



## KOUGA MUNICIPALITY EC108

**Notice No. 152/2023**

### **ELECTRICAL MAINTENANCE AND CONSTRUCTION WORKS FOR A PERIOD OF THREE (3) YEARS: SPECIFICATION NO. G/10597/E**

#### **PROCUREMENT DOCUMENT**

(Based on GCC 2015)

August 2023

**Issued by:**

Kouga Municipality  
Electrical Department  
Municipal Offices  
16 Woltemade Street  
JEFFREYS BAY  
6330

**Contact:**

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**Prepared by:**

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Mr. Stiaan Adams

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[sadams@cmbgeorge.co.za](mailto:sadams@cmbgeorge.co.za)

Name of Tenderer: .....



**CLINKSCALES MAUGHAN-BROWN**  
CONSULTING MECHANICAL  
& ELECTRICAL ENGINEERS



## KOUGA MUNICIPALITY EC108

**Notice No. 152/2023**

### **ELECTRICAL MAINTENANCE AND CONSTRUCTION WORKS FOR A PERIOD OF THREE (3) YEARS: SPECIFICATION NO. G/10597/E**

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or by any means, electronic or mechanical, including photocopying,  
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**TENDERER CONTACT DETAILS**

This information shall be used for any correspondence or contact with the Tenderer.

Please indicate whether you want to receive any correspondence via e-mail or send to your postal address by registered mail.

|                                |                                                     |                                                        |
|--------------------------------|-----------------------------------------------------|--------------------------------------------------------|
| Name of Bidding Company: ..... |                                                     | <b>Mark choice of<br/>correspondence<br/>with an X</b> |
| Name of Contact Person: .....  |                                                     |                                                        |
| Postal Address:                | .....<br>.....<br>.....<br>..... Postal Code: ..... | .....                                                  |
| E-mail Address:                | .....                                               | .....                                                  |
| Telephone No:                  | .....                                               | .....                                                  |
| Cell No:                       | .....                                               | .....                                                  |
| Fax No:                        | .....                                               | .....                                                  |

**TENDER OFFER**

The offered total of the prices inclusive of Value Added Tax, carried over from Part C1.1, Form of Offer and Acceptance, Page C1.1.1, is:

.....

..... Rand (in words)

R ..... (in figures).

**KOUGA MUNICIPALITY**

**NOTICE NO. 152/2023**

**ELECTRICAL MAINTENANCE AND CONSTRUCTION WORKS FOR  
A PERIOD OF THREE (3) YEARS: SPECIFICATION NO. G/10597/E**

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**GENERAL TENDER INFORMATION**

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|                                             |                                                                                                                                       |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| TENDER ADVERTISED                           | : 08 August 2023                                                                                                                      |
| COMPULSORY VIRTUAL<br>CLARIFICATION SESSION | : Thursday, 17 August 2023 @ 12h00                                                                                                    |
| CLOSING DATE                                | : Friday, 08 September 2023                                                                                                           |
| CLOSING TIME                                | : 12h00                                                                                                                               |
| LOCATION OF TENDER BOX                      | : <b>Tender Box</b> in Room 122 at<br>21 St. Croix Street (back entrance) or<br>16 Woltemade Street (front entrance),<br>Jeffreys Bay |

## **THE TENDER**

### **PART T1 – TENDERING PROCEDURES**

#### **T1.1 TENDER NOTICE AND INVITATION TO TENDER**

**KOUGA LOCAL MUNICIPALITY (EC108)**  
**DIRECTORATE: ELECTRICAL & MECHANICAL SERVICES**

**NOTICE NO: 152/2023: ELECTRICAL MAINTENANCE AND CONSTRUCTION WORKS  
FOR A PERIOD OF THREE (3) YEARS: SPECIFICATION NO. G/10597/E**

Suitably qualified, capable and experienced Contractors are hereby invited to submit tenders for the Electrical Maintenance and Construction Works for a period of three (3) years within the Kouga Local Municipal Area.

#### **Tenders**

An electronic copy of the tender document will be available on E-Tender portal [www.etender.gov.za](http://www.etender.gov.za) or the municipal website [www.kouga.gov.za](http://www.kouga.gov.za) as from Tuesday, 08 August 2023. After downloading the tender document from the website each prospective bidder **MUST** ensure that all the pages of the tender document are printed.

A compulsory virtual clarification session will be arranged for the **Thursday, 17 August 2023 @ 12h00**. **Prospective bidders can use the very same link below which is direct from this advert, it will link them directly to the meeting.**

Join Zoom Meeting

<https://kouga-gov-za.zoom.us/j/93823915397?pwd=RGw1dkEvchVVRMnNld0lPUmRYampBdz09>

Meeting ID: 938 2391 5397

Passcode: 137265

#### **Please note:**

- Telegraphic, telephonic, telex, facsimile, email or late tenders will not be accepted.
- This contract will be evaluated on the 80 (price)
- The specific goals would be for a maximum of 20 points. To claim for specific goals prospective bidders **MUST** submit proof/required documents.
- **An electronic copy of the completed tender document with returnable documents must be submitted with tender submission saved in a flash drive or CD. Failure to submit AN ORIGINAL HARD COPY AND A COPY ON EITHER USB or CD will deem the bid non-responsive.**
- **A CIDB Contractor grading of 4EP or higher is required.**
- **A minimum functional assessment score of 70% will apply to this contract.**
- A valid Tax compliance Status pin must be submitted.
- Prospective Service Providers must register on Kouga Municipality's Supplier database as per the registration requirements.
- The National Treasury Central Supplier Database Summary report must be submitted.
- The Council reserves the right to accept any tender and, or part thereof, appoint more than one contractor, and does not bind itself to accept the lowest or any tender. The Council reserves the right to appoint any contractor.
- The validity period for submission will be 90 days from the closing date.
- Tenders that are deposited in the incorrect box or delivered to any other venue will not be considered.

Any inquiries relating to this tender must be submitted in writing via e-mail to [tenders@kouga.gov.za](mailto:tenders@kouga.gov.za) and copied to [tmadatt@kouga.gov.za](mailto:tmadatt@kouga.gov.za)

Completed documents in a sealed envelope endorsed "**NOTICE NO: 152/2023: "ELECTRICAL MAINTENANCE AND CONSTRUCTION WORKS FOR A PERIOD OF THREE (3) YEARS: SPECIFICATION NO. G/10597/E"**" must be placed in the Tender Box 21 St Croix Street (back entrance) or 16 Woltemade Street (front entrance), Jeffreys Bay, Room 122 on or before **Friday, 08 SEPTEMBER 2023 at 12:00**.

**C. DU PLESSIS**  
**MUNICIPAL MANAGER**

P.O. Box 21  
JEFFREYS BAY  
6330

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**For Placement:** Herald/Municipal Website/ Municipal Notice Boards in all offices/areas – 08 August 2023

**T1.2 TENDER DATA**

The conditions of tender are the Standard Conditions of Tender as contained in Annex C of the Construction Industry Development Board (CIDB) Standard for Uniformity in Engineering and Construction Works Contracts as published in Department of Public Works Notice 423 of 2019 No. 42622 Government Gazette 8 August 2019. (See [www.cidb.org.za](http://www.cidb.org.za)).

The Standard Conditions of Tender make several references to the Tender Data for details that apply specifically to this tender. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the standard conditions of tender. Each item of data given below is cross-referenced to the clause in the Standard Conditions of Tender to which it mainly applies.

**The following variations, amendments and additions to the Standard Conditions of Tender as set out in the Tender Data below shall apply to this tender:**

| Clause number | Tender Data                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C.1.1         | The Employer is Kouga Municipality.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| C.1.2         | <p>The Tender Documents issued by the Employer comprise the following documents:</p> <p><b>THE TENDER</b><br/> Part T1: Tendering procedures.<br/> Part T2: Returnable documents.</p> <p><b>THE CONTRACT</b><br/> Part C1: Agreements and Contract data<br/> Part C2: Pricing data.<br/> Part C3: Scope of work.<br/> Part C4: Site information<br/> Annexures</p>                                                                                                                                                      |
| C.1.4         | <p>The Employer's Agent is :</p> <p>Name: Clinkscapes Maughan-Brown (South) (Pty) Ltd<br/> Address: 39 Victoria Street, P.O. Box 2551, George, 6530<br/> Tel: 044-8741511<br/> Fax: 044-8741510<br/> E-mail: <a href="mailto:sadams@cmbgeorge.co.za">sadams@cmbgeorge.co.za</a></p> <p>Any inquiries relating to this tender must be submitted in writing via e-mail to <a href="mailto:tenders@kouga.gov.za">tenders@kouga.gov.za</a> and copied to <a href="mailto:tmadatt@kouga.gov.za">tmadatt@kouga.gov.za</a></p> |
| C.1.6.2       | The Competitive Negotiation Procedure will not be followed.                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| C.1.6.3       | The proposal procedure using the two-stage system will not be followed.                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

| C.2.1.1 | <p>Only those Tenderers who are registered with the CIDB, or are capable of being so prior to the evaluation of submissions, in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations, for a EP class of construction work, are eligible to have their tenders evaluated.</p> <p>Joint ventures are eligible to submit tenders provided that:</p> <ol style="list-style-type: none"><li>1. every member of the joint venture is registered with the CIDB;</li><li>2. the lead partner has a contractor grading designation in the EP class of construction work; and</li><li>3. the combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a EP class of construction work or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations.</li></ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                    |                            |                                    |                            |     |                                                                                                                                                                                                                                                                                                                                              |  |  |     |                                                                                                                                                                                                                                                                                                                                                 |                           |                           |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|----------------------------|------------------------------------|----------------------------|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|---------------------------|
| C.2.1.1 | <p>Only Tenderers that meet the following pre-qualification conditions are eligible to have their tenders further evaluated. The qualifying criteria and the score in respect of each criterion is as follows. <b>A minimum of 70 points</b> out of a maximum total of <b>100 points</b> is required for any of the five Sections of Work, i.e. Section A, B, C, D and/or E for the tender to be evaluated further.</p> <p>The Tenderer therefore need only to complete the relevant Section/s he/she wants to tender on. Should the Tenderer not complete the following column, no points will be awarded. The Tenderer must provide sufficient proof, i.e. documentation, contact persons and contact numbers, etc. under Parts T2.2.3, T2.2.6 and T2.2.14 in this document for each of the following items stipulated. Unclear or incomplete information will result in no points being awarded.</p> <p><u>Note:</u><br/>In terms of Item 2 of Clause 3.2 of CIDB's Inform Practice Note #5, Tenderers may not provide additional information subsequent to the closing of the tender that may affect their competitive position. It is therefore very important that the Tenderer submit sufficient proof as requested above together with his/her tender.</p> <table><tr><th>Item</th><th>Description</th><th>Column to be completed by Tenderer</th><th>Points awarded by Employer</th></tr><tr><td>(i)</td><td><p><b>Tenderer's relevant experience (track record) on previously completed projects, which included work in line of the following over the past five (5) years:</b></p><p>Completion certificates of previously completed projects to be included with the tender. This requirement is <b>compulsory</b> in order to claim for points.</p></td><td></td><td></td></tr><tr><td>(a)</td><td><p><u>Section A of the Works: MV/HV 66/22/11kV Overhead Line Work</u><br/>Typical work includes construction of new and/or refurbishment of 66/22/11kV overhead lines:</p><p>1 to 2 projects = 10 points<br/>3 to 4 projects = 15 points<br/>5 to 6 projects = 20 points<br/>More than 6 projects = 25 points</p><p>(Maximum points = 25)</p></td><td><p>.....</p><p>.....</p></td><td><p>.....</p><p>.....</p></td></tr></table> | Item                               | Description                | Column to be completed by Tenderer | Points awarded by Employer | (i) | <p><b>Tenderer's relevant experience (track record) on previously completed projects, which included work in line of the following over the past five (5) years:</b></p> <p>Completion certificates of previously completed projects to be included with the tender. This requirement is <b>compulsory</b> in order to claim for points.</p> |  |  | (a) | <p><u>Section A of the Works: MV/HV 66/22/11kV Overhead Line Work</u><br/>Typical work includes construction of new and/or refurbishment of 66/22/11kV overhead lines:</p> <p>1 to 2 projects = 10 points<br/>3 to 4 projects = 15 points<br/>5 to 6 projects = 20 points<br/>More than 6 projects = 25 points</p> <p>(Maximum points = 25)</p> | <p>.....</p> <p>.....</p> | <p>.....</p> <p>.....</p> |
| Item    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Column to be completed by Tenderer | Points awarded by Employer |                                    |                            |     |                                                                                                                                                                                                                                                                                                                                              |  |  |     |                                                                                                                                                                                                                                                                                                                                                 |                           |                           |
| (i)     | <p><b>Tenderer's relevant experience (track record) on previously completed projects, which included work in line of the following over the past five (5) years:</b></p> <p>Completion certificates of previously completed projects to be included with the tender. This requirement is <b>compulsory</b> in order to claim for points.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                    |                            |                                    |                            |     |                                                                                                                                                                                                                                                                                                                                              |  |  |     |                                                                                                                                                                                                                                                                                                                                                 |                           |                           |
| (a)     | <p><u>Section A of the Works: MV/HV 66/22/11kV Overhead Line Work</u><br/>Typical work includes construction of new and/or refurbishment of 66/22/11kV overhead lines:</p> <p>1 to 2 projects = 10 points<br/>3 to 4 projects = 15 points<br/>5 to 6 projects = 20 points<br/>More than 6 projects = 25 points</p> <p>(Maximum points = 25)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <p>.....</p> <p>.....</p>          | <p>.....</p> <p>.....</p>  |                                    |                            |     |                                                                                                                                                                                                                                                                                                                                              |  |  |     |                                                                                                                                                                                                                                                                                                                                                 |                           |                           |

