The scope of work makes provision for the installation of the underground service cables from the low voltage distribution kiosk to the house structures as well as from pole box to the structure, split-unit prepaid metering and consumer installations in the house structure.

The cable for the service connections are standardised on 10 mm² x 2 Core PVCSWA and 10 mm² Airdac. The required cable, Airdac and circuit breaker sizes are as follows:

<u>CB Supply</u>	<u>Cable Size</u>
50A, 1Ø	10 mm ² x 2 Cu + 6 mm ² BCEC
50A, 1Ø	10 mm ² Airdac

Service connections will be done by means of underground cables from the new 3CR12 low voltage kiosk and Airdac cable from the new pole boxes.

Each kiosk and pole box will be fitted with the required amount of 50 A Single Pole, 6 kA, single phase curve 1 Mini Rail type breakers and the pre-paid meter. The control panel of the prepaid meter will be installed in each respective house on the wooden backboard as specified.

Each circuit breaker and pre-paid meter must be clearly marked with the specific stand number it is connected to. Number plates will consist of a galvanised or stainless steel strip fixed with pop rivets.

The service connection cables and Airdac will be installed using galvanised K-clamps on the cable mounting rail at the bottom of the LV kiosk. Service connection cables and Airdac will be terminated with an appropriate PVC gland.

C3.4.9.1 **Consumer installations**

C3.4.9.1.1 **General**

No consumer installations shall be carried out without permission from the home owners or tenants. This part of the Project Specification covers the installation of Pre-Paid kWh meters and consumer installations. The Contractor shall present a sample of a complete installation prior to implementation of the remainder of the consumer installations.

C3.4.8.1.2 **Pre-paid kWh meters**

The Split unit meter with power line carrier functionality from the Itron range of prepaid meters is specified for installation.

The Contractor shall make provision for the supply, delivery, installation and commissioning of the specified meter

The control panel of the prepayment meters must be installed with 4 x 6mm self-tap screws against the wooden back board as indicated by drawings.

C3.4.9.1.3 Ready boards

The Contractor must make provision for the supply, delivery, installation and connection of ready boards.

Ready boards will be of the new generation type from CBI or equally approved.

The construction of the ready board shall allow for the replacement of faulty components.

Ready boards must be installed with 4 x 6 mm self-tap screws against the wooden back board as indicated by drawings.

The ready boards will consist of the following:

1. Earth bar
2. Neutral bar
3. 30A Main circuit breaker
4. 63A Earth leakage switch
5. 20A Circuit breaker
6. 3 x 16A Switch power outlets
7. 10A Circuit breaker
8. 16A Light switch
9. 11Watt energy saver light bulb

Ready boards and the Pre-paid meter control panel meters must be connected with a 20 mm Ø conduit in which 2 x 16 mm² insulated copper conductors and a 10mm² earth conductor will be used to connect the ready board and keypad of the pre-paid kWh meter.

C3.4.9.1.4 Wooden back board

Wooden back boards are used for the installation of the Pre-Paid kWh meter and the Ready Board inside the houses.

The wooden back board will consist of 15 mm compressed "Supa-Wood". The edges of the wooden back board will be finished in order to prevent chipping. The wooden back board shall be treated with a mixture of Linseed Oil and Turpentine to prevent deterioration of the back board and to provide protection from termites.

The Contractor must present samples to the Engineer of the backboards prior to manufacturing and delivery.

C3.4.9.1.5 Repair of structures due to damages

Tenderers must allow for the repair of any damages to structures that resulted from the installation of consumer installations. The Contractor shall take caution when installing consumer connections to ensure minimum damage to the structures.

The following specific guidelines must be followed for Brick structures:

1. The service connection cable must be installed against the wall of the structure.
2. In the vicinity of the proposed position of the ready board and meter a hole must be drill through which the cable will be drawn through the wall.
3. The cable must be fixed against the inside wall of the house with steel saddles and nylon anchors.

The Contractor shall make provision for drilling of holes, cleaning and repairs to damaged structures.

The wooden back board will be installed with nylon anchors in brick walls.

C3.4.10 Earthing

Earthing is done according to the General Technical Specifications in Part C3.2 and applicable Eskom D-DT

drawings. Steel wire armouring must be bonded to the earth bar.

All cable feeders will be installed with an appropriate bare copper electrical conductor; refer to drawings for the LV and MV reticulation layouts for cable routes and the appropriate bare copper sizes.

Miniature substations and Ring-Main-Units will be earthed according to Eskom D-DT drawings and earthing specifications in section C3.3 of this tender document.

C3.4.11 Inspections, testing, commissioning and handing over

C3.4.11.1 Physical inspection procedure

- a) Once the Contractor has completed the installation, written notice will be given to the Client in order that a mutually acceptable date can be arranged for a joint inspection.
- b) During the course of the inspection, the representative of the Client will compile a list of items (if any) requiring further attention. A copy of this list will be provided to the Contractor who will have a period of 7 days in which to rectify the offending items of the installation.
- c) The Contractor will then provide written notice that he is ready for an inspection of the remedial work to the offending items.
- d) This procedure will continue until the entire installation has been correctly completed to the satisfaction of the Employer.