T1.2.3

|  |    |                                                                                                                                                                                                                                                                                                                                                                                           |  |  |
|--|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
|  | b) | <p><u>Section B of the Works: MV Underground Cable Work</u><br/> Typical work includes installation of new 22/11kV underground cables:</p> <p>1 to 2 projects = 10 points<br/> 3 to 4 projects = 15 points<br/> 5 to 6 projects = 20 points<br/> More than 6 projects = 25 points</p> <p>.....</p> <p>(Maximum points = 25)</p> <p>.....</p>                                              |  |  |
|  | c) | <p><u>Section C of the Works: MV Substation Work</u><br/> Typical work includes installation of 66/22/11kV switchgear in a substation yard and/or building:</p> <p>1 to 2 projects = 10 points<br/> 3 to 4 projects = 15 points<br/> 5 to 6 projects = 20 points<br/> More than 6 projects = 25 points</p> <p>.....</p> <p>(Maximum points = 25)</p> <p>.....</p>                         |  |  |
|  | d) | <p><u>Section D of the Works: Substation Protection and Testing</u><br/> Typical work includes electrical protection installations, testing- and protection setting implementation:</p> <p>1 to 2 projects = 10 points<br/> 3 to 4 projects = 15 points<br/> 5 to 6 projects = 20 points<br/> More than 6 projects = 25 points</p> <p>.....</p> <p>(Maximum points = 25)</p> <p>.....</p> |  |  |
|  | e) | <p><u>Section E of the Works: Limited LV Work, Street Lights and High Mast Maintenance Work</u><br/> Typical work includes LV and street lighting installations:</p> <p>1 to 2 projects = 10 points<br/> 3 to 4 projects = 15 points<br/> 5 to 6 projects = 20 points<br/> More than 6 projects = 25 points</p> <p>.....</p> <p>(Maximum points = 25)</p> <p>.....</p>                    |  |  |

|  |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |
|--|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
|  | (ii) | <p><b>Compulsory minimum qualification/s, plus experience in number of years, of Tenderer's proposed Construction Manager.</b></p> <p>A CV of the proposed Construction Manager, indicating experience in years, including copies of his/her relevant compulsory qualifications to be included with the tender. This requirement is <b>compulsory</b> in order to claim for points.</p> <p>a) <u>Section A of the Works: MV Reticulation;</u><br/> <u>Section B of the Works: MV Underground Cable Work; as well as</u><br/> <u>Section C of the Works: MV Substation Work;</u></p> <p>Compulsory Qualification/s:</p> <ul style="list-style-type: none"> <li>- Electrician Trade Certificate</li> <li>- Operating Regulations for High Voltage Systems (ORHVS) certificate</li> </ul> <p>Experience:</p> <p>1 to 5 years = 10 points<br/> 6 to 10 years = 15 points<br/> 11 to 15 years = 20 points<br/> 16 years or more = 25 points</p> <p>(Maximum points = 25)</p> <p>b) <u>Section D of the Works: Substation Protection and Testing</u></p> <p>Compulsory Qualification/s:</p> <ul style="list-style-type: none"> <li>- National Higher Diploma or BTech/BSc degree</li> <li>- Professional Engineer (Pr Eng) or Professional Engineering Technologist (Pr Tech Eng), registered with ECSA</li> <li>- Certificate or Diploma in GOOSE (Generic Object-Oriented Substation Event) IEC 61850 standard substation protocol</li> </ul> <p>Experience:</p> <p>1 to 5 years = 10 points<br/> 6 to 10 years = 15 points<br/> 11 to 15 years = 20 points<br/> 16 years or more = 25 points</p> <p>(Maximum points = 25)</p> <p>c) <u>Section E of the Works: Limited LV Work, Street Lights and High Mast Maintenance Work</u></p> <p>Compulsory Qualification/s:</p> <ul style="list-style-type: none"> <li>- Electrician Trade Certificate</li> </ul> <p>Experience:</p> <p>1 to 5 years = 10 points<br/> 6 to 10 years = 15 points<br/> 11 to 15 years = 20 points<br/> 16 years or more = 25 points</p> <p>(Maximum points = 25)</p> |  |  |
|--|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|

|  |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                  |                                                                  |
|--|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|
|  | iii) | <p><b>Compulsory minimum qualification/s, plus experience in number of years, of Tenderer's proposed Site Supervisor, except for Section E, where it will be the Tenderer's proposed Specialist Protection Test- and Commissioning Engineer.</b></p> <p>A CV of the proposed Site Supervisor / Specialist Engineer, indicating experience in years, including copies of his/her relevant compulsory qualifications to be included with the tender. This requirement is compulsory in order to claim for points.</p>                                                                                                                             |                                                                  |                                                                  |
|  | a)   | <p><u>Section A of the Works: MV Reticulation;</u><br/> <u>Section B of the Works: MV Underground Cable Work; as well as</u><br/> <u>Section C of the Works: MV Substation Work;</u></p> <p>Compulsory Qualification/s:</p> <ul style="list-style-type: none"> <li>- Electrician Trade Certificate</li> <li>- Operating Regulations for High Voltage Systems (ORHVS) certificate</li> </ul> <p>Experience:</p> <p>1 to 5 years = 10 points<br/> 6 to 10 years = 15 points<br/> 11 to 15 years = 20 points<br/> 16 years or more = 25 points</p> <p>(Maximum points = 25)</p>                                                                    | <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> | <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> |
|  | b)   | <p><u>Section D of the Works: Substation Protection and Testing</u></p> <p>Compulsory Qualification/s:</p> <ul style="list-style-type: none"> <li>- National Higher Diploma or BTech/BSc degree</li> <li>- Professional Engineer (Pr Eng) or Professional Engineering Technologist (Pr Tech Eng), registered with ECSA</li> <li>- Certificate or Diploma in GOOSE (Generic Object-Oriented Substation Event) IEC 61850 standard substation protocol</li> </ul> <p>Experience:</p> <p>1 to 5 years = 10 points<br/> 6 to 10 years = 15 points<br/> 11 to 15 years = 20 points<br/> 16 years or more = 25 points</p> <p>(Maximum points = 25)</p> | <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> | <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> |
|  | c)   | <p><u>Section E of the Works: Limited LV Work, Street Lights and High Mast Maintenance Work</u></p> <p>Compulsory Qualification/s:</p> <ul style="list-style-type: none"> <li>- Electrician Trade Certificate</li> </ul> <p>Experience:</p> <p>1 to 5 years = 10 points<br/> 6 to 10 years = 15 points<br/> 11 to 15 years = 20 points<br/> 16 years or more = 25 points</p> <p>(Maximum points = 25)</p>                                                                                                                                                                                                                                       | <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> | <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> |

|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                           |                                           |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-------------------------------------------|
|                      | iv)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Locality (Applicable to Sections A, B, C, D &amp; E). Location of a local office in relation to the Kouga Municipal Area:</b> <ul style="list-style-type: none"> <li>- Within the Kouga Municipal Area = 25 points</li> <li>- Within the Nelson Mandela Metropolitan or Sarah Baartman District Municipal Areas = 20 points</li> <li>- Within Eastern Cape Province = 15 points</li> <li>- Outside Eastern Cape Province = 10 points</li> </ul> <p>(Maximum points = 25)</p> <p>Proof of physical address by means of a municipal rates and taxes account and/or lease agreement if premises are rented to be included with the tender in order to claim points for a local office.</p> | .....                                     | .....                                     |
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Total points out of 100 awarded for:</b><br><br><b>Section A of the Works</b><br><br><b>Section B of the Works</b><br><br><b>Section C of the Works</b><br><br><b>Section D of the Works</b><br><br><b>Section E of the Works</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                       | .....<br>.....<br>.....<br>.....<br>..... | .....<br>.....<br>.....<br>.....<br>..... |
| C.2.7                | <p>An electronic copy of the tender document will be available on E-Tender portal <a href="http://www.etender.gov.za">www.etender.gov.za</a> or the municipal website <a href="http://www.kouga.gov.za">www.kouga.gov.za</a> as from Tuesday, 08 August 2023. After downloading the tender document from the website each prospective bidder <b>MUST</b> ensure that all the pages of the tender document are printed.</p> <p>A compulsory virtual clarification session will be arranged for the <b>Thursday, 17 August 2023 @12h00pm. Prospective bidders can use the very same link below which is direct from this advert, it will link them directly to the meeting.</b></p> <p>Join Zoom Meeting<br/> <a href="https://kouga-gov-za.zoom.us/j/93823915397?pwd=RGw1dkEvchVVRmNld0lPUmRYampBdz09">https://kouga-gov-za.zoom.us/j/93823915397?pwd=RGw1dkEvchVVRmNld0lPUmRYampBdz09</a></p> <p>Meeting ID: 938 2391 5397<br/> Passcode: 137265</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                           |                                           |
| C.2.12               | No alternative tender offers will be considered.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                           |                                           |
| C.2.13.3             | The complete Tender Document shall be returned with the tender, including all Parts as listed in C.1.2 above (not to be separated). Parts of each tender offer communicated on paper shall be submitted as an original, plus Nil copies.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                           |                                           |
| C.2.13.5<br>C.2.15.1 | <p>The employer's details and address for delivery of tender offers and identification details that are to be shown on each tender offer package are:</p> <p><b>Location of tender box:</b> Room 122<br/> <b>Physical address:</b> 21 St. Croix Street (back entrance) or 16 Woltemade Street (front entrance), Jeffreys Bay<br/> <b>Identification details:</b> Bid reference number, Title and the closing date and time.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                           |                                           |
| C.2.13.9             | Telephonic, telegraphic, telex, facsimile or e-mailed tender offers will not be accepted.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                           |                                           |

T1.2.7

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|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C.2.15   | The closing time for submission of tender offers is as stated in the Tender Notice and Invitation to Tender.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| C.2.16   | The tender offer validity period is <b>120 days</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| C.2.20   | The Tenderer is required to submit with his tender a letter of intent from an approved insurer undertaking to provide the Performance Bond to the format included in Part C1.3 of this procurement document. The form as per Part T2.2.12 can be used for this purpose.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| C.2.23   | The tenderer is required to submit with his tender the following:<br><ol style="list-style-type: none"> <li>1) an original Tax Clearance Certificate issued by the South African Revenue Services;</li> <li>2) CIDB grading certificate;</li> <li>3) Documents as listed in the List of Returnable Documents in Part T2.1.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| C.3.4    | Tenders will be opened immediately after the closing time for tenders at 12h05.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| C.3.5    | A two-envelope system will not be followed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| C.3.11.1 | Points will be awarded to Tenderers who are eligible for preferences in terms of the Preference Points Claim Form in terms of the Preferential Procurement Regulations, 2017, which is included in Part T2.2. The terms and conditions of the Preference Points Claim Form shall apply in all respects to the tender evaluation process and any subsequent contract.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| C.3.13   | Tender offers will only be accepted if:<br><ol style="list-style-type: none"> <li>a) the tenderer submits a tax compliance status certificate issued by the South African Revenue Services or has made arrangements to meet outstanding tax obligations;</li> <li>b) the tenderer submits a letter of intent from an approved insurer undertaking to provide the Performance Bond to the format included in Part T2.2 of this procurement document</li> <li>c) the tenderer is registered with the Construction Industry Development Board in an appropriate contractor grading designation;</li> <li>d) the tenderer or any of its directors/shareholders is not listed on the Register of Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector;</li> <li>e) the tenderer has not: <ol style="list-style-type: none"> <li>i) abused the Employer's Supply Chain Management System; or</li> <li>ii) failed to perform on any previous contract and has been given a written notice to this effect;</li> </ol> </li> <li>f) the tenderer has completed the Compulsory Enterprise Questionnaire and there are no conflicts of interest which may impact on the tenderer's ability to perform the contract in the best interests of the employer or potentially compromise the tender process and persons in the employ of the state are permitted to submit tenders or participate in the contract;</li> <li>g) the tenderer is registered and in good standing with the compensation fund or with a licensed compensation insurer;</li> <li>h) the employer is reasonably satisfied that the tenderer has in terms of the Construction Regulations, 2014, issued in terms of the Occupational Health and Safety Act, 1993, the necessary competencies and resources to carry out the work safely.</li> <li>i) the Tenderer has not failed to perform on any previous contracts and has not been given written notice to the effect.</li> <li>j) the Tenderer is not in arrears for more than 30 days with municipal rates and taxes and service charges.</li> </ol> |
| C.3.13   | The appointment of a Contractor will be subject to the availability of funding. The Employer reserves the right to accept a tender in whole or in parts with certain items being added, or in whole with the provision that certain items of work may be omitted at a later date.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| C.3.17   | The number of paper copies of the signed contract to be provided by the employer is one (1).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

## T2.1 LIST OF RETURNABLE DOCUMENTS

CMB Copyright  
Y:\Documents\10500-10599\10597\Specification\6. PartT2.1 List of Returnable Documents.docx

T2.1.2

| Part No. | The tenderer must ensure that the following documents are completed and included with his tender.                                                                                                                                                                                                                                                                                                                                                                     | Tenderer to confirm in this column by inserting a tick that document has been completed and returned.                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (j)      | <p>Declaration of fulfilment of the Construction Regulations, 2014.</p> <p><b>3. Returnable Schedules that will be incorporated into the Contract:</b><br/>All schedules as per Item 1 above.</p> <p><b>4. Other documents that will be incorporated into the Contract:</b></p> <p>C1.1 Form of Offer and Acceptance</p> <p>C1.2 Contract Data</p> <p>C2.1 Pricing Instructions</p> <p>C2.2 Bill of Quantities</p> <p>C3 Scope of Work</p> <p>C4 Site information</p> | <div><input type="checkbox"/></div> <div><input type="checkbox"/></div> <div><input type="checkbox"/></div> <div><input type="checkbox"/></div> <div><input type="checkbox"/></div> <div><input type="checkbox"/></div> <div><input type="checkbox"/></div> <div><input type="checkbox"/></div> |

**T2.2 RETURNABLE SCHEDULES****T2.2.1 RECORD OF ADDENDA TO TENDER DOCUMENTS**

We confirm that the following communications received from the Employer before the submission of this tender offer, amending the tender documents, have been taken into account in this tender offer:

|            | <b>Date</b> | <b>Title or Details</b> |
|------------|-------------|-------------------------|
| <b>1.</b>  |             |                         |
| <b>2.</b>  |             |                         |
| <b>3.</b>  |             |                         |
| <b>4.</b>  |             |                         |
| <b>5.</b>  |             |                         |
| <b>6.</b>  |             |                         |
| <b>7.</b>  |             |                         |
| <b>8.</b>  |             |                         |
| <b>9.</b>  |             |                         |
| <b>10.</b> |             |                         |

Copies of Addenda received to be attached hereafter.

Signed

Date

Name

Position

Tenderer

**T2.2.2 SCHEDULE OF AMENDMENTS AND QUALIFICATIONS BY TENDERER**

The Tenderer is required to give full details of any departure from the Specification and shall then sign this page officially. If there are no departures, the Tenderer must state NIL on this page and sign it. The Tender shall then be held to comply in all respect with the Specification. If the Tenderer does not indicate anything on this page, the Tenderer will also be held to comply in all respects with the Specification.

Should there be insufficient space, the Tenderer may include separate sheets arranged in the same manner as above. Mere reference to a covering letter will not be regarded as compliance with this requirement. Any amendments and / or qualifications stated in a covering letter will be regarded as null and void.

The Tenderer's attention is drawn to clause C.3.8 of the Standard Conditions of Tender referenced in the Tender Data regarding the Employer's handling of material deviations and qualifications.

| Page | Clause or item | Proposal |
|------|----------------|----------|
|      |                |          |

Signed

Date

Name

Position

Tenderer

### **T2.2.3 SCHEDULE OF PARTICULARS / INFORMATION**

- Note:
1. This schedule must be completed for all items offered, stating where appropriate, the size or capacity of equipment, type or catalogue no, country of origin and any other detail considered necessary.
  2. Only the Section of Works on which the Tenderer wishes to Bid needs to be completed in full. Failure to comply with this requirement may render the tender invalid.
  3. Information in amplification of that given below may be submitted in the form of a covering letter, published literature, etc.
  4. Acceptance of a Tender, with this Schedule complete, does not relieve the Tenderer of the responsibility of complying with the Specification for the items listed.

#### **1.0 MATERIAL / EQUIPMENT**

The detailed specifications of the material / equipment to be supplied / installed are as stipulated in the Standard Technical Specification included under Part C3.2 hereof. Bidders are to take note of the detailed requirements contained therein and to provide full details of any departure from same in the Schedule of Amendments and Qualifications by Tenderer, Part T2.2.2 herewith.

Bidders are to note that failure to comply with the minimum stipulated technical specifications of the material / equipment may result in disqualification of their tender.

#### **2.0 SECTION A OF THE WORKS: MV/HV 66/22/11kV OVERHEAD LINE WORK**

##### **2.1 KEY PERSONNEL**

- (a) Name of and experience of the Construction Manager the Bidder intends using on the project:

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

*(Bidder to attach brief CV of proposed individual as described above, as well as proof of qualifications)*

- (b) Name of and experience of the Site Supervisor the Bidder intends using on the project:

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

*(Bidder to attach brief CV of proposed individual as described above, as well as proof of qualifications)*

##### **2.2 WOODEN POLES**

- (a) Type of material offered: .....
- (b) Product code, where applicable: .....
- (c) Manufacturer: .....

### 2.3 **OVERHEAD LINE CONDUCTOR**

- (a) Type of material offered: .....
- (b) Product code, where applicable: .....
- (c) Manufacturer: .....

## 3.0 **SECTION B OF THE WORKS: MV UNDERGROUND CABLE WORK**

### 3.1 **KEY PERSONNEL**

- (a) Name of and experience of the Construction Manager the Bidder intends using on the project:  
.....  
.....  
.....  
*(Bidder to attach brief CV of proposed individual as described above, as well as proof of qualifications)*
- (b) Name of and experience of the Site Supervisor the Bidder intends using on the project:  
.....  
.....  
.....  
*(Bidder to attach brief CV of proposed individual as described above, as well as proof of qualifications)*
- (c) Name of and experience of person to undertake MV cable jointing and terminations the Bidder intends using on the project:  
.....  
.....  
.....  
*(Bidder to attach brief CV of proposed individual as described above, as well as proof of qualifications)*

### 3.2 **MV UNDERGROUND CABLES**

- (a) Type of material offered: .....
- (b) Product code, where applicable: .....
- (c) Manufacturer: .....

## 4.0 **SECTION C OF THE WORKS: MV SUBSTATION WORK**

### 4.1 **KEY PERSONNEL**

- (a) Name of and experience of the Construction Manager the Bidder intends using on the project:  
.....  
.....  
.....

### T2.2.3.3

*(Bidder to attach brief CV of proposed individual as described above, as well as proof of qualifications)*

- (b) Name of and experience of the Site Supervisor the Bidder intends using on the project:

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

*(Bidder to attach brief CV of proposed individual as described above, as well as proof of qualifications)*

#### 4.2 **RING MAIN UNITS**

- (a) Type of equipment offered: .....
- (b) Product code, where applicable: .....
- (c) Manufacturer: .....

#### 4.3 **MINIATURE SUBSTATIONS**

- (a) Type of equipment offered: .....
- (b) Product code, where applicable: .....
- (c) Manufacturer: .....

#### 4.4 **AUTO-RECLOSERS**

- (a) Type of equipment offered: .....
- (b) Product code, where applicable: .....
- (c) Manufacturer: .....

#### 4.5 **SECTIONALIZERS**

- (a) Type of equipment offered: .....
- (b) Product code, where applicable: .....
- (c) Manufacturer: .....

### 5.0 **SECTION D OF THE WORKS: SUBSTATION PROTECTION AND TESTING**

#### 5.1 **KEY PERSONNEL**

- (a) Name of and experience of the Construction Manager the Bidder intends using on the project:

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

*(Bidder to attach brief CV of proposed individual as described above, as well as proof of qualifications)*

- (b) Name and experience of the Specialist Protection Test- and Commissioning Engineer the Bidder intends using on the project, incl. list of testing equipment available:

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

*(Bidder to attach brief CV of proposed individual as described above, as well as proof of qualifications and a list of testing equipment available in order to undertake all types of tests as detailed in the specification)*

## 5.2 **PROTECTION RELAYS**

- (a) Type of equipment offered: .....
- (b) Product code, where applicable: .....
- (c) Manufacturer: .....

## 6.0 **SECTION E OF THE WORKS: LIMITED LV WORK, STREET LIGHTS AND HIGH MAST MAINTENANCE WORK**

### 6.1 **KEY PERSONNEL**

- (a) Name of and experience of the Construction Manager the Bidder intends using on the project:

.....  
 .....

*(Bidder to attach brief CV of proposed individual as described above, as well as proof of qualifications)*

- (b) Name of and experience of the Site Supervisor the Bidder intends using on the project:

.....  
 .....

*(Bidder to attach brief CV of proposed individual as described above, as well as proof of qualifications)*

### 6.2 **LV UNDERGROUND CABLES**

- (a) Type of material offered: .....
- (b) Product code, where applicable: .....
- (c) Manufacturer: .....

### 6.3 **LV OVERHEAD LINES**

- (a) Type of material offered: .....
- (b) Product code, where applicable: .....
- (c) Manufacturer: .....



#### T2.2.4.2

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise:

- i) authorizes the Employer to verify the Tenderer's tax clearance status from the South African Revenue Services that it is in order;
- ii) confirms that neither the name of the enterprise or the name of any partner, manager, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears on the Register of Tender Defaulters established in terms of the Prevention and Combating of Corrupt Activities Act of 2004;
- iii) confirms that no partner, member, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears, has within the last five years been convicted of fraud or corruption;
- iv) confirms that I / we are not associated, linked or involved with any other tendering entities submitting tender offers and have no other relationship with any of the Tenderers or those responsible for compiling the scope of work that could cause or be interpreted as a conflict of interest;
- v) confirms that the contents of this questionnaire are within my personal knowledge and are to the best of my belief both true and correct.

Signed \_\_\_\_\_ Date \_\_\_\_\_

Name \_\_\_\_\_ Position \_\_\_\_\_

Enterprise name \_\_\_\_\_

**T2.2.5 CERTIFICATE OF AUTHORITY FOR JOINT VENTURES**

This Returnable Schedule is to be completed by joint ventures.

We, the undersigned, are submitting this tender offer in Joint Venture and hereby authorise Mr/Ms ....., authorised signatory of the company ....., acting in the capacity of lead partner, to sign all documents in connection with the tender offer and any contract resulting from it on our behalf.

| NAME OF FIRM                  | ADDRESS | DULY AUTHORISED SIGNATORY                          |
|-------------------------------|---------|----------------------------------------------------|
| Lead partner                  |         |                                                    |
| CIDB registration no<br>..... |         | Signature .....<br>Name .....<br>Designation ..... |
| CIDB registration no<br>..... |         | Signature .....<br>Name .....<br>Designation ..... |
| CIDB registration no<br>..... |         | Signature .....<br>Name .....<br>Designation ..... |
| CIDB registration no<br>..... |         | Signature .....<br>Name .....<br>Designation ..... |

**T2.2.6 SCHEDULE OF TENDERER'S EXPERIENCE**

The following is a statement of similar work successfully executed by myself / ourselves:

| <b>Employer, contact person<br/>and telephone number.</b> | <b>Description of contract</b> | <b>Value of work<br/>inclusive of VAT<br/>(Rand)</b> | <b>Date<br/>completed</b> |
|-----------------------------------------------------------|--------------------------------|------------------------------------------------------|---------------------------|
|                                                           |                                |                                                      |                           |

Attach additional pages if more space is required.

Signed

Date

Name

Position

Tenderer

**T2.2.7 SCHEDULE OF SUB-CONTRACTORS**

We notify you that it is our intention to employ the following Sub-contractors for work in this contract.

If we are awarded a contract we agree that this notification does not change the requirement for us to submit the names of Sub-contractors in accordance with requirements in the contract for such appointments. If there are no such requirements in the contract, then your written acceptance of this list shall be binding between us. The following supporting documentation must be submitted for each of the Sub-Contractors:

- CV of the proposed Sub-Contractor/s.
- A valid B-BBEE status level verification certificate or sworn affidavit.

|           | <b>Name and address of Sub-contractor</b> | <b>B-BBEE Status</b> | <b>Nature, extent and % of work to be sub-contracted</b> | <b>Previous experience with Sub-contractor.</b> |
|-----------|-------------------------------------------|----------------------|----------------------------------------------------------|-------------------------------------------------|
| <b>1.</b> |                                           |                      |                                                          |                                                 |
| <b>2.</b> |                                           |                      |                                                          |                                                 |
| <b>3.</b> |                                           |                      |                                                          |                                                 |
| <b>4.</b> |                                           |                      |                                                          |                                                 |

Signed .....

Date .....

Name .....

Position .....

Tenderer .....

**T2.2.8 SCHEDULE OF PLANT AND EQUIPMENT**

The following are lists of major items of relevant equipment that I / we presently own or lease and will have available for this contract or will acquire or hire for this contract if my / our tender is accepted.

(a) Details of major equipment that is owned by and immediately available for this contract.

| Quantity | Description, size, capacity, etc. |
|----------|-----------------------------------|
|          |                                   |

Attach additional pages if more space is required.

(b) Details of major equipment that will be hired, or acquired for this contract if my / our tender is accepted.

| Quantity | Description, size, capacity, etc. |
|----------|-----------------------------------|
|          |                                   |

Attach additional pages if more space is required.

Signed \_\_\_\_\_ Date \_\_\_\_\_

Name \_\_\_\_\_ Position \_\_\_\_\_

Tenderer \_\_\_\_\_

**T2.2.9 UNDERTAKING TO PROVIDE PERFORMANCE BOND**

Having examined the Contract Data, the Scope of Work and the Bill of Quantities, and having reviewed our financial commitments, we have approached the Insurance company / bank named below for a Guarantee in the exact terms of the Pro Forma Guarantee provided in Part C1.3 hereof.

We hereby declare that the insurance company/bank named below is aware of our financial position and commitments in terms of this tender and any other tender offers made and is prepared to issue the Guarantee unconditionally, within the period called for in these tender documents, and until the issue of the Certificate of Completion.

Name of proposed Guarantee provider: .....  
(Insurance Company/Bank)

Date: ..... Signed on behalf  
of the Tenderer: .....

Date: ..... Signed on behalf  
of the insurance  
company/bank: .....

In their capacity as .....

**T2.2.10 AUTHORITY FOR SIGNATORY**

Details of person responsible for Tender process

Name .....

Contact number ( ) .....

Address of office submitting the Tender:

.....

.....

.....

Telephone no ( ) .....

Fax no ( ) .....

E-mail address .....

Signatories for close corporations and companies shall confirm their authority by attaching to this form a **duly signed and dated original or certified copy** of the relevant resolution of their members or their board of directors, as the case may be.

"By resolution of the board of directors passed on (date).....

Mr. ....

has been duly authorized to sign all documents in connection with the Tender for Contract Number .....and any Contract which may arise there from on behalf of:

(BLOCK CAPITALS) .....

.....

.....

SIGNED ON BEHALF OF THE COMPANY .....

IN HIS CAPACITY AS .....

DATE .....

FULL NAMES OF SIGNATORY .....

AS WITNESSES 1. ....

2. ....

## **T2.2.11 PREFERENCING SCHEDULE: BROAD BASED BLACK ECONOMIC EMPOWERMENT STATUS**

### **PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022**

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, TENDERERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF THE TENDER AND PREFERENTIAL PROCUREMENT REGULATIONS, 2022**

#### **1. GENERAL CONDITIONS**

**1.1** The following preference point systems are applicable to invitations to tender:

- 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 To be completed by the organ of state**

*(Delete whichever is not applicable for this tender).*

- a) The applicable preference point system for this tender is the 80/20 preference point system.

**1.3** Points for this tender (even in the case of a tender for income-generating contracts) shall be awarded for:

- (a) Price;
- (b) BBBEE; and
- (c) Specific Goals.

#### **1.4 To be completed by the organ of state:**

The maximum points for this tender are allocated as follows:

|                                                  | <b>POINTS</b> |
|--------------------------------------------------|---------------|
| <b>PRICE</b>                                     | <b>80/90</b>  |
| <b>BBBEE</b>                                     | <b>10/5</b>   |
| <b>SPECIFIC GOALS</b>                            | <b>10/5</b>   |
| <b>Total points for PRICE and SPECIFIC GOALS</b> | <b>100</b>    |

**1.5** Failure on the part of a tenderer to submit proof or documentation required in terms of this tender to claim points for specific goals with the tender, will be interpreted to mean that preference points for specific goals are not claimed.

**1.6** The organ of state reserves the right to require of a tenderer, either before a tender is adjudicated or at any time subsequently, to substantiate any claim regarding preferences, in any manner required by the organ of state.

## 2. DEFINITIONS

- (a) **“tender”** means a written offer in the form determined by an organ of state in response to an invitation to provide goods or services through price quotations, competitive tendering process or any other method envisaged in legislation;
- (b) **“price”** means an amount of money tendered for goods or services, and includes all applicable taxes less all unconditional discounts;
- (c) **“rand value”** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;
- (d) **“tender for income-generating contracts”** means a written offer in the form determined by an organ of state in response to an invitation for the origination of income-generating contracts through any method envisaged in legislation that will result in a legal agreement between the organ of state and a third party that produces revenue for the organ of state, and includes, but is not limited to, leasing and disposal of assets and concession contracts, excluding direct sales and disposal of assets through public auctions; and
- (e) **“the Act”** means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000).