C3.4.11.2 Testing and operational inspection procedure

- a) In addition to the above the Contractor will have the complete installation tested and approved by the Engineer where applicable.
- b) Subsequent to the above testing and approval, the Contractor will in the presence of the representative of the Client test all circuits relays and equipment for proper functioning and with respect to:
 - (i) Phase balance.
 - (ii) Insulation level.
 - (iii) Polarity.
- c) The Engineer has the right to call for or to execute any reasonable additional tests that may be necessary to render proof of the specification requirements having been met. The Contractor will render all the necessary assistance to have such tests carried out without delay.
- d) All tests will be carried out in the presence of the Engineer and the costs will be included in the unit prices for the installation thereof. Upon completion of the installation and within 3 months of the handover date, the Contractor will provide and make available a recording voltmeter to record the voltage at three locations in the area over a period of 48 hours each. These locations will be nominated by the Employer.

C3.4.11.3 Commissioning

On completion the Contractor will commission all the equipment installed to ensure proper and safe functioning. The Contractor shall provide all records and documentation of all factory and site testing to the Engineer.

C3.4.11.4 "As built" drawings and completion documentation

- a) As each portion of the work is completed, the Contractor will provide the Employer with as-built drawings showing the all sizes and the exact location measured from fixed points of all substations, cables, etc.
- b) The safety posters as required by the OHSA will be permanently mounted inside substation buildings and on the outside of all housings of electrical equipment.
- c) In addition, a complete reticulation diagram showing all supply cables and switchboards will be provided behind a plastic cover in the substation or adjacent to the Main Switchboard if not located in a substation as well as a schematic diagram of the main supply system.
- d) Moreover, upon completion of the work the Contractor will appoint a land surveyor to check all the pegs along the route and to reinstate them if necessary. The land surveyor will then submit a certificate confirming that all beacons are in order.
- e) The Health and Safety file containing all documentation as required in the Construction Regulations promulgated under the OHSA. All commissioning testing information will also be filed on this file
- f) Copies of all Certificates of Compliance of the completed houses/dwellings will be handed over to the employer
- g) Brochures of all equipment supplied must be provided for record purposes.

C3.4.11.5 Clearing up and vacating of site

After completion of the Contract and after approval has been obtained from the Engineer, the Contractor will remove everything he has brought to the site or has handled in the execution of the Contract, as well as all excavated material which cannot be backfilled again, and will leave the site in a clean and neat condition to the satisfaction of the Engineer.

C3.4.11.6 Final handover of the project to the client

The installation will be formally handed over to the Client on completion by means of a written hand over certificate.

The installation will not be regarded as complete and handed over to the Employer until all of the above requirements have been met.

C3.5 List of Drawings

C3.5.1 Design services and activity matrix

Works designed by, per design stage:

Concept, feasibility and overall process	Consulting Engineers for Employer
Basic Engineering and detail layout to tender stage	Consulting Engineers for Employer
Final design to approved for construction stage	Consulting Engineers for Employer
Temporary works	Contractor
Preparation of "as built" drawings	Contractor

C3.5.2 Drawings

The drawings listed below are attached in order to give an overview of the project.

Additional construction drawings will, in terms of Clause 13 of the General Conditions of Contract (2004), be issued to the Contractor by the Engineer/Employer on the commencement date and from time to time as required.

C3.5.2.1 Drawings attached

Drawing No.	Title
--------------------	--------------

Drawings for tender purposes will be made available at the compulsory tender briefing session.

Part C4: Site Information

C4: Site Information

The sites where the installations will take place are in Rosedale and Industrial area

- C4.2** Tenders will familiarise themselves with the soil and subsoil conditions during the compulsory tender meeting at the proposed construction site.

C4.3 Site features requiring special attention

C4.3.1 Access for others

The Contractor will allow safe access for other contractors and the employer's personnel during the contract period.

C4.3.2 Disposal

The Contractor will make his own arrangements, to the Engineer's satisfaction, for the disposal of unsuitable excavated material, surplus material and construction waste resulting from the Works.

C4.3.3 Weather data

Limited weather data is included in this specification and the Contractor is referred to the Weather Bureau, Department of Transport, Private Bag X097, Pretoria 0001 for detail information.

C4.4 Site facilities to be provided by the Contractor

C4.4.1 Office, workshops and stores

The Contractor will erect and maintain at his own cost all covered storage and offices that are required. The yard will be fenced by the Contractor and maintenance thereof will be his responsibility. The yard will at all times be kept in a clean and tidy condition and to the satisfaction of the Engineer.

On completion of the project, all structures and installations will be removed from site, to the satisfaction of the Engineer.

C4.4.2 Sanitary facilities and refuse disposal

Temporary and/or portable toilet facilities will be provided at the Contractor's yard by the Contractor and removed on completion of the Works.

A refuse control system will be established by the Contractor. All waste will be collected and disposed of as required by the Engineer.