## 3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

### 3.1. POINTS AWARDED FOR PRICE

#### 3.1.1. THE 80/20 OR 90/10 PREFERENCE POINT SYSTEMS

A maximum of 80 or 90 points is allocated for price on the following basis:

$$\begin{array}{ccc}
 \mathbf{80/20} & \mathbf{or} & \mathbf{90/10} \\
 \\
 \mathbf{Ps = 80 \left( 1 - \frac{Pt - P_{min}}{P_{min}} \right)} & \mathbf{or} & \mathbf{Ps = 90 \left( 1 - \frac{Pt - P_{min}}{P_{min}} \right)}
 \end{array}$$

Where

- Ps = Points scored for price of tender under consideration
- Pt = Price of tender under consideration
- Pmin = Price of lowest acceptable tender

### 3.2. FORMULAE FOR DISPOSAL OR LEASING OF STATE ASSETS AND INCOME GENERATING PROCUREMENT

#### 3.2.1. POINTS AWARDED FOR PRICE

A maximum of 80 or 90 points is allocated for price on the following basis:

$$\begin{array}{ccc}
 \mathbf{80/20} & \mathbf{or} & \mathbf{90/10} \\
 \\
 \mathbf{Ps = 80 \left( 1 + \frac{Pt - P_{max}}{P_{max}} \right)} & \mathbf{or} & \mathbf{Ps = 90 \left( 1 + \frac{Pt - P_{max}}{P_{max}} \right)}
 \end{array}$$

Where

- Ps = Points scored for price of tender under consideration
- Pt = Price of tender under consideration
- Pmax = Price of highest acceptable tender

#### 4. POINTS AWARDED FOR BBBEE AND SPECIFIC GOALS

- 4.1. In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table 1 below as may be supported by proof/ documentation stated in the conditions of this tender:

##### 4.1.1 Points awarded for B-BBEE Level of Contributor

In terms of the Specific Goals as per the Kouga Municipality Preferential Procurement Policy, preference points must be awarded to a tenderer for attaining the B-BBEE status level of contribution in accordance with the table below:

| B-BBEE Status Level of Contributor | Number of Points for Preference (80/20) | Number of Points for Preference (90/10) |
|------------------------------------|-----------------------------------------|-----------------------------------------|
| 1                                  | 10                                      | 5                                       |
| 2                                  | 9                                       | 4.5                                     |
| 3                                  | 7                                       | 3                                       |
| 4                                  | 6                                       | 2.5                                     |
| 5                                  | 4                                       | 2                                       |
| 6                                  | 3                                       | 1.5                                     |
| 7                                  | 2                                       | 1                                       |
| 8                                  | 1                                       | 0.5                                     |
| Non-compliant contributor          | 0                                       | 0                                       |

**Bidder MUST submit a valid BBBEE certificate, failure to attach no points will be awarded for BBBEE points.**

##### 4.1.2 Points awarded for Specific Goals

In terms of the Specific Goals as per the Kouga Municipality Preferential Procurement Policy, preference points must be awarded to a Tenderer for Locality in accordance with the table below:

| Locality of Tenderer's Office                                     | Number of points (80/20 system) | Number of points (90/10 system) |
|-------------------------------------------------------------------|---------------------------------|---------------------------------|
| Within the boundaries of Kouga Municipality                       | 10                              | 5                               |
| Within the boundaries of the Sarah Baartman District Municipality | 6                               | 3                               |
| Within the borders of the Eastern Cape                            | 4                               | 2                               |
| Outside the borders of the Eastern Cape                           | 2                               | 1                               |

**Bidder MUST submit proof of address (e.g., municipal account, rental/lease agreement, or affidavit) not older than three (3) months. Failure to attach proof will result in no points awarded for Specific Goals.**

- 4.2. In cases where organs of state intend to use Regulation 3(2) of the Regulations, which states that, if it is unclear whether the 80/20 or 90/10 preference point system applies, an organ of state must, in the tender documents, stipulate in the case of—
- (a) an invitation for tender for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable tender will be used to determine the applicable preference point system; or
  - (b) any other invitation for tender, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system,
- then the organ of state must indicate the points allocated for specific goals for both the 90/10 and 80/20 preference point system.

## 5. BID DECLARATION

Tenderers who claim points in respect of BBBEE must complete the following:

### **B-BBEE STATUS LEVEL OF CONTRIBUTOR CLAIMED IN TERMS OF PARAGRAPHS 4.1 AND 4.1.1**

5.1. **Contribution to BBBEE: ..... = .....(maximum of 5 or 10 points)**

(Points claimed in respect of paragraph 5.1 must be in accordance with the table reflected in paragraph 4.1.1 and **must be substantiated by relevant proof of B-BBEE status level of contributor.**)

### **LOCALITY OF TENDERERS OFFICE CLAIMED IN TERMS OF PARAGRAPHS 4.1 AND 4.1.2**

5.2. **Contribution to specific Goals: ..... = .....(maximum of 5 or 10 points)**

(Points claimed in respect of paragraph 5.2 must be in accordance with the table reflected in paragraph 4.1.2 and **must be substantiated by relevant proof of address of a company office.**)

### **DECLARATION WITH REGARD TO COMPANY/FIRM**

5.3. Name of company/firm.....

5.4. Company registration number: .....

5.5. TYPE OF COMPANY/ FIRM

Partnership/Joint Venture / Consortium  
 One-person business/sole propriety  
 Close corporation  
 Public Company  
 Personal Liability Company  
 (Pty) Limited  
 Non-Profit Company  
 State Owned Company

[TICK APPLICABLE BOX]

5.6. I, the undersigned, who is duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the specific goals as advised in the tender, qualifies the company/ firm for the preference(s) shown and I 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;

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- iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 5.1 and 5.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;
- iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –
  - (a) disqualify the person from the tendering 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 tenderer or contractor, its shareholders, and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted 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, if deemed necessary.

.....  
SIGNATURE(S) OF TENDERER(S)

SURNAME AND NAME: .....

DATE: .....

ADDRESS: .....  
.....

**B-BBEE EXEMPTED AFFIDAVIT FOR EXEMPTED MICRO ENTERPRISES  
(ISSUED IN TERMS OF THE AMENDED CONSTRUCTION SECTOR CODE)**

(Gazette Vol. 630 No. 41287)

Issued in terms of paragraph 3.6.2.4.1 (B)

I, the undersigned,

|                               |  |
|-------------------------------|--|
| <b>Full names and surname</b> |  |
| <b>Identity number</b>        |  |

Hereby declare under oath as follows:

- The contents of this statement are to the best of my knowledge a true reflection of the facts.
- I am a Member / Director / Owner of the following enterprise and am duly authorized to act on its behalf:

|                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                   |                 |
|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-----------------|
| <b>Enterprise Name:</b>                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                   |                 |
| <b>Trading Name (If Applicable):</b>                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                   |                 |
| <b>Registration Number:</b>                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                   |                 |
| <b>Physical Address:</b>                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                   |                 |
| <b>Type of Entity (CC, (Pty) Ltd, Sole Prop etc.):</b>                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                   |                 |
| <b>Nature of Construction Business:<br/>Indicate the applicable category with a tick.</b> | <b>BEP</b><br>(Built Environment Professional)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Contractor</b> | <b>Supplier</b> |
| <b>Definition of "Black People"</b>                                                       | As per the Broad-Based Black Economic Empowerment Act 53 of 2003 as Amended by Act No 46 of 2013 "Black People" is a generic term which means Africans, Coloureds and Indians – who are citizens of the Republic of South Africa by birth or descent; or who became citizens of the Republic of South Africa by naturalization before 27 April 1994; or after 27 April 1994 and who would have been entitled to acquire citizenship by naturalization prior to that date;"                                                                                                                                                                                                     |                   |                 |
| <b>Definition of "Black Designated Groups"</b>                                            | "Black Designated Groups" means:<br>(a) unemployed black people not attending and not required by law to attend an educational institution and not awaiting admission to an educational institution;<br>(b) Black people who are youth as defined in the National Youth Commission Act of 1996;<br>(c) Black people who are persons with disabilities as defined in the Code of Good Practice on employment of people with disabilities issued under the Employment Equity Act;<br>(d) Black people living in rural and under developed areas;<br>(e) Black military veterans who qualifies to be called a military veteran in terms of the Military Veterans Act 18 of 2011;" |                   |                 |

- I hereby declare under Oath that as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,

- The Enterprise is \_\_\_\_\_ % Black Owned
- The Enterprise is \_\_\_\_\_ % Black Female Owned
- The Enterprise is \_\_\_\_\_ % Owned by Black Designated Group (provide Black Designated Group Breakdown below as per the definition in the table above)
  - o Black Youth % \_\_\_\_\_ %
  - o Black Disabled % \_\_\_\_\_ %

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- o Black Unemployed % \_\_\_\_\_ %
- o Black People living in Rural areas % \_\_\_\_\_ %
- o Black Military Veterans % \_\_\_\_\_ %

## Construction Sector Affidavit

1. Based on the Financial Statements/Management Accounts and other information available on the latest financial year-end of \_\_\_\_\_, the annual Total Revenue was less than the applicable amount confirmed **by ticking the applicable box below.**

|            |              |  |
|------------|--------------|--|
| BEP        | R1.8 million |  |
| Contractor | R3.0 million |  |
| Supplier   | R3.0 million |  |

*If the turnover exceeds the applicable amount in the table above then this affidavit is no longer applicable and an EME certificate must be obtained from a rating agency accredited by SANAS or when applicable a B-BBEE Verification Professional Regulator appointed by the Minister of Trade and Industry.*

2. Please Confirm on the below table the B-BBEE Level Contributor, **by ticking the applicable box below.**

|                           |                                                               |  |
|---------------------------|---------------------------------------------------------------|--|
| 100% Black Owned          | <b>Level One</b> (135% B-BBEE procurement recognition level)  |  |
| At least 51% Black Owned  | <b>Level Two</b> (125% B-BBEE procurement recognition level)  |  |
| At least 30% Black Owned  | <b>Level Four</b> (100% B-BBEE procurement recognition level) |  |
| Less than 30% Black Owned | <b>Level Five</b> (80% B-BBEE procurement recognition level)  |  |

3. I know and understand the contents of this affidavit and I have no objection to take the prescribed oath and consider the oath binding on my conscience and on the Owners of the Enterprise which I represent in this matter.

4. The sworn affidavit will be valid for a period of 12 months from the date signed by commissioner.

Deponent Signature: \_\_\_\_\_

Date: \_\_\_\_\_

**COMMISSIONER OF OATHS**  
**SIGNATURE & STAMP**

**T2.2.12 COMPULSORY DECLARATION**

The following particulars must be furnished. In the case of a joint venture, separate declaration in respect of each partner must be completed and submitted.

**Section 1: Enterprise Details**

|                            |  |
|----------------------------|--|
| <b>Name of enterprise:</b> |  |
| <b>Contact person:</b>     |  |
| <b>Email:</b>              |  |
| <b>Telephone:</b>          |  |
| <b>Cell no</b>             |  |
| <b>Fax:</b>                |  |
| <b>Physical address</b>    |  |
| <b>Postal address</b>      |  |

**Section 2: Particulars of companies and close corporations**

|                                                        |  |
|--------------------------------------------------------|--|
| <b>Company / Close Corporation registration number</b> |  |
|--------------------------------------------------------|--|

**Section 3: SARS Information**

|                                 |                                                       |
|---------------------------------|-------------------------------------------------------|
| <b>Tax reference number</b>     |                                                       |
| <b>VAT registration number:</b> | <i>State Not Registered if not registered for VAT</i> |

**Section 4: CIDB registration number**

|                                                 |  |
|-------------------------------------------------|--|
| <b>CIDB Registration number (if applicable)</b> |  |
|-------------------------------------------------|--|

**Section 5: National Treasury Central Supplier Database**

|                                             |  |
|---------------------------------------------|--|
| <b>Supplier number</b>                      |  |
| <b>Unique registration reference number</b> |  |

**Section 6: Particulars of principals**

**principal:** means a natural person who is a partner in a partnership, a sole proprietor, a director of a company established in terms of the Companies Act of 2008 (Act No. 71 of 2008) or a member of a close corporation registered in terms of the Close Corporation Act, 1984, (Act No. 69 of 1984).

| <b>Full name of principal</b> | <b>Identity number</b> | <b>Personal tax reference number</b> |
|-------------------------------|------------------------|--------------------------------------|
|                               |                        |                                      |
|                               |                        |                                      |
|                               |                        |                                      |
|                               |                        |                                      |
|                               |                        |                                      |
|                               |                        |                                      |
|                               |                        |                                      |
|                               |                        |                                      |
|                               |                        |                                      |

Attach separate page if necessary

**Section 7: Record in the service of the state**

Indicate by marking the relevant boxes with a cross, if any principal is currently or has been within the last 12 months in the service of any of the following:

- |                                                                                                |                                                                                                                                                                                                                |
|------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> a member of any municipal council                                     | <input type="checkbox"/> an employee of any department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act of 1999 (Act No. 1 of 1999) |
| <input type="checkbox"/> a member of any provincial legislature                                |                                                                                                                                                                                                                |
| <input type="checkbox"/> a member of the National Assembly or the National Council of Province | <input type="checkbox"/> a member of an accounting authority of any national or provincial public entity                                                                                                       |
| <input type="checkbox"/> a member of the board of directors of any municipal entity            | <input type="checkbox"/> an employee of Parliament or a provincial legislature                                                                                                                                 |
| <input type="checkbox"/> an official of any municipality or municipal entity                   |                                                                                                                                                                                                                |

If any of the above boxes are marked, disclose the following:

| Name of principal | Name of institution, public office, board or organ of state and position held | Status of service<br>(tick appropriate column) |                       |
|-------------------|-------------------------------------------------------------------------------|------------------------------------------------|-----------------------|
|                   |                                                                               | Current                                        | Within last 12 months |
|                   |                                                                               |                                                |                       |
|                   |                                                                               |                                                |                       |
|                   |                                                                               |                                                |                       |
|                   |                                                                               |                                                |                       |
|                   |                                                                               |                                                |                       |

\*insert separate page if necessary

**Section 8: Record of family member in the service of the state**

**family member:** a person's spouse, whether in a marriage or in a customary union according to indigenous law, domestic partner in a civil union, or child, parent, brother, sister, whether such a relationship results from birth, marriage or adoption

Indicate by marking the relevant boxes with a cross, if any family member of a principal as defined in section 5 is currently or has been within the last 12 months been in the service of any of the following:

- |                                                                                                |                                                                                                                                                                                                                     |
|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> a member of any municipal council                                     | <input type="checkbox"/> an employee of any provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act 1 of 1999) |
| <input type="checkbox"/> a member of any provincial legislature                                |                                                                                                                                                                                                                     |
| <input type="checkbox"/> a member of the National Assembly or the National Council of Province | <input type="checkbox"/> a member of an accounting authority of any national or provincial public entity                                                                                                            |
| <input type="checkbox"/> a member of the board of directors of any municipal entity            | <input type="checkbox"/> an employee of Parliament or a provincial legislature                                                                                                                                      |
| <input type="checkbox"/> an official of any municipality or municipal entity                   |                                                                                                                                                                                                                     |

| Name of family member | Name of institution, public office, board or organ of state and position held | Status of service<br>(tick appropriate column) |                       |
|-----------------------|-------------------------------------------------------------------------------|------------------------------------------------|-----------------------|
|                       |                                                                               | Current                                        | Within last 12 months |
|                       |                                                                               |                                                |                       |
|                       |                                                                               |                                                |                       |
|                       |                                                                               |                                                |                       |
|                       |                                                                               |                                                |                       |

\*insert separate page if necessary

**Section 9: Record of termination of previous contracts with an organ of state**

Was any contract between the tendering entity including any of its joint venture partners terminated during the past 5 years for reasons other than the employer no longer requiring such works or the employer failing to make payment in terms of the contract.

☐ Yes      ☐ No (Tick appropriate box)

If yes, provide particulars (interest separate page if necessary)

**Section 10: Declaration**

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the tendering entity confirms that the contents of this Declaration are within my personal knowledge, and save where stated otherwise in an attachment hereto, are to the best of my belief both true and correct, and:

- i) neither the name of the tendering entity or any of its principals appears on:
  - a) the Register of Tender Defaulters established in terms of the Prevention and Combating of Corrupt Activities Act of 2004 (Act No. 12 of 2004)
  - b) National Treasury's Database of Restricted Suppliers (see [www.treasury.gov.za](http://www.treasury.gov.za))
- ii) neither the tendering entity or any of its principals has within the last five years been convicted of fraud or corruption by a court of law (including a court outside of the Republic of South Africa);
- iii) any principal who is presently employed by the state has the necessary permission to undertake remunerative work outside such employment (attach permission to this declaration);
- iv) the tendering entity is not associated, linked or involved with any other tendering entities submitting tender offers
- v) has not engaged in any prohibited restrictive horizontal practices including consultation, communication, agreement, or arrangement with any competing or potential tendering entity regarding prices, geographical areas in which goods and services will be rendered, approaches to determining prices or pricing parameters, intentions to submit a tender or not, the content of the submission (specification, timing, conditions of contract etc) or intention to not win a tender;
- vi) has no other relationship with any of the tenderers or those responsible for compiling the scope of work that could cause or be interpreted as a conflict of interest;
- vii) neither the tenderer or any of its principals owes municipal rates and taxes or municipal service charges to any municipality or a municipal entity and are not in arrears for more than 3 months;
- viii) SARS may, on an on-going basis during the term of the contract, disclose the tenderer's tax compliance status to the Employer and when called upon to do so, obtain the written consent of any subcontractors who are subcontracted to execute a portion of the contract that is entered into in excess of the threshold prescribed by the National Treasury, for SARS to do likewise.

Signed .....

Date .....

Name .....

Position .....

Enterprise name .....

**T.2.2.13 MUNICIPAL DECLARATION AND RETURNABLE DOCUMENTS**

The following particulars must be furnished in relation to tenders for municipalities and municipal entities:

- a) where consultancy services are required; and
- b) goods, services or a combination thereof, where the estimated total of the prices exceeds R10 million, including VAT.

In the case of a joint venture, separate municipal declarations and returnable documents shall be submitted in respect of each partner.

**Section 1: Enterprise details**

|                           |  |
|---------------------------|--|
| <b>Name of enterprise</b> |  |
| <b>Contact person</b>     |  |
| <b>Email</b>              |  |
| <b>Telephone</b>          |  |
| <b>Cell</b>               |  |
| <b>Fax</b>                |  |
| <b>Physical address</b>   |  |
| <b>Postal address</b>     |  |

**Section 2: Declaration for consultancy services**

The enterprise has been awarded the following consultancy services by an organ of state during the last five years:

| Name of organ of state | Estimated number of contracts | Nature of service, e.g. quantity surveying | Service similar to required service (yes/no)? |
|------------------------|-------------------------------|--------------------------------------------|-----------------------------------------------|
|                        |                               |                                            |                                               |
|                        |                               |                                            |                                               |
|                        |                               |                                            |                                               |
|                        |                               |                                            |                                               |
|                        |                               |                                            |                                               |
|                        |                               |                                            |                                               |

Attach separate page as necessary

**Section 3: Goods, services, or a combination thereof, where the estimated total of the prices exceeds R10 million, including VAT**

I/we certify that

1) (tick one of the boxes):

- ☐ the enterprise **is not** required by law to prepare annual financial statements for auditing
- ☐ the enterprise **is** required by law to have audited annual financial statements (attached herewith for the past three financial years or the years for which the enterprise has been in operation)

2) the enterprise and its directors have no undisputed commitments for municipal services towards a municipality or other service provider in respect of which payment is overdue for more than 30 days (i.e. all municipal accounts are paid up to date);

3) source of goods and/or services :

(tick one of the boxes and insert percentages if applicable)

☐ goods and/or services are sourced only from within the Republic of South Africa

☐  % of the total cost of goods and/or services will be sourced from outside the Republic of South Africa, and the percentage of payment from the municipality or municipal entity which is expected to be transferred out of the Republic is  %.

I furthermore confirm that the following contracts were awarded to the enterprise by an organ of state during the last five years and attached particulars of any material non-compliance or dispute concerning the execution of such contracts:

| Name of organ of state | Estimated number of contracts | Nature of contracts |
|------------------------|-------------------------------|---------------------|
|                        |                               |                     |
|                        |                               |                     |
|                        |                               |                     |
|                        |                               |                     |
|                        |                               |                     |
|                        |                               |                     |
|                        |                               |                     |
|                        |                               |                     |
|                        |                               |                     |

Attach separate page as necessary

I, the undersigned who warrants that I am duly authorised on behalf of the tendering entity, hereby declare that the contents of this Declaration are within my personal knowledge, and save where stated otherwise, are to the best of my belief both true and correct.

Signed .....

Date .....

Name .....

Position .....

Tenderer .....

**T2.2.14 SCHEDULE OF REFERENCE FOR TENDERER**

- The Tenderer must provide three (3) separate and unrelated contactable Referees for each Section A, B, C, D and / or E on which the Tenderer wishes to bid.
- The Referees must each relate to at least one (1) successfully completed project over the past five (5) years.
- The reference projects must relate to the specific Scope of Work, i.e. Section A, B, C, D and / or E.
- The Tenderer must arrange for the Referee to complete this form and the completed form must be submitted with the tender document.
- A Certificate of Practical Completion or Certificate of Completion signed by the Employer's Agent must be attached for the project referenced herein.

**Referee and Project Information**

|                                |  |
|--------------------------------|--|
| Employer name:                 |  |
| Referee name:                  |  |
| Referee physical address:      |  |
| Referee contact number:        |  |
| Referee e-mail address:        |  |
| Name of Tenderer evaluated:    |  |
| Project Name:                  |  |
| Project Description:           |  |
| Project Completion date:       |  |
| Project duration:              |  |
| Final Project Cost, incl. VAT: |  |

| <b>COMPLETION OF PROJECT ON TIME</b>                                             |  |
|----------------------------------------------------------------------------------|--|
| <b>Completion of project according to initial program submitted by Tenderer?</b> |  |
| Yes                                                                              |  |
| No                                                                               |  |

| <b>COMPLETION OF ASSIGNMENTS WITHIN BUDGET</b>                                   |  |
|----------------------------------------------------------------------------------|--|
| <b>Did the Tenderer complete the project / work within the allocated Budget?</b> |  |
| Yes                                                                              |  |
| No                                                                               |  |

| <b>QUALITY OF END PRODUCT</b>                                                                                                                                             |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Was the work executed in accordance with the Specification and did the final product match the expectations that were created during the Project Initiation Stage?</b> |  |
| Exceed initial expectations                                                                                                                                               |  |
| Met expectations                                                                                                                                                          |  |
| Slightly below                                                                                                                                                            |  |
| Did not meet expectations                                                                                                                                                 |  |

**Additional Remarks/Comments:**

[illegible]

I, the undersigned, hereby certify that the above information is, to the best of my knowledge, correct and a true reflection.

**Signature of Referee**

Date

Declaration,

I, the undersigned ..... (name) certify that the information furnished above is correct. I accept that the Municipality may exercise due consequence management against me should this declaration prove to be false.

Authorised signature on behalf of Tenderer: .....

Name of Tenderer: .....

Capacity: .....

Date: .....

**THE CONTRACT****PART C1 – AGREEMENTS AND CONTRACT DATA****C1.1 FORM OF OFFER AND ACCEPTANCE (Agreement)****OFFER**

The Employer, identified in the Acceptance signature block, has solicited offers to enter into a contract in respect of the following works:

***Kouga Municipality: Notice No. 152/2023: Electrical Maintenance and Construction Works for a Period of Three (3) Years: Specification No. G/10597/E***

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

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

**THE OFFERED TOTAL OF THE PRICES INCLUSIVE OF VALUE ADDED TAX IS:****1.0 Section A of the Works: MV/HV 66/22/11kV Overhead Line Work**

.....

..... Rand (in words)

R ..... (in figures).

**2.0 Section B of the Works: MV Underground Cable Work**

.....

..... Rand (in words)

R ..... (in figures).

**3.0 Section C of the Works: MV Substation Work**

.....

..... Rand (in words)

R ..... (in figures).

**4.0 Section D of the Works: Substation Protection and Testing**

.....

..... Rand (in words)

R ..... (in figures).

**5.0 Section E of the Works: Limited LV Work, Street Lights and High Mast Maintenance Work**

.....

..... Rand (in words)

R ..... (in figures).

The offer/s above may be accepted by the Employer by signing the Acceptance part of this Form of Offer and Acceptance and returning one copy of this document 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.

**For the Tenderer:**

Signature .....

Name .....

Capacity .....

**Name and address of organisation:**

.....

.....

.....

.....

.....

.....

**Signature and name of witness:**

Signature .....

Name .....

**Date:** .....

**ACCEPTANCE**

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

The terms of the contract, are contained in:

|         |                                                               |
|---------|---------------------------------------------------------------|
| Part C1 | Agreements and Contract Data, (which includes this 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 C1 to C4 above.

Deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Tender Schedules as well as any 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, which must be duly signed by the authorised representative(s) of both parties.

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

Notwithstanding anything contained herein, this Agreement comes into effect on the date when the Tenderer receives one fully completed original copy of this document, including the Schedule of Deviations (if any). Unless the Tenderer (now Contractor) within five days of the date of such receipt notifies the Employer in writing of any reason why he cannot accept the contents of this Agreement, this Agreement shall constitute a binding contract between the parties.

**For the Employer:**

Signature .....

Name .....

Capacity .....

**Name and address of organisation:**

.....

.....

.....

.....

.....

.....

**Signature and name of witness:**

Signature .....

Name .....

**Date:** .....

**SCHEDULE OF DEVIATIONS****Notes:**

1. The extent of deviations from the tender documents issued by the Employer prior to the tender closing date is limited to those permitted in terms of the Conditions of Tender.
2. A Tenderer's covering letter shall not be included in the final contract document. Should any matter in such letter, which constitutes a deviation as aforesaid, become the subject of Agreements reached during the process of offer and acceptance, the outcome of such Agreement shall be recorded here.
3. Any other matter arising from the process of offer and acceptance either as a confirmation, clarification or change to the tender documents and which it is agreed by the Parties becomes an obligation of the contract shall also be recorded here.
4. Any change or addition to the tender documents arising from the above Agreements and recorded here, shall also be incorporated into the final draft of the Contract.

(i) Subject .....

Details .....

(ii) Subject .....

Details .....

(iii) Subject .....

Details .....

(iv) Subject .....

Details .....

(v) Subject .....

Details .....

(vi) Subject \_\_\_\_\_  
 Details \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

By the duly authorised representatives signing this Schedule of Deviations, 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 change 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 shall have any meaning or effect in the contract between the parties arising from this Agreement.

**For the Tenderer:**

..... Signature

..... Name

..... Capacity

Name and address of organisation:

.....

.....

.....

..... Witness Signature

..... Witness Name

..... Date

**For the Employer:**

.....

.....

.....

Name and address of organisation:

.....

.....

.....

.....

.....

.....

**CONFIRMATION OF RECEIPT**

The Tenderer, (now Contractor), identified in the Offer part of this Agreement hereby confirms receipt from the Employer, identified in the Acceptance part of this Agreement, of one fully completed original copy of this Agreement, including the Schedule of Deviations (if any) today:

the ..... (day)

of ..... (month)

20 ..... (year)

at ..... (place)

**For the Contractor:**

Signature .....

Name .....

Capacity .....

**Signature and name of witness:**

Signature .....

Name .....

## C1.2 CONTRACT DATA

The General Conditions of Contract for Construction Works, Third Edition (2015) published by the South African Institution of Civil Engineering, Private Bag X200, Halfway House, 1685, is applicable to this Contract and is obtainable from [www.saice.org.za](http://www.saice.org.za)

The following contract specific data, referring to the General Conditions of Contract for Construction Works, Third Edition, 2015, are applicable to this Contract. Tenderers must read the abovementioned General Conditions of Contract in order to understand the implications of the Data provided by the Employer, as well as the Data which has to be completed by the Tenderer.

### PART 1: DATA PROVIDED BY THE EMPLOYER

| Clause          | Data                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.1.1.13        | The Defects Liability Period is 12 months measured from the date of the Certificate of Completion.                                                                                                                                                                                                                                                                                                                       |
| 1.1.1.14        | The time for achieving Practical Completion on any works instruction will be determined and agreed between the Employer and Contractor before construction commences.                                                                                                                                                                                                                                                    |
| 1.1.1.15        | The name of the Employer is Kouga Municipality.                                                                                                                                                                                                                                                                                                                                                                          |
| 1.1.1.26        | The Pricing Strategy is a Re-measurement Contract.                                                                                                                                                                                                                                                                                                                                                                       |
| 1.2.1.2         | The address of the Employer is:<br>Address (physical): 33 Da Gama Road, JEFFREYS BAY, 6330<br>Address (postal): PO Box 21, JEFFREYS BAY, 6330<br>Telephone: 042-200 2200<br>Facsimile: 042-200 8606<br>E-mail: <a href="mailto:tenders@kouga.gov.za">tenders@kouga.gov.za</a>                                                                                                                                            |
| 3.2.3           | The Employer's Agent shall obtain the specific approval of the Employer before carrying out any of his functions or duties according to the following Clauses of the General Conditions of Contract:<br>None.                                                                                                                                                                                                            |
| 5.1.1 and 5.8.1 | The non-working days are Sundays, with the exception of work which must be undertaken during scheduled outages planned for Sundays.<br><br>The special non-working days are:<br>The public holidays.<br>The year-end break commencing on about 16 December and ending on about the first Monday of the subsequent year, <u>or</u> the days on which the Contractor grants the majority of his permanent workforce leave. |
| 5.3.1           | The documentation required before commencing with the Works are:<br>Health and Safety Plan (refer to Clause 4.3 of the GCC 2015 conditions).<br>Initial programme (refer to Clause 5.6).<br>Security (refer to Clause 6.2).<br>Insurance (refer to Clause 8.6).<br>Letter of Good Standing from the Compensation Commissioner.                                                                                           |
| 5.3.2           | The time to submit the documentation required before commencement of the Works is <b>14 days</b> .                                                                                                                                                                                                                                                                                                                       |

## C1.2.2

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5.13.1                | The penalty for failing to complete a works instruction in the time as confirmed under Item 5.6.1 above is R 3 000-00 per day.                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 5.14.1                | The requirements for achieving Practical Completion are that the Works must be in a state of readiness, fit for the intended purpose and occupation without danger or undue inconvenience to the Employer.                                                                                                                                                                                                                                                                                                                                                                                       |
| 5.16.3                | The latent defects period is five (5) years.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 6.5.1.2.3             | The percentage allowance on the net cost of materials actually used in the completed Works is 10%, unless specifically tendered otherwise in the Pricing Schedules. The percentage allowance on the gross remuneration of the workmen and foremen actually engaged is 10%, unless specifically tendered otherwise in the Pricing Schedules.                                                                                                                                                                                                                                                      |
| 6.8.2<br>and<br>6.8.3 | <p>All rates provided in this tender shall be fixed and firm for a duration of six (6) months from the date of award of tender.</p> <p>On expiry of the six (6) months, the Contractor shall be requested a quotation for any works instruction. Any such quotation shall be based on the tender rates, together with a percentage mark-up on material and labour to allow for an increase in costs. This percentage mark-up would need to be substantiated with actual proven costs at that time. The Employer reserves the right to negotiate this percentage mark-up with the Contractor.</p> |
| 6.10.1.5              | The percentage advance on materials not yet built into the Permanent Works is nil.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 6.10.3                | The limit on retention is 5% of the Contract Price for the Works.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 8.6.1.1.2             | The value of Plant and material supplied by the Employer to be included in the insurance sum is R Nil                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 8.6.1.1.3             | The amount to cover professional fees for repairing damage and loss to be included in the insurance sum is 5% of the contract sum.                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 8.6.1.3               | The limit of indemnity for liability insurance is R10 million.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 10.3.2                | Amicable settlement in terms of Clause 10.4 shall be contemplated for all disputes prior to referring any dispute to adjudication or arbitration.                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 10.5.3                | The number of Adjudication Board Members to be appointed is one (1).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 10.7.1                | The determination of disputes which are unresolved in terms of Clause 10.4.2 shall be by arbitration.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

**C1.2        CONTRACT DATA****PART 2:        DATA PROVIDED BY THE CONTRACTOR**

The Tenderer shall provide the following information:

| Clause    | Data                                                                                                                                                                                                                                                                                          |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.1.1.9   | The name of the Contractor is:<br>.....                                                                                                                                                                                                                                                       |
| 1.2.1.2   | The address of the Contractor is:<br>Address (physical): .....<br>.....<br>Address (postal): .....<br>.....<br>Telephone: ..... Facsimile: .....<br>e-mail: .....                                                                                                                             |
| 1.1.1.14  | The time for achieving Practical Completion is as stipulated under Part C3.1, Clause 7.0.                                                                                                                                                                                                     |
| 6.5.1.2.3 | The percentage allowance to cover remuneration of workmen and the cost of materials, which allowances shall be held to cover all charges for the Contractor's profits, timekeeping, clerical work, insurance, establishment, superintendence, and the use of hand tools, etc. is:<br>..... %. |

**C1.3 PRO FORMA PERFORMANCE GUARANTEE**

For use with the General Conditions of Contract for Construction Works, Third Edition (2015)

**GUARANTOR DETAILS AND DEFINITIONS**

“Guarantor” means: .....