C4.4.3 Telephone and telecommunications

The Contractor will be responsible for the supply on site of his own telephone or cellular phone.

C4.4.4 Accommodation of employees

The Contractor will make his own arrangements for the provision of adequate accommodation for his employees.

Annexure A – Bill of Quantities

Annexure B – Health and Safety

Annexure C – MBD Forms



**PART A
INVITATION TO BID**

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE DAWID KRUIJER MUNICIPALITY			
BID NUMBER:	TN041/2022	CLOSING DATE: 09 December 2022	CLOSING TIME: 14:00
DESCRIPTION	REPLACEMENT OF SWITCHGEAR PROJECT: 2022/23 SUPPLY MATERIAL, LABOUR AND EQUIPMENT FOR THE INSTALLATION OF 11kV SWITCHGEAR (DELTA AND FIRE BRIGADE SUBSTATIONS)		
THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (MBD7).			

BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT

Dawid Kruijer Municipality			
Civic Centre			
Mutual Street			
Upington			
8800			
SUPPLIER INFORMATION			
NAME OF BIDDER			
POSTAL ADDRESS			
STREET ADDRESS			
TELEPHONE NUMBER	CODE		NUMBER
CELLPHONE NUMBER			
FACSIMILE NUMBER	CODE		NUMBER
E-MAIL ADDRESS			
VAT REGISTRATION NUMBER			
TAX COMPLIANCE STATUS	TCS PIN:		OR CSD No:
B-BBEE STATUS LEVEL VERIFICATION	<input type="checkbox"/> Yes		B-BBEE STATUS LEVEL SWORN AFFIDAVIT <input type="checkbox"/> Yes <input type="checkbox"/> No

CERTIFICATE [TICK APPLICABLE BOX]	<input type="checkbox"/> No		
[A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE/ SWORN AFFIDAVIT (FOR EMES & QSEs) MUST BE SUBMITTED IN ORDER TO QUALIFY FOR PREFERENCE POINTS FOR B-BBEE]			
ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS OFFERED?	<input type="checkbox"/> Yes [IF YES ENCLOSE PROOF]	<input type="checkbox"/> No	ARE YOU A FOREIGN BASED SUPPLIER FOR THE GOODS /SERVICES /WORKS OFFERED? <input type="checkbox"/> Yes <input type="checkbox"/> No [IF YES, ANSWER PART B:3]
TOTAL NUMBER OF ITEMS OFFERED		TOTAL BID PRICE: R.....	
SIGNATURE OF BIDDER	.....	DATE	
CAPACITY UNDER WHICH THIS BID IS SIGNED			
BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO:		TECHNICAL INFORMATION MAY BE DIRECTED TO:	
DEPARTMENT	Supply Chain Management Unit	DEPARTMENT	Electro Mechanical Services
CONTACT PERSON	Mary Marabi	CONTACT PERSON	Daniel Louw
TELEPHONE NUMBER	054 338 7182	TELEPHONE NUMBER	054 3387154
FACSIMILE NUMBER	-	E-MAIL ADDRESS	
E-MAIL ADDRESS	michael.rooi@dkm.gov.za		daniel.louw@dkm.gov.za

**PART B
TERMS AND CONDITIONS FOR BIDDING**

1. BID SUBMISSION:

- 1.1. BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.
- 1.2. **ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED–(NOT TO BE RE-TYPED) OR ONLINE**
- 1.3. THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2017, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.

2. TAX COMPLIANCE REQUIREMENTS

- 2.1 BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.
- 2.2 BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VIEW THE TAXPAYER'S PROFILE AND TAX STATUS.
- 2.3 APPLICATION FOR THE TAX COMPLIANCE STATUS (TCS) CERTIFICATE OR PIN MAY ALSO BE MADE VIA E-FILING. IN ORDER TO USE THIS PROVISION, TAXPAYERS WILL NEED TO REGISTER WITH SARS AS E-FILERS THROUGH THE WEBSITE WWW.SARS.GOV.ZA.
- 2.4 FOREIGN SUPPLIERS MUST COMPLETE THE PRE-AWARD QUESTIONNAIRE IN PART B:3.
- 2.5 BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.
- 2.6 IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED, EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.
- 2.7 WHERE NO TCS IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.

3. QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS

- 3.1. IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)?
 YES NO
- 3.2. DOES THE ENTITY HAVE A BRANCH IN THE RSA?
 YES NO

3.3. DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA?

YES NO

3.4. DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA?

YES NO

3.5. IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION?

YES NO

IF THE ANSWER IS "NO" TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT TO REGISTER FOR A TAX COMPLIANCE STATUS SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 2.3 ABOVE.

**NB: FAILURE TO PROVIDE ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID INVALID.
NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE.**

SIGNATURE OF BIDDER:

.....

CAPACITY UNDER WHICH THIS BID IS SIGNED:

.....

DATE:

.....