Physical Address: .....

“Employer” means: .....

“Contractor” means: .....

“Employer’s Agent” means: .....

“Works” means: .....

“Site” means: .....

“Contract” means: The Agreement made in terms of the Form of Offer and Acceptance and such amendments or additions to the Contract as may be agreed in writing between the parties.

“Contract Sum” means: The accepted amount inclusive of tax of R .....

Amount in words: .....

“Guaranteed Sum” means: The maximum aggregate amount of R .....

Amount in words: .....

Type of Performance Guarantee: ..... (*Insert Variable or Fixed*)

“Expiry Date” means: .....(*Give date*) or any other later date set by the Contractor and/or Employer provided such instruction is received prior to the Expiry Date as indicated here.

**CONTRACT DETAILS**

Employer’s Agent issues: Interim Payment Certificates, Final Payment Certificate and the Certificate of Completion of the Works as defined in the Contract.

**1. VARIABLE PERFORMANCE GUARANTEE**

1.1 Where a Variable Performance Guarantee has been selected, the Guarantor’s liability shall be limited during the following periods to diminishing amounts of the Guaranteed Sum as follows:

1.1.1 From and including the date of signing the Performance Guarantee up to and including the date of the interim payment certificate certifying, for the first time, more than 50% of the Contract Sum:

R ..... (Amount in words) .....

1.1.2 From the day following the date of the said interim payment certificate up to and including the Expiry date, or the date of issue by the Employer’s Agent of the Certificate of Completion of the Works, whichever occurs first:

R ..... (Amount in words) .....

- 1.2 The Employer's Agent and/or the Employer shall advise the Guarantor in writing of the date on which the interim payment certificate certifying, for the first time, more than 50% of the Contract Sum, has been issued and the date on which the Certificate of Completion of the Works has been issued.

**2. FIXED PERFORMANCE GUARANTEE**

- 2.1 Where a Fixed Performance Guarantee has been selected, the Guarantor's liability shall be limited to the amount of the Guaranteed Sum.
- 2.2 The Guarantor's period of liability shall be from and including the date on which the Performance Guarantee is signed, up to and including the Expiry Date, or the date of issue by the Employer's Agent of the Certificate of Completion of the Works, or the date of payment in full of the guaranteed Sum, whichever occurs first.
- 2.3 The Employer's Agent and/or the Employer shall advise the Guarantor in writing of the date on which the Certificate of Completion of the Works has been issued.

**3. CONDITIONS APPLICABLE TO VARIABLE AND FIXED PERFORMANCE GUARANTEES**

- 3.1 The Guarantor hereby acknowledges that:
- 3.1.1 Any reference in this Performance Guarantee to the Contract is made for the purpose of convenience and shall not be construed as any intention whatsoever to create an accessory obligation or any intention whatsoever to create a suretyship.
- 3.1.2 Its obligation under this Performance Guarantee is restricted to the payment of money.
- 3.2 Subject to the Guarantor's maximum liability referred to in 1.1 or 2.1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 3.2.1 to 3.2.3:
- 3.2.1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Employer's Agent in an Interim or Final Payment Certificate has not been made in terms of the Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 3.2.2;
- 3.2.2 A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) days has elapsed since the first written demand in terms of 3.2.1 and the sum certified has still not been paid;
- 3.2.3 A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum certified in 3.2.
- 3.3 Subject to the Guarantor's maximum liability referred to in 1.1 or 2.1, the Guarantor undertakes to pay to the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor's physical address calling up this Performance Guarantee, such demand stating that:
- 3.3.1 The Contract has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 3.3; or
- 3.3.2 A provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Performance Guarantee is called up in terms of 3.3; and
- 3.3.3 The aforesaid written demand is accompanied by a copy of the notice of termination and/or the provisional/final sequestration and/or the provisional liquidation court order.
- 3.4 It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 3.2 and 3.3 shall not exceed the Guarantor's maximum liability in terms of 1.1 or 2.1.
- 3.5 Where the Guarantor has made payment in terms of 3.3, the Employer shall upon the date of issue of the Final Payment Certificate submit an expense account to the Guarantor showing how all monies received in terms of this Performance Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of this Performance Guarantee shall bear interest at the prime

C1.3.3

overdraft rate of the Employer's bank compounded monthly and calculated from the date payment was made by the Guarantor to the Employer until the date of refund.

- 3.6 Payment by the Guarantor in terms of 3.2 or 3.3 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.
- 3.7 Payment by the Guarantor in terms of 3.3 will only be made against the return of the original Performance Guarantee by the Employer.
- 3.8 The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may consider fit and the Guarantor shall not have the right to claim his release from this Performance Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.
- 3.9 The Guarantor chooses the physical address as stated above for the service of all notices for all purposes in connection herewith.
- 3.10 This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 1.1.2 or 2.2, where after no claims will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired.
- 3.11 This Performance Guarantee, with the required demand notices in terms of 3.2 or 3.3, shall be regarded as a liquid document for the purposes of obtaining a court order.
- 3.12 Where the Performance Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's Courts Act No 32 of 1944, as amended, to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.

Signed at .....

Date .....

Guarantor's signatory (1) .....

Capacity .....

Guarantor's signatory (2) .....

Capacity .....

Witness signatory (1) .....

Witness signatory (2) .....

**C1.4 OCCUPATIONAL HEALTH AND SAFETY AGREEMENT**

**AGREEMENT MADE AND ENTERED INTO BETWEEN**

Kouga Municipality ..... (Employer)

and

..... (Contractor / Mandatory)

**IN TERMS OF SECTION 37(2) OF THE OCCUPATIONAL HEALTH AND SAFETY ACT, ACT No. 85 OF 1993 AS AMENDED.**

I, ..... representing

the Contractor / Mandatory as an employer in its own right, do hereby undertake to ensure, as far as is reasonably practicable, that all work will be performed, and all equipment, machinery or plant used in such a manner as to comply with the provisions of the Occupational Health and Safety Act (OHSA) and the Regulations promulgated there under.

I furthermore confirm that we are registered with the Compensation Commissioner and that all registration and assessment monies due to the Compensation Commissioner have been fully paid or that we are insured with an approved licensed compensation insurer.

COID ACT Registration Number: .....

OR Compensation Insurer: ..... Policy No.: .....

I undertake to appoint, where required, suitable competent persons, in writing, in terms of the requirements of OHSA and the Regulations and to charge him/them with the duty of ensuring that the provisions of OHSA and Regulations as well as the Employer's Special Conditions of Contract, Way Leave, Lock-Out and Work Permit Procedures are adhered to as far as reasonably practicable.

I further undertake to ensure that any subcontractors employed by me will enter into an occupational health and safety agreement separately, and that such subcontractors comply with the conditions set.

I hereby declare that I have read and understand the Occupational Health and Safety Conditions and undertake to comply therewith at all times.

I hereby also undertake to comply with the Occupational Health and Safety Specification and Plan.

Signed at ..... on the ..... day of ..... 20....

\_\_\_\_\_  
Witness

\_\_\_\_\_  
**Contractor / Mandatory**

Signed at ..... on the ..... day of ..... 20 ....

\_\_\_\_\_  
Witness

\_\_\_\_\_  
**Employer**

**C1.5 CERTIFICATE OF OWNERSHIP OF PLANT / MATERIALS**

**NAME OF CONTRACTOR:** .....

**ADDRESS:** .....

.....

.....

**NAME OF EMPLOYER:** .....

**ADDRESS:** .....

.....

.....

**CONTRACT DESCRIPTION:** .....

**CONTRACT NO:** .....

The undersigned Contractor (duly authorised hereto by virtue of a resolution of the Board of Directors/Members on ..... ) hereby certifies the following in accordance with the terms of Clause 6.10.1.5 of the General Conditions of Contract:

- (i) The plant and or materials listed hereunder, which are the Contractor's sole and exclusive property and to which no third party has any rights will upon payment be lawfully acquired by the Employer.
- (ii) The Employer is indemnified against any claim to or in respect of the plant and or materials by reason of the Contractor's sequestration or liquidation, or of any defect in the Contractor's title to the plant and or materials.
- (iii) Upon payment, effective delivery of the plant and or materials to the Employer will take place.
- (iv) Ownership of the plant and or materials will then vest in the Employer.
- (v) The plant and or materials are insured in accordance with the requirements of the Conditions of Contract.
- (vi) The Contractor shall be responsible for the care of the plant and or materials and clearly mark and identify same as being the property of the Employer.
- (vii) The plant and or materials are held by the Contractor in storage for and on behalf of the Employer at address: ..... (the premises).
- (viii) The premises is:
  - \*a) the property of the Contractor; or
  - \*b) the property of ..... of (address) .....

..... and are let to the Contractor by

..... of (address) .....

.....

\* (delete whichever is not applicable)

**SIGNATURE OF CONTRACTOR:** .....

**WITNESS:** .....

**DATE:** .....

### LIST OF PLANT / MATERIALS IN STORAGE OF CONTRACTOR

[illegible]

**SIGNATURE OF CONTRACTOR: ..... WITNESS: .....**

**DATE:** .....

## **PART C2 – PRICING DATA**

### **C2.1 PRICING INSTRUCTIONS**

- 1.0 The Bills of Quantities form part of and must be read in conjunction with the Specification. The Price Summary is to reflect the total price carried forward from the Bills of Quantities which need to be submitted with the tender documents.
- 2.0 The tender price must be based on the Bills of Quantities. The priced Bills of Quantities shall be submitted with the tender documents.
- 3.0 The completed Bills of Quantities shall detail the unit rate and total amount for material and labour respectively for each Item. Tenderers are advised to check their Item extensions and total additions since no claim for arithmetical errors will be considered.

“Material Rate” shall include the supply and delivery of all items of material and equipment (plant) to the site including all incidentals necessary for the completion of each Item, plus the profit thereon. Rates shall be exclusive of VAT.

“Labour Rate” shall include the cost of all labour, both skilled and unskilled, including supervision and profit required to complete the installation of all material covered by each Item. Rates shall be exclusive of VAT.

- 4.0 No alteration, erasure or addition is to be made in the text of the Bills of Quantities. Should any erasure or addition be made it will not be recognised but the original wording of the Bills of Quantities will be adhered to.
- 5.0 The quantities in the Bills are not to be considered as limiting or extending the amount of work to be done and materials to be supplied.
- 6.0 The Engineer will check the completed Bills of Quantities for arithmetical errors, omissions and discrepancies in accordance with the Standard Conditions of Tender.
- 7.0 Only major Items have been scheduled but the Tenderer shall nevertheless include for all things he considers necessary whether specified in detail or not to complete the work to specification and in a satisfactory and workmanlike manner, in order to provide a complete and working system. No extra price will be considered for the provision of materials which should have been allowed in order to provide the completed works unless detailed by the Contractor in the space provided elsewhere in the Specification.
- 8.0 Where alternative prices for equipment of different manufacture are offered, the lowest alternative price for equipment to specification must be included, against the relevant Item in the Bills of Quantities. The remaining alternative prices must be furnished separately.

Where such equipment is found not to comply with the Specification, the Contractor will be required to provide equipment which does comply, without adjustment to the price in the Bills of Quantities.

- 9.0 All items in the Bills of Quantities are deemed to include supply, delivery, installation and commissioning where appropriate, unless specifically stated otherwise. The unit rate must include for all things necessary, whether specified in detail or not, including all components, small installation materials, allowance for off-cuts, wastage etc., erection and fixings to complete the item to Specification in a satisfactory and workmanlike manner, in order to provide a complete and working system.

## C2.1.2

- 10.0 In certain instances prices are requested for Items which may be required during the progress of the work, but which are not included in the known quantities of material / labour required. These Items are indicated by the designation "R/O" (rate only) in the "Quantity" column and the price is to be noted in the "Rate" columns only and must not be carried forward.
- 11.0 Where no rates are filled-in by the Tenderer, or the rate is indicated as Nil, it will be assumed that there is no charge for the particular item and that the cost thereof has been included in the other rates provided.
- 12.0 The Bills of Quantities shall not be used for ordering purposes. The Contractor shall check and measure the lengths of cables / conductors on site before ordering any of these materials.
- 13.0 The quantities and rates included for Daywork shall form part of the tender price, but Tenderers shall note that this item must be regarded as provisional and will only be payable to the Contractor if and when a written instruction to this effect has been issued.
- 14.0 Expenditure in connection with Provisional and Prime Cost Sums and under the Contingency Allowance (if any) shall be solely at the discretion and on the written instruction of the Engineer.
- 15.0 An Excel spreadsheet version of the Bill can be made available to Tenderers on request. The spreadsheet may be used for calculation purposes only. The Engineer or the Employer does not take responsibility for any arithmetical or other errors that may occur due to the use of the spreadsheet. The original wording and quantities of the Bills included in the tender document will be adhered to and this Bill must be completed by hand in black ink and submitted with the tender.