MBD 4

DECLARATION OF INTEREST

1. No bid will be accepted from persons in the service of the state¹.
2. Any person, having a kinship with persons in the service of the state, including a blood relationship, may make an offer or offers in terms of this invitation to bid. In view of possible allegations of favouritism, should the resulting bid, or part thereof, be awarded to persons connected with or related to persons in service of the state, it is required that the bidder or their authorised representative declare their position in relation to the evaluating/adjudicating authority.
- 3 In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.**

3.1 Full Name of bidder or his or her representative.....

3.2 Identity Number:

3.3 Position occupied in the Company (director, trustee, hareholder²):.....

3.4 Company Registration Number:

3.5 Tax Reference Number.....

3.6 VAT Registration Number:

3.7 The names of all directors / trustees / shareholder's members, their individual identity numbers and state employee numbers must be indicated in paragraph 4 below.

3.8 Are you presently in the service of the state? **YES / NO**

3.8.1 If yes, furnish particulars.

3.9 Have you been in the service of the state for the past twelve months? **YES / NO**

3.9.1 If yes, furnish particulars.....

.....

3.10 Do you have any relationship (family, friend, other) with persons in the service of the state and who may be involved with the evaluation and or adjudication of this bid?

.....

YES / NO

3.10.1 If yes, furnish particulars.

.....

¹MSCM Regulations: "in the service of the state" means to be –

- (a) a member of –
 - (i) any municipal council;
 - (ii) any provincial legislature; or
 - (iii) the national Assembly or the national Council of provinces;
- (b) a member of the board of directors of any municipal entity;
- (c) an official of any municipality or municipal entity;
- (d) an employee of any national or provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No.1 of 1999);
- (e) a member of the accounting authority of any national or provincial public entity; or
- (f) an employee of Parliament or a provincial legislature.

² Shareholder" means a person who owns shares in the company and is actively involved in the management of the company or business and exercises control over the company.

3.11 Are you, aware of any relationship (family, friend, other) between any other bidder and any persons in the service of the state who may be involved with the evaluation and or adjudication of this bid? **YES / NO**

3.11.1 If yes, furnish particulars

.....
.....

3.12 Are any of the company's directors, trustees, managers, principle shareholders or stakeholders in service of the state? **YES /NO**

3.12.1 If yes, furnish particulars.

.....
.....

3.13 Are any spouse, child or parent of the company's directors trustees, managers, principle shareholders or stakeholders in service of the state? **YES / NO**

3.13.1 If yes, furnish particulars.

.....
.....

3.14 Do you or any of the directors, trustees, managers, principle shareholders, or stakeholders of this company have any interest in any other related companies or business whether or not they are bidding for this contract. **YES /NO**

3.14.1 If yes, furnish particulars:

.....
.....

4. Full details of directors / trustees / members / shareholders.

Full Name	Identity Number	State Employee Number

.....
Signature

.....
Date

.....
Capacity

.....
Name of Bidder

DECLARATION FOR PROCUREMENT ABOVE R10 MILLION (ALL APPLICABLE TAXES INCLUDED)

For all procurement expected to exceed R10 million (all applicable taxes included), bidders must complete the following questionnaire:

- 1. Are you by law required to prepare annual financial statements for auditing? ***YES / NO**
 - 1.1. If yes, submit audited annual financial statements for the past three years or since the date of establishment if established during the past three years.

.....

- 2. Do you have any outstanding undisputed commitments for municipal services towards any municipality for more than three months or any other service provider in respect of which payment is overdue for more than 30 days? ***YES / NO**

- 2.1. If no, this serves to certify that the bidder has no undisputed commitments for municipal services towards any municipality for more than three months or other service provider in respect of which payment is overdue for more than 30 days

- 2.2. If yes, provide particulars.

.....

- 3. Has any contract been awarded to you by an organ of state during the past five years, including particulars of any material non-compliance or dispute concerning the execution of such contract? ***YES / NO**

- 3.1. If yes, furnish particulars

.....

4. Will any portion of goods or services be sourced from outside the Republic, and, if so, what portion and whether any portion of payment from the municipality / municipal entity is expected to be transferred out of the Republic? ***YES / NO**

4.1. If yes, furnish particulars

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

* Delete if not applicable

CERTIFICATION

I, THE UNDERSIGNED (NAME)

CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM IS CORRECT. I ACCEPT THAT THE STATE MAY ACT AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE.

.....

Signature

.....

Date

.....

Position

.....

Name of Bidder



MBD 6.1

PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2017

This preference form must form part of all bids invited. It contains general information and serves as a claim form for preference points for Broad-Based Black Economic Empowerment (B-BBEE) Status Level of Contribution

NB: BEFORE COMPLETING THIS FORM, BIDDERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF B-BBEE, AS PRESCRIBED IN THE PREFERENTIAL PROCUREMENT REGULATIONS, 2017.

1. GENERAL CONDITIONS

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

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

1.2

- a) The value of this bid is estimated to **exceed/not exceed** R50 000 000 (all applicable taxes included) and therefore the **.....** preference point system shall be applicable; or
- b) Either the 80/20 or 90/10 preference point system will be applicable to this tender (*delete whichever is not applicable for this tender*).