## **C2.2 BILLS OF QUANTITIES**

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## BILL 1.0: SECTION A OF THE WORKS: MV/HV 66/22/11kV OVERHEAD LINE WORK

## BILL 1.1: PRELIMINARY AND GENERAL ITEMS

| ITEM       | DESCRIPTION                                                                                                                                                           | UNIT | QTY | MATERIAL |           |       |     | LABOUR |           |       |   |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|----------|-----------|-------|-----|--------|-----------|-------|---|
|            |                                                                                                                                                                       |      |     | RATE     |           | TOTAL |     | RATE   |           | TOTAL |   |
| (i)        | <b>Notes:</b>                                                                                                                                                         |      |     |          |           |       |     |        |           |       |   |
| (ii)       | All rates must be exclusive of VAT.                                                                                                                                   |      |     |          |           |       |     |        |           |       |   |
| (iii)      | <u>All quantities provided are provisional and for tender purposes only.</u>                                                                                          |      |     |          |           |       |     |        |           |       |   |
|            | The rates provided below will be used by the Contractor to provide a quotation for the works instruction as and when issued by the Employer.                          |      |     |          |           |       |     |        |           |       |   |
| <b>1.0</b> | <b><u>Daywork Rates</u></b>                                                                                                                                           |      |     |          |           |       |     |        |           |       |   |
| 1.1        | Labour: Normal Time:                                                                                                                                                  |      |     |          |           |       |     |        |           |       |   |
| 1.1.1      | Supervisor                                                                                                                                                            | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.1.2      | Skilled worker                                                                                                                                                        | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.1.3      | Semi-skilled worker                                                                                                                                                   | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.1.4      | Labourer                                                                                                                                                              | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.2        | Labour: Normal Overtime:                                                                                                                                              |      |     |          |           |       |     |        |           |       |   |
| 1.2.1      | Supervisor                                                                                                                                                            | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.2.2      | Skilled worker                                                                                                                                                        | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.2.3      | Semi-skilled worker                                                                                                                                                   | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.2.4      | Labourer                                                                                                                                                              | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.3        | Labour: Sundays and Public Holidays:                                                                                                                                  |      |     |          |           |       |     |        |           |       |   |
| 1.3.1      | Supervisor                                                                                                                                                            | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.3.2      | Skilled worker                                                                                                                                                        | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.3.3      | Semi-skilled worker                                                                                                                                                   | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.3.4      | Labourer                                                                                                                                                              | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.4        | Transport where travelling takes place outside a radius of fifty (50) km from the town of Humansdorp:                                                                 |      |     |          |           |       |     |        |           |       |   |
| 1.4.1      | Bakkie or Sedan                                                                                                                                                       | km   | 100 | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.4.2      | Trailer                                                                                                                                                               | km   | 100 | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.4.3      | 3 Ton Truck                                                                                                                                                           | km   | 100 | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.4.4      | 5 Ton Crane Truck                                                                                                                                                     | km   | 100 | R        | nil       | R     | nil | R      | -         | R     | - |
| <b>2.0</b> | <b><u>Fixed Charge Items</u></b>                                                                                                                                      |      |     |          |           |       |     |        |           |       |   |
| 2.1        | Provide liability and special risks indemnification and insurances for year.                                                                                          | No   | 1   | R        | -         | R     | -   | R      | -         | R     | - |
| 2.2        | For compliance with quality control/health and safety/environmental practises and procedures for year.                                                                | No   | 1   | R        | -         | R     | -   | R      | -         | R     | - |
| 2.3        | For compliance with Compensation Commissioner for workmen's compensation purposes for year.                                                                           | No   | 1   | R        | -         | R     | -   | R      | -         | R     | - |
| 2.4        | Percentage mark-up on the provisional sum shown for the remuneration of workmen and the cost of materials, etc. as per Clause 6.5.1.2.3 of the Contract Data, Part 1. | %    | 0%  | R        | 10 000,00 | R     | -   | R      | 10 000,00 | R     | - |
| 2.5        | Monthly standby fee.                                                                                                                                                  | Sum  | 1   | R        | -         | R     | -   | R      | -         | R     | - |
| 2.6        | Allowance to attend monthly maintenance meeting with the Municipality of min. 2 hours.                                                                                | Sum  | 1   | R        | -         | R     | -   | R      | -         | R     | - |
|            | <b>Totals to Price Summary Item 1.1</b>                                                                                                                               |      |     |          |           | R     | -   |        |           | R     | - |

## BILL 1.0: SECTION A OF THE WORKS: MV/HV 66/22/11kV OVERHEAD LINE WORK

## BILL 1.2: MV/HV 66/22/11kV OVERHEAD LINE WORK

| ITEM  | DESCRIPTION                                                                                                                                     | UNIT | QTY | MATERIAL |   |       |   | LABOUR |   |       |   |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|----------|---|-------|---|--------|---|-------|---|
|       |                                                                                                                                                 |      |     | RATE     |   | TOTAL |   | RATE   |   | TOTAL |   |
| (i)   | <b>Notes:</b>                                                                                                                                   |      |     |          |   |       |   |        |   |       |   |
| (ii)  | All rates must be exclusive of VAT.                                                                                                             |      |     |          |   |       |   |        |   |       |   |
| (iii) | All quantities provided are provisional and for tender purposes only.                                                                           |      |     |          |   |       |   |        |   |       |   |
| (iv)  | The rates provided below will be used by the Contractor to provide a quotation for the works instruction as and when issued by the Employer.    |      |     |          |   |       |   |        |   |       |   |
| (v)   | All items shall include for the supply and installation thereof, unless noted otherwise.                                                        |      |     |          |   |       |   |        |   |       |   |
|       | All rates shall include an amount for transportation where travelling takes place within a radius of fifty (50) km from the town of Humansdorp. |      |     |          |   |       |   |        |   |       |   |
| 1.0   | Excavating, backfilling and compaction of hole for a pole, single stay, flying stay or prop structure:                                          |      |     |          |   |       |   |        |   |       |   |
| 1.1   | <u>Earth</u>                                                                                                                                    |      |     |          |   |       |   |        |   |       |   |
| 1.1.1 | 1,5 metres deep                                                                                                                                 | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.1.2 | 1,8 metres deep                                                                                                                                 | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.1.3 | 2,0 metres deep                                                                                                                                 | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.1.4 | 2,2 metres deep                                                                                                                                 | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.2   | <u>Soft Rock</u>                                                                                                                                |      |     |          |   |       |   |        |   |       |   |
| 1.2.1 | 1,5 metres deep                                                                                                                                 | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.2.2 | 1,8 metres deep                                                                                                                                 | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.2.3 | 2,0 metres deep                                                                                                                                 | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.2.4 | 2,2 metres deep                                                                                                                                 | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.3   | <u>Hard Rock</u>                                                                                                                                |      |     |          |   |       |   |        |   |       |   |
| 1.3.1 | 1,5 metres deep                                                                                                                                 | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.3.2 | 1,8 metres deep                                                                                                                                 | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.3.3 | 2,0 metres deep                                                                                                                                 | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.3.4 | 2,2 metres deep                                                                                                                                 | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 2.0   | Wooden pole with top diameter as specified, with pole cap and drilled for hardware, but excluding hardware and pole hole measured elsewhere:    |      |     |          |   |       |   |        |   |       |   |
| 2.1   | 14m pole                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 2.2   | 13m pole                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 2.3   | 12m pole                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 2.4   | 11m pole                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.0   | Single 22kV stay complete with insulator, but excluding stay hole and guard measured elsewhere.                                                 | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 4.0   | 22kV Flying stay complete with insulators, but excluding pole and pole and stay holes measured elsewhere.                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 5.0   | Prop structure complete excluding hole measured elsewhere.                                                                                      | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 6.0   | Stay guard fixed to stay wire.                                                                                                                  | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 7.0   | Hard drawn copper conductors strung between poles measured elsewhere:                                                                           |      |     |          |   |       |   |        |   |       |   |
| 7.1   | 16mm <sup>2</sup> (3/2,65)                                                                                                                      | m    | 1   | R        | - | R     | - | R      | - | R     | - |
| 7.2   | 25mm <sup>2</sup> (7/3,12)                                                                                                                      | m    | 1   | R        | - | R     | - | R      | - | R     | - |
| 7.3   | 40mm <sup>2</sup> (7/2,65)                                                                                                                      | m    | 1   | R        | - | R     | - | R      | - | R     | - |

## BILL 1.0: SECTION A OF THE WORKS: MV/HV 66/22/11kV OVERHEAD LINE WORK

## BILL 1.2: MV/HV 66/22/11kV OVERHEAD LINE WORK

| ITEM | DESCRIPTION                                                                                                                    | UNIT | QTY | MATERIAL |       | LABOUR |       |
|------|--------------------------------------------------------------------------------------------------------------------------------|------|-----|----------|-------|--------|-------|
|      |                                                                                                                                |      |     | RATE     | TOTAL | RATE   | TOTAL |
| 7.4  | 63mm <sup>2</sup> (7/3,35)                                                                                                     | m    | 1   | R        | -     | R      | -     |
| 7.5  | 80mm <sup>2</sup> (7/3,75)                                                                                                     | m    | 1   | R        | -     | R      | -     |
| 8.0  | All Aluminium Alloy Conductors (AAAC), <u>greased</u> , strung between poles measured elsewhere:                               |      |     |          |       |        |       |
| 8.1  | 35 - (7/2,77)                                                                                                                  | m    | 1   | R        | -     | R      | -     |
| 8.2  | Pine - (7/3,61)                                                                                                                | m    | 1   | R        | -     | R      | -     |
| 8.3  | Oak - (7/4,65)                                                                                                                 | m    | 1   | R        | -     | R      | -     |
| 8.4  | Mulberry - (19/3,18)                                                                                                           | m    | 1   | R        | -     | R      | -     |
| 9.0  | <u>One (1)</u> Midspan through-joint in AAAC conductor strung between poles:                                                   |      |     |          |       |        |       |
| 9.1  | 35 - (7/2,77)                                                                                                                  | No   | 1   | R        | -     | R      | -     |
| 9.2  | Pine - (7/3,61)                                                                                                                | No   | 1   | R        | -     | R      | -     |
| 9.3  | Oak - (7/4,65)                                                                                                                 | No   | 1   | R        | -     | R      | -     |
| 9.4  | Mulberry - (19/3,18)                                                                                                           | No   | 1   | R        | -     | R      | -     |
| 10.0 | Aluminium Conductor Steel Reinforced (ACSR), <u>greased</u> , strung between poles measured elsewhere:                         |      |     |          |       |        |       |
| 10.1 | Fox - (6/1/2,79)                                                                                                               | m    | 1   | R        | -     | R      | -     |
| 10.2 | Hare - (6/1/4,72)                                                                                                              | m    | 1   | R        | -     | R      | -     |
| 10.3 | Chicadee - (18/1/3,77)                                                                                                         | m    | 1   | R        | -     | R      | -     |
| 11.0 | <u>One (1)</u> Midspan through-joint in ACSR conductor strung between poles:                                                   |      |     |          |       |        |       |
| 11.1 | Fox - (6/1/2,79)                                                                                                               | No   | 1   | R        | -     | R      | -     |
| 11.2 | Hare - (6/1/4,72)                                                                                                              | No   | 1   | R        | -     | R      | -     |
| 11.3 | Chicadee - (18/1/3,77)                                                                                                         | No   | 1   | R        | -     | R      | -     |
| 12.0 | <u>Set of three (3)</u> strain insulators complete with thimble clevis, pins, etc.                                             |      |     |          |       |        |       |
| 12.1 | 66kV.                                                                                                                          | No   | 1   | R        | -     | R      | -     |
| 12.2 | 22kV.                                                                                                                          | No   | 1   | R        | -     | R      | -     |
| 12.3 | 11kV.                                                                                                                          | No   | 1   | R        | -     | R      | -     |
| 13.0 | <u>Set of three (3)</u> suspension insulators complete with bolts, nuts, washers, etc.                                         |      |     |          |       |        |       |
| 13.1 | 66kV.                                                                                                                          | No   | 1   | R        | -     | R      | -     |
| 13.2 | 22kV.                                                                                                                          | No   | 1   | R        | -     | R      | -     |
| 14.0 | <u>Set of three (3)</u> line post insulators complete with bolts, nuts, washers, etc.                                          |      |     |          |       |        |       |
| 14.1 | 22kV.                                                                                                                          | No   | 1   | R        | -     | R      | -     |
| 14.2 | 11kV.                                                                                                                          | No   | 1   | R        | -     | R      | -     |
| 15.0 | Tri-switch / Disconnects, complete with mounted bracket as specified:                                                          |      |     |          |       |        |       |
| 15.1 | 22kV                                                                                                                           | No   | 1   | R        | -     | R      | -     |
| 15.2 | 11kV                                                                                                                           | No   | 1   | R        | -     | R      | -     |
| 16.0 | Hot dip galvanised steel strain A-frame (MV line) complete with fixing bolts etc. but excluding insulators measured elsewhere. | No   | 1   | R        | -     | R      | -     |
| 17.0 | Hot dip galvanised steel cross-arm drilled for hardware for T-off and right angle turns for MV lines.                          | No   | 1   | R        | -     | R      | -     |

## BILL 1.0: SECTION A OF THE WORKS: MV/HV 66/22/11kV OVERHEAD LINE WORK

## BILL 1.2: MV/HV 66/22/11kV OVERHEAD LINE WORK

| ITEM                        | DESCRIPTION                                                                                                                                                                                             | UNIT | QTY | MATERIAL |       | LABOUR |       |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|----------|-------|--------|-------|
|                             |                                                                                                                                                                                                         |      |     | RATE     | TOTAL | RATE   | TOTAL |
| 18.0                        | Hot dip galvanised steel intermediate A-frame complete with fixing bolts, etc, but excluding insulators measured elsewhere.                                                                             | No   | 1   | R        | -     | R      | -     |
| 19.0                        | Main earth for lightning arrestors on MV line. This item shall include the 63mm <sup>2</sup> Cu black PVC insulated down conductor, a 4,5m long kicker pipe, 4,5m long earth spike and all connections. | No   | 1   | R        | -     | R      | -     |
| 20.0                        | <u>Terminate</u> AAAC, greased, conductors at strain insulators using "preformed" dead ends:                                                                                                            |      |     |          |       |        |       |
| 20.1                        | 35 - (7/2,77)                                                                                                                                                                                           | No   | 1   | R        | -     | R      | -     |
| 20.2                        | Pine - (7/3,61)                                                                                                                                                                                         | No   | 1   | R        | -     | R      | -     |
| 20.3                        | Oak - (7/4,65)                                                                                                                                                                                          | No   | 1   | R        | -     | R      | -     |
| 20.4                        | Mulberry - (19/3,18)                                                                                                                                                                                    | No   | 1   | R        | -     | R      | -     |
| 21.0                        | <u>Terminate</u> ACSR, greased, conductors at strain insulators using "preformed" dead ends:                                                                                                            |      |     |          |       |        |       |
| 21.1                        | Fox - (6/1/2,79)                                                                                                                                                                                        | No   | 1   | R        | -     | R      | -     |
| 21.2                        | Hare - (6/1/4,72)                                                                                                                                                                                       | No   | 1   | R        | -     | R      | -     |
| 21.3                        | Chicadee - (18/1/3,77)                                                                                                                                                                                  | No   | 1   | R        | -     | R      | -     |
| 22.0                        | <u>Bind-in</u> AAAC, greased, conductors at line post insulators using "preformed" twin-ties:                                                                                                           |      |     |          |       |        |       |
| 22.1                        | 35 - (7/2,77)                                                                                                                                                                                           | No   | 1   | R        | -     | R      | -     |
| 22.2                        | Pine - (7/3,61)                                                                                                                                                                                         | No   | 1   | R        | -     | R      | -     |
| 22.3                        | Oak - (7/4,65)                                                                                                                                                                                          | No   | 1   | R        | -     | R      | -     |
| 22.4                        | Mulberry - (19/3,18)                                                                                                                                                                                    | No   | 1   | R        | -     | R      | -     |
| 23.0                        | <u>Bind-in</u> ACSR, greased, conductors at line post insulators using "preformed" twin-ties:                                                                                                           |      |     |          |       |        |       |
| 23.1                        | Fox - (6/1/2,79)                                                                                                                                                                                        | No   | 1   | R        | -     | R      | -     |
| 23.2                        | Hare - (6/1/4,72)                                                                                                                                                                                       | No   | 1   | R        | -     | R      | -     |
| 23.3                        | Chicadee - (18/1/3,77)                                                                                                                                                                                  | No   | 1   | R        | -     | R      | -     |
| 24.0                        | 300mm Long x 100mm Wide pole label, 80mm high black lettering on background colour as follows, fixed to pole with four (4) clout nails each:                                                            |      |     |          |       |        |       |
| 24.1                        | 11kV - White                                                                                                                                                                                            | No   | 1   | R        | -     | R      | -     |
| 24.2                        | 22kV - Green                                                                                                                                                                                            | No   | 1   | R        | -     | R      | -     |
| 24.3                        | 66kV - Yellow                                                                                                                                                                                           | No   | 1   | R        | -     | R      | -     |
| 25.0                        | Programmable and wireless overhead line fault Indicator with LED indicator lamps. The wireless sensor must be able to monitor load current, fault events, outage history and event history:             |      |     |          |       |        |       |
| 25.1                        | 11kV                                                                                                                                                                                                    | No   | 1   | R        | -     | R      | -     |
| 25.2                        | 22kV                                                                                                                                                                                                    | No   | 1   | R        | -     | R      | -     |
| 25.3                        | 66kV                                                                                                                                                                                                    | No   | 1   | R        | -     | R      | -     |
| Totals to Price Summary 1.2 |                                                                                                                                                                                                         |      |     |          | R -   |        | R -   |