1.3 Points for this bid shall be awarded for:

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

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

	POINTS
PRICE	80
B-BBEE STATUS LEVEL OF CONTRIBUTOR	20
Total points for Price and B-BBEE must not exceed	100

1.5 Failure on the part of a bidder to submit proof of B-BBEE Status level of contributor together with the bid, will be interpreted to mean that preference points for B-BBEE status level of contribution are not claimed.

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

2. DEFINITIONS

- (a) **“B-BBEE”** means broad-based black economic empowerment as defined in section 1 of the Broad-Based Black Economic Empowerment Act;
- (b) **“B-BBEE status level of contributor”** means the B-BBEE status of an entity in terms of a code of good practice on black economic empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;
- (c) **“bid”** means a written offer in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of goods or services, through price quotations, advertised competitive bidding processes or proposals;
- (d) **“Broad-Based Black Economic Empowerment Act”** means the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);
- (e) **“EME”** means an Exempted Micro Enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9 (1) of the Broad-Based Black Economic Empowerment Act;
- (f) **“functionality”** means the ability of a tenderer to provide goods or services in accordance with specifications as set out in the tender documents.
- (g) **“prices”** includes all applicable taxes less all unconditional discounts;
- (h) **“proof of B-BBEE status level of contributor”** means:
- 1) B-BBEE Status level certificate issued by an authorized body or person;
 - 2) A sworn affidavit as prescribed by the B-BBEE Codes of Good Practice;
 - 3) Any other requirement prescribed in terms of the B-BBEE Act;
- (i) **“QSE”** means a qualifying small business enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9 (1) of the Broad-Based Black Economic Empowerment Act;
- (j) **“rand value”** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;

3. POINTS AWARDED FOR PRICE

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

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

80/20 or 90/10

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

Where

P_s = Points scored for price of bid under consideration

P_t = Price of bid under consideration

P_{\min} = Price of lowest acceptable bid

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

4.1 In terms of Regulation 6 (2) and 7 (2) of the Preferential Procurement Regulations, preference points must 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 (90/10 system)	Number of points (80/20 system)
1	10	20
2	9	18
3	6	14
4	5	12
5	4	8
6	3	6
7	2	4
8	1	2
Non-compliant contributor	0	0

5. BID DECLARATION

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

6. B-BBEE STATUS LEVEL OF CONTRIBUTOR CLAIMED IN TERMS OF PARAGRAPHS 1.4 AND 4.1

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

(Points claimed in respect of paragraph 7.1 must be in accordance with the table reflected in paragraph 4.1 and must be substantiated by relevant proof of B-BBEE status level of contributor.

7. SUB-CONTRACTING

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

(Tick applicable box)

YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
-----	--------------------------	----	--------------------------

7.1.1 If yes, indicate:

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

YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
-----	--------------------------	----	--------------------------

v) Specify, by ticking the appropriate box, if subcontracting with an enterprise in terms of Preferential Procurement Regulations, 2017:

Designated Group: An EME or QSE which is at least 51% owned by:	EME ✓	QSE ✓
Black people		
Black people who are youth		
Black people who are women		
Black people with disabilities		
Black people living in rural or underdeveloped areas or townships		
Cooperative owned by black people		
Black people who are military veterans		
OR		
Any EME		
Any QSE		

8. DECLARATION WITH REGARD TO COMPANY/FIRM

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

8.2 VAT _____ registration
number:.....

8.3 Company _____ registration
number:.....

8.4 TYPE OF COMPANY/ FIRM

- Partnership/Joint Venture / Consortium
 - One person business/sole propriety
 - Close corporation
 - Company
 - (Pty) Limited
- [TICK APPLICABLE BOX]

8.5 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES

.....

8.6 COMPANY CLASSIFICATION

- Manufacturer

- Supplier
 - Professional service provider
 - Other service providers, e.g. transporter, etc.
- [TICK APPLICABLE BOX]

8.7 **MUNICIPAL INFORMATION**

Municipality **where** **business** **is** **situated:**

Registered Account Number:
Stand Number:.....

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

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

- i) The information furnished is true and correct;
- ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
- iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 6.1, the contractor may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are correct;
- iv) If the B-BBEE status level of contributor has been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the purchaser may, in addition to any other remedy it may have –
 - (a) disqualify the person from the bidding process;
 - (b) recover costs, losses or damages it has incurred or suffered as a result of that person’s conduct;
 - (c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
 - (d) recommend that the bidder or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted by the National Treasury from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and
 - (e) forward the matter for criminal prosecution.

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

WITNESSES

1.

2.

.....
SIGNATURE(S) OF BIDDERS(S)

DATE:

ADDRESS

.....

.....



DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT FOR DESIGNATED SECTORS

This Municipal Bidding Document (MBD) must form part of all bids invited. It contains general information and serves as a declaration form for local content (local production and local content are used interchangeably).

Before completing this declaration, bidders must study the General Conditions, Definitions, Directives applicable in respect of Local Content as prescribed in the Preferential Procurement Regulations, 2017, the South African Bureau of Standards (SABS) approved technical specification number SATS 1286:2011 (Edition 1) and the Guidance on the Calculation of Local Content together with the Local Content Declaration Templates [Annex C (Local Content Declaration: Summary Schedule), D (Imported Content Declaration: Supporting Schedule to Annex C) and E (Local Content Declaration: Supporting Schedule to Annex C)].

1. General Conditions

- 1.1. Preferential Procurement Regulations, 2017 (Regulation 8) make provision for the promotion of local production and content.
- 1.2. Regulation 8.(2) prescribes that in the case of designated sectors, organs of state must advertise such tenders with the specific bidding condition that only locally produced or manufactured goods, with a stipulated minimum threshold for local production and content will be considered.
- 1.3. Where necessary, for tenders referred to in paragraph 1.2 above, a two stage bidding process may be followed, where the first stage involves a minimum threshold for local production and content and the second stage price and B-BBEE.
- 1.4. A person awarded a contract in relation to a designated sector, may not sub-contract in such a manner that the local production and content of the overall value of the contract is reduced to below the stipulated minimum threshold.
- 1.5. The local content (LC) expressed as a percentage of the bid price must be calculated in accordance with the SABS approved technical specification number SATS 1286: 2011 as follows:

$$LC = [1 - x / y] * 100$$

Where

- x is the imported content in Rand
y is the bid price in Rand excluding value added tax (VAT)

Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by South African Reserve Bank (SARB) at 12:00 on the date of advertisement of the bid as indicated in paragraph 4.1 below.

The SABS approved technical specification number SATS 1286:2011 is accessible on http://www.thedti.gov.za/industrial_development/ip.jsp at no cost.

1.6. A bid may be disqualified if this Declaration Certificate and the Annex C (Local Content Declaration: Summary Schedule) are not submitted as part of the bid documentation;

2. The stipulated minimum threshold(s) for local production and content (refer to Annex A of SATS 1286:2011) for this bid is/are as follows:

<u>Description of services, works or goods threshold</u>	<u>Stipulated minimum threshold</u>
Electrical cables	90%
Air insulated MV Switchgear	50%
Steel Value-added Products	100%
Primary Steel Products	100%

3. Does any portion of the goods or services offered have any imported content?

(Tick applicable box)

YES		NO	
-----	--	----	--

3.1 If yes, the rate(s) of exchange to be used in this bid to calculate the local content as prescribed in paragraph 1.5 of the general conditions must be the rate(s) published by SARB for the specific currency at 12:00 on the date of advertisement of the bid.

The relevant rates of exchange information is accessible on www.reservebank.co.za

Indicate the rate(s) of exchange against the appropriate currency in the table below (refer to Annex A of SATS 1286:2011):

Currency	Rates of exchange
US Dollar	
Pound Sterling	
Euro	
Yen	
Other	

NB: Bidders must submit proof of the SARB rate (s) of exchange used.

4. Where, after the award of a bid, challenges are experienced in meeting the stipulated minimum threshold for local content the dti must be informed accordingly in order for the dti to verify and in consultation with the AO/AA provide directives in this regard.

LOCAL CONTENT DECLARATION
(REFER TO ANNEX B OF SATS 1286:2011)

LOCAL CONTENT DECLARATION BY CHIEF FINANCIAL OFFICER OR OTHER LEGALLY RESPONSIBLE PERSON NOMINATED IN WRITING BY THE CHIEF EXECUTIVE OR SENIOR MEMBER/PERSON WITH MANAGEMENT RESPONSIBILITY (CLOSE CORPORATION, PARTNERSHIP OR INDIVIDUAL)

IN RESPECT OF BID NO.

ISSUED BY: (Procurement Authority / Name of Institution):

.....
 NB

- 1 The obligation to complete, duly sign and submit this declaration cannot be transferred to an external authorized representative, auditor or any other third party acting on behalf of the bidder.
- 2 Guidance on the Calculation of Local Content together with Local Content Declaration Templates (Annex C, D and E) is accessible on <http://www.thdti.gov.za/industrial-development/ip.jsp>. Bidders should first complete Declaration D. After completing Declaration D, bidders should complete Declaration E and then consolidate the information on Declaration C. **Declaration C should be submitted with the bid documentation at the closing date and time of the bid in order to substantiate the declaration made in paragraph (c) below.** Declarations D and E should be kept by the bidders for verification purposes for a period of at least 5 years. The successful bidder is required to continuously update Declarations C, D and E with the actual values for the duration of the contract.

I, the undersigned, (full names),
 do hereby declare, in my capacity as
 of(name of bidder
 entity), the following:

- (a) The facts contained herein are within my own personal knowledge.
- (b) I have satisfied myself that:
 - (i) the goods/services/works to be delivered in terms of the above-specified bid comply with the minimum local content requirements as specified in the bid, and as measured in terms of SATS 1286:2011; and
- (c) The local content percentage (%) indicated below has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 4.1 above and the information contained in Declaration D and E which has been consolidated in Declaration C:

Bid price, excluding VAT (y)	R
Imported content (x), as calculated in terms of SATS 1286:2011	R
Stipulated minimum threshold for local content (paragraph 3 above)	
Local content %, as calculated in terms of SATS 1286:2011	

If the bid is for more than one product, the local content percentages for each product

contained in Declaration C shall be used instead of the table above. The local content percentages for each product has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 4.1 above and the information contained in Declaration D and E.

- (d) I accept that the Procurement Authority / Institution has the right to request that the local content be verified in terms of the requirements of SATS 1286:2011.
- (e) I understand that the awarding of the bid is dependent on the accuracy of the information furnished in this application. I also understand that the submission of incorrect data, or data that are not verifiable as described in SATS 1286:2011, may result in the Procurement Authority / Institution imposing any or all of the remedies as provided for in Regulation 14 of the Preferential Procurement Regulations, 2017 promulgated under the Preferential Policy Framework Act (PPPFA), 2000 (Act No. 5 of 2000).

SIGNATURE: _____

DATE: _____

WITNESS No. 1 _____

DATE: _____

WITNESS No. 2 _____

DATE: _____



CONTRACT FORM - PURCHASE OF GOODS/WORKS

THIS FORM MUST BE FILLED IN DUPLICATE BY BOTH THE SUCCESSFUL BIDDER (PART 1) AND THE PURCHASER (PART 2). BOTH FORMS MUST BE SIGNED IN THE ORIGINAL SO THAT THE SUCCESSFUL BIDDER AND THE PURCHASER WOULD BE IN POSSESSION OF ORIGINALLY SIGNED CONTRACTS FOR THEIR RESPECTIVE RECORDS.

PART 1 (TO BE FILLED IN BY THE BIDDER)

1. I hereby undertake to supply all or any of the goods and/or works described in the attached bidding documents to (name of institution)..... in accordance with the requirements and specifications stipulated in bid number..... at the price/s quoted. My offer/s remain binding upon me and open for acceptance by the purchaser during the validity period indicated and calculated from the closing time of bid.
2. The following documents shall be deemed to form and be read and construed as part of this agreement:
 - (i) Bidding documents, viz
 - Invitation to bid;
 - Tax clearance certificate;
 - Pricing schedule(s);
 - Technical Specification(s);
 - Preference claims for Broad Based Black Economic Empowerment Status Level of Contribution in terms of the Preferential Procurement Regulations 2011;
 - Declaration of interest;
 - Declaration of bidder's past SCM practices;
 - Certificate of Independent Bid Determination;
 - Special Conditions of Contract;
 - (ii) General Conditions of Contract; and
 - (iii) Other (specify)
3. I confirm that I have satisfied myself as to the correctness and validity of my bid; that the price(s) and rate(s) quoted cover all the goods and/or works specified in the bidding documents; that the price(s) and rate(s) cover all my obligations and I accept that any mistakes regarding price(s) and rate(s) and calculations will be at my own risk.
4. I accept full responsibility for the proper execution and fulfilment of all obligations and conditions devolving on me under this agreement as the principal liable for the due fulfillment of this contract.
5. I declare that I have no participation in any collusive practices with any bidder or any other person regarding this or any other bid.

6. I confirm that I am duly authorised to sign this contract.

NAME (PRINT)

CAPACITY

SIGNATURE

NAME OF FIRM

DATE

WITNESSES	
1	.....
2.	.....
DATE:	

CONTRACT FORM - PURCHASE OF GOODS/WORKS

PART 2 (TO BE FILLED IN BY THE PURCHASER)

1. I.....in my capacity as..... accept your bid under reference numberdated.....for the supply of goods/works indicated hereunder and/or further specified in the annexure(s).
2. An official order indicating delivery instructions is forthcoming.
3. I undertake to make payment for the goods/works delivered in accordance with the terms and conditions of the contract, within 30 (thirty) days after receipt of an invoice accompanied by the delivery note.

ITEM NO.	PRICE (ALL APPLICABLE TAXES INCLUDED)		DELIVERY PERIOD	B-BBEE STATUS LEVEL OF CONTRIBUTION	MINIMUM THRESHOLD FOR LOCAL PRODUCTION AND CONTENT (if applicable)

4. I confirm that I am duly authorized to sign this contract.

SIGNED ATON.....

NAME (PRINT)

SIGNATURE

<p>OFFICIAL STAMP</p>

<p>WITNESSES</p> <p>1.</p> <p>2.</p> <p>DATE</p>
--

DECLARATION OF BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

- 1 This Municipal Bidding Document must form part of all bids invited.
- 2 It serves as a declaration to be used by municipalities and municipal entities in ensuring that when goods and services are being procured, all reasonable steps are taken to combat the abuse of the supply chain management system.
- 3 The bid of any bidder may be rejected if that bidder, or any of its directors have:
 - a. abused the municipality's / municipal entity's supply chain management system or committed any improper conduct in relation to such system;
 - b. been convicted for fraud or corruption during the past five years;
 - c. willfully neglected, reneged on or failed to comply with any government, municipal or other public sector contract during the past five years; or
 - d. been listed in the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004).
- 4 **In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.**

Item	Question	Yes	No
4.1	<p>Is the bidder or any of its directors listed on the National Treasury's Database of Restricted Suppliers as companies or persons prohibited from doing business with the public sector?</p> <p>(Companies or persons who are listed on this Database were informed in writing of this restriction by the Accounting Officer/Authority of the institution that imposed the restriction after the <i>audi alteram partem</i> rule was applied).</p> <p>The Database of Restricted Suppliers now resides on the National Treasury's website (www.treasury.gov.za) and can be accessed by clicking on its link at the bottom of the home page.</p>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4.1.1	If so, furnish particulars:		
4.2	<p>Is the bidder or any of its directors listed on the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004)?</p> <p>The Register for Tender Defaulters can be accessed on the National Treasury's website (www.treasury.gov.za) by clicking on its link at the bottom of the home page.</p>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4.2.1	If so, furnish particulars:		

4.3	Was the bidder or any of its directors convicted by a court of law (including a court of law outside the Republic of South Africa) for fraud or corruption during the past five years?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4.3.1	If so, furnish particulars:		
Item	Question	Yes	No
4.4	Does the bidder or any of its directors owe any municipal rates and taxes or municipal charges to the municipality / municipal entity, or to any other municipality / municipal entity, that is in arrears for more than three months?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4.4.1	If so, furnish particulars:		
4.5	Was any contract between the bidder and the municipality / municipal entity or any other organ of state terminated during the past five years on account of failure to perform on or comply with the contract?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4.7.1	If so, furnish particulars:		

CERTIFICATION

**I, THE UNDERSIGNED (FULL NAME)
CERTIFY THAT THE INFORMATION FURNISHED ON THIS
DECLARATION FORM TRUE AND CORRECT.**

**I ACCEPT THAT, IN ADDITION TO CANCELLATION OF A CONTRACT,
ACTION MAY BE TAKEN AGAINST ME SHOULD THIS DECLARATION PROVE
TO BE FALSE.**

.....
Signature

.....
Date

.....
Position

.....
Name of Bidder

CERTIFICATE OF INDEPENDENT BID DETERMINATION

- 1 This Municipal Bidding Document (MBD) must form part of all bids¹ invited.

- 2 Section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, prohibits an agreement between, or concerted practice by, firms, or a decision by an association of firms, if it is between parties in a horizontal relationship and if it involves collusive bidding (or bid rigging).² Collusive bidding is a *pe se* prohibition meaning that it cannot be justified under any grounds.

- 3 Municipal Supply Regulation 38 (1) prescribes that a supply chain management policy must provide measures for the combating of abuse of the supply chain management system, and must enable the accounting officer, among others, to:
 - a. take all reasonable steps to prevent such abuse;
 - b. reject the bid of any bidder if that bidder or any of its directors has abused the supply chain management system of the municipality or municipal entity or has committed any improper conduct in relation to such system; and
 - c. cancel a contract awarded to a person if the person committed any corrupt or fraudulent act during the bidding process or the execution of the contract.

- 4 This MBD serves as a certificate of declaration that would be used by institutions to ensure that, when bids are considered, reasonable steps are taken to prevent any form of bid-rigging.

- 5 In order to give effect to the above, the attached Certificate of Bid Determination (MBD 9) must be completed and submitted with the bid:

¹ Includes price quotations, advertised competitive bids, limited bids and proposals.

² Bid rigging (or collusive bidding) occurs when businesses, that would otherwise be expected to compete, secretly conspire to raise prices or lower the quality of goods and / or services for purchasers who wish to acquire goods and / or services through a bidding process. Bid rigging is, therefore, an agreement between competitors not to compete.

CERTIFICATE OF INDEPENDENT BID DETERMINATION

I, the undersigned, in submitting the accompanying bid:

(Bid Number and Description)

in response to the invitation for the bid made by:

(Name of Municipality / Municipal Entity)

do hereby make the following statements that I certify to be true and complete in every respect:

I certify, on behalf

of: _____ that:

(Name of Bidder)

1. I have read and I understand the contents of this Certificate;
2. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect;
3. I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;
4. Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign, the bid, on behalf of the bidder;
5. For the purposes of this Certificate and the accompanying bid, I understand that the word "competitor" shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who:
 - (a) has been requested to submit a bid in response to this bid invitation;
 - (b) could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and
 - (c) provides the same goods and services as the bidder and/or is in the same line of business as the bidder

6. The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However communication between partners in a joint venture or consortium³ will not be construed as collusive bidding.
7. In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
 - (a) prices;
 - (b) geographical area where product or service will be rendered (market allocation)
 - (c) methods, factors or formulas used to calculate prices;
 - (d) the intention or decision to submit or not to submit, a bid;
 - (e) the submission of a bid which does not meet the specifications and conditions of the bid; or
 - (f) bidding with the intention not to win the bid.
8. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.
9. The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.

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

MBD 9

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

.....
Signature

.....
Date

.....
Position

.....
Name of Bidder