**BILL 1.0: SECTION A OF THE WORKS: MV/HV 66/22/11kV OVERHEAD LINE WORK****BILL 1.0: PRICE SUMMARY**

| ITEM | DESCRIPTION                                                                                                                      | MATERIAL |   | LABOUR |   |
|------|----------------------------------------------------------------------------------------------------------------------------------|----------|---|--------|---|
| 1.0  | BILL 1.1: PRELIMINARY AND GENERAL ITEMS                                                                                          | R        | - | R      | - |
| 2.0  | BILL 1.2: MV/HV 66/22/11kV OVERHEAD LINE WORK                                                                                    | R        | - | R      | - |
| 3.0  | SUB TOTALS                                                                                                                       | R        | - | R      | - |
| 4.0  | NET TENDER AMOUNT, EXCLUDING VAT                                                                                                 |          |   | R      | - |
| 5.0  | 15% VAT                                                                                                                          |          |   | R      | - |
| 6.0  | GROSS TENDER AMOUNT, TO BE CARRIED FORWARD TO FORM OF OFFER AND ACCEPTANCE IN PART C1.1 HEREOF, ITEM 1.0: SECTION A OF THE WORKS |          |   | R      | - |

## BILL 2.0: SECTION B OF THE WORKS: MV UNDERGROUND CABLE WORK

## BILL 2.1: PRELIMINARY AND GENERAL ITEMS

| ITEM       | DESCRIPTION                                                                                                                                                           | UNIT | QTY | MATERIAL |           |       |     | LABOUR |           |       |   |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|----------|-----------|-------|-----|--------|-----------|-------|---|
|            |                                                                                                                                                                       |      |     | RATE     |           | TOTAL |     | RATE   |           | TOTAL |   |
| (i)        | <b>Notes:</b>                                                                                                                                                         |      |     |          |           |       |     |        |           |       |   |
| (ii)       | All rates must be exclusive of VAT.                                                                                                                                   |      |     |          |           |       |     |        |           |       |   |
| (iii)      | <u>All quantities provided are provisional and for tender purposes only.</u>                                                                                          |      |     |          |           |       |     |        |           |       |   |
|            | The rates provided below will be used by the Contractor to provide a quotation for the works instruction as and when issued by the Employer.                          |      |     |          |           |       |     |        |           |       |   |
| <b>1.0</b> | <b><u>Daywork Rates</u></b>                                                                                                                                           |      |     |          |           |       |     |        |           |       |   |
| 1.1        | Labour: Normal Time:                                                                                                                                                  |      |     |          |           |       |     |        |           |       |   |
| 1.1.1      | Supervisor                                                                                                                                                            | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.1.2      | Skilled worker                                                                                                                                                        | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.1.3      | Semi-skilled worker                                                                                                                                                   | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.1.4      | Labourer                                                                                                                                                              | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.2        | Labour: Normal Overtime:                                                                                                                                              |      |     |          |           |       |     |        |           |       |   |
| 1.2.1      | Supervisor                                                                                                                                                            | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.2.2      | Skilled worker                                                                                                                                                        | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.2.3      | Semi-skilled worker                                                                                                                                                   | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.2.4      | Labourer                                                                                                                                                              | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.3        | Labour: Sundays and Public Holidays:                                                                                                                                  |      |     |          |           |       |     |        |           |       |   |
| 1.3.1      | Supervisor                                                                                                                                                            | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.3.2      | Skilled worker                                                                                                                                                        | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.3.3      | Semi-skilled worker                                                                                                                                                   | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.3.4      | Labourer                                                                                                                                                              | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.4        | Transport where travelling takes place outside a radius of fifty (50) km from the town of Humansdorp:                                                                 |      |     |          |           |       |     |        |           |       |   |
| 1.4.1      | Bakkie or Sedan                                                                                                                                                       | km   | 100 | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.4.2      | Trailer                                                                                                                                                               | km   | 100 | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.4.3      | 3 Ton Truck                                                                                                                                                           | km   | 100 | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.4.4      | 5 Ton Crane Truck                                                                                                                                                     | km   | 100 | R        | nil       | R     | nil | R      | -         | R     | - |
| <b>2.0</b> | <b><u>Fixed Charge Items</u></b>                                                                                                                                      |      |     |          |           |       |     |        |           |       |   |
| 2.1        | Provide liability and special risks indemnification and insurances for year.                                                                                          | No   | 1   | R        | -         | R     | -   | R      | -         | R     | - |
| 2.2        | For compliance with quality control/health and safety/environmental practises and procedures for year.                                                                | No   | 1   | R        | -         | R     | -   | R      | -         | R     | - |
| 2.3        | For compliance with Compensation Commissioner for workmen's compensation purposes for year.                                                                           | No   | 1   | R        | -         | R     | -   | R      | -         | R     | - |
| 2.4        | Percentage mark-up on the provisional sum shown for the remuneration of workmen and the cost of materials, etc. as per Clause 6.5.1.2.3 of the Contract Data, Part 1. | %    | 0%  | R        | 10 000,00 | R     | -   | R      | 10 000,00 | R     | - |
| 2.5        | Monthly standby fee.                                                                                                                                                  | Sum  | 1   | R        | -         | R     | -   | R      | -         | R     | - |
| 2.6        | Allowance to attend monthly maintenance meeting with the Municipality of min. 2 hours.                                                                                | Sum  | 1   | R        | -         | R     | -   | R      | -         | R     | - |
|            | <b>Totals to Price Summary Item 2.1</b>                                                                                                                               |      |     |          |           | R     | -   |        |           | R     | - |

## BILL 2.0: SECTION B OF THE WORKS: MV UNDERGROUND CABLE WORK

## BILL 2.2: MV UNDERGROUND CABLE WORK

| ITEM  | DESCRIPTION                                                                                                                                     | UNIT           | QTY | MATERIAL |   |       |   | LABOUR |   |       |   |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----|----------|---|-------|---|--------|---|-------|---|
|       |                                                                                                                                                 |                |     | RATE     |   | TOTAL |   | RATE   |   | TOTAL |   |
| (i)   | <b>Notes:</b>                                                                                                                                   |                |     |          |   |       |   |        |   |       |   |
| (ii)  | All rates must be exclusive of VAT.                                                                                                             |                |     |          |   |       |   |        |   |       |   |
| (iii) | All quantities provided are provisional and for tender purposes only.                                                                           |                |     |          |   |       |   |        |   |       |   |
| (iv)  | The rates provided below will be used by the Contractor to provide a quotation for the works instruction as and when issued by the Employer.    |                |     |          |   |       |   |        |   |       |   |
| (v)   | All items shall include for the supply and installation thereof, unless noted otherwise.                                                        |                |     |          |   |       |   |        |   |       |   |
|       | All rates shall include an amount for transportation where travelling takes place within a radius of fifty (50) km from the town of Humansdorp. |                |     |          |   |       |   |        |   |       |   |
| 1.0   | Trenching by <u>hand</u> for cable, 400mm wide x 1000mm deep, including backfilling and compaction, removal of rubble and re-instatement:       |                |     |          |   |       |   |        |   |       |   |
| 1.1   | Earth.                                                                                                                                          | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.2   | Soft Rock.                                                                                                                                      | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.3   | Hard Rock.                                                                                                                                      | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 2.0   | Trenching by <u>machine</u> for cable, 400mm wide x 1000mm deep, including backfilling and compaction and re-instatement:                       |                |     |          |   |       |   |        |   |       |   |
| 2.1   | Earth.                                                                                                                                          | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 2.2   | Soft Rock.                                                                                                                                      | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 2.3   | Hard Rock.                                                                                                                                      | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.0   | Breaking up of surface by hand, 400mm wide, for trenching including backfilling, compaction and re-instatement of the same surface:             |                |     |          |   |       |   |        |   |       |   |
| 3.1   | Tar                                                                                                                                             | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.2   | Concrete                                                                                                                                        | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.3   | Paving                                                                                                                                          | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.4   | Grass                                                                                                                                           | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 4.0   | 1m High orange and yellow barricade safety netting on trench route.                                                                             | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 5.0   | Locate existing sleeve ends.                                                                                                                    | No             | 1   | R        | - | R     | - | R      | - | R     | - |
| 6.0   | PVC sleeves laid in trench measured elsewhere:                                                                                                  |                |     |          |   |       |   |        |   |       |   |
| 6.1   | 160mm Ø.                                                                                                                                        | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 6.2   | 110mm Ø.                                                                                                                                        | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 7.0   | Seal PVC sleeve end after installation of cable:                                                                                                |                |     |          |   |       |   |        |   |       |   |
| 7.1   | 160mm Ø.                                                                                                                                        | No             | 1   | R        | - | R     | - | R      | - | R     | - |
| 7.2   | 110mm Ø.                                                                                                                                        | No             | 1   | R        | - | R     | - | R      | - | R     | - |
| 8.0   | Disposal of surplus or insuitable material from trenches including haulage up to 30km from site.                                                | m <sup>2</sup> | 1   | R        | - | R     | - | R      | - | R     | - |
| 9.0   | Selected soft sand bedding in trench (sand to be recovered from trenches).                                                                      | m <sup>3</sup> | 1   |          |   | R     | - | R      | - | R     | - |

## BILL 2.0: SECTION B OF THE WORKS: MV UNDERGROUND CABLE WORK

## BILL 2.2: MV UNDERGROUND CABLE WORK

| ITEM  | DESCRIPTION                                                                                                                   | UNIT | QTY | MATERIAL |   |       |   | LABOUR |   |       |   |
|-------|-------------------------------------------------------------------------------------------------------------------------------|------|-----|----------|---|-------|---|--------|---|-------|---|
|       |                                                                                                                               |      |     | RATE     |   | TOTAL |   | RATE   |   | TOTAL |   |
| 10.0  | Imported sand bedding in trench. Price to include collection from municipal stores delivery to site, loading and off loading. | m³   | 1   | R        | - | R     | - | R      | - | R     | - |
| 11.0  | <u>12,7kV / 22kV, Table 20 PILCA, 3 core underground cable:</u>                                                               |      |     |          |   |       |   |        |   |       |   |
| 11.1  | 35mm² Cu                                                                                                                      | m    | 1   | R        | - | R     | - | R      | - | R     | - |
| 11.2  | 50mm² Cu                                                                                                                      | m    | 1   | R        | - | R     | - | R      | - | R     | - |
| 11.3  | 70mm² Cu                                                                                                                      | m    | 1   | R        | - | R     | - | R      | - | R     | - |
| 11.4  | 95mm² Cu                                                                                                                      | m    | 1   | R        | - | R     | - | R      | - | R     | - |
| 11.5  | 120mm² Al                                                                                                                     | m    | 1   | R        | - | R     | - | R      | - | R     | - |
| 11.6  | 240mm² Al                                                                                                                     | m    | 1   | R        | - | R     | - | R      | - | R     | - |
| 11.7  | 300mm² Al                                                                                                                     | m    | 1   | R        | - | R     | - | R      | - | R     | - |
| 12.0  | <u>6,35kV / 11kV, Table 18 PILCA, 3 core underground cable:</u>                                                               |      |     |          |   |       |   |        |   |       |   |
| 12.1  | 25mm² Cu                                                                                                                      | m    | 1   | R        | - | R     | - | R      | - | R     | - |
| 12.2  | 35mm² Cu                                                                                                                      | m    | 1   | R        | - | R     | - | R      | - | R     | - |
| 12.3  | 50mm² Cu                                                                                                                      | m    | 1   | R        | - | R     | - | R      | - | R     | - |
| 12.4  | 70mm² Cu                                                                                                                      | m    | 1   | R        | - | R     | - | R      | - | R     | - |
| 12.5  | 95mm² Cu                                                                                                                      | m    | 1   | R        | - | R     | - | R      | - | R     | - |
| 12.6  | 120mm² Cu                                                                                                                     | m    | 1   | R        | - | R     | - | R      | - | R     | - |
| 12.7  | 150mm² Cu                                                                                                                     | m    | 1   | R        | - | R     | - | R      | - | R     | - |
| 12.8  | 185mm² Cu                                                                                                                     | m    | 1   | R        | - | R     | - | R      | - | R     | - |
| 12.9  | 50mm² Al                                                                                                                      | m    | 1   | R        | - | R     | - | R      | - | R     | - |
| 12.10 | 70mm² Al                                                                                                                      | m    | 1   | R        | - | R     | - | R      | - | R     | - |
| 12.11 | 95mm² Al                                                                                                                      | m    | 1   | R        | - | R     | - | R      | - | R     | - |
| 12.12 | 120mm² Al                                                                                                                     | m    | 1   | R        | - | R     | - | R      | - | R     | - |
| 12.13 | 185mm² Al                                                                                                                     | m    | 1   | R        | - | R     | - | R      | - | R     | - |
| 12.14 | 240mm² Al                                                                                                                     | m    | 1   | R        | - | R     | - | R      | - | R     | - |
| 12.15 | 300mm² Al                                                                                                                     | m    | 1   | R        | - | R     | - | R      | - | R     | - |
| 13.0  | Concrete slabs laid above 11/22kV                                                                                             | m    | 1   | R        | - | R     | - | R      | - | R     | - |
| 14.0  | PVC Marker strip over 11/22kV cable.                                                                                          | m    | 1   | R        | - | R     | - | R      | - | R     | - |
| 15.0  | <u>Through-joint in 12,7kV / 22kV, Table 20 PILCA, 3 core underground cable:</u>                                              |      |     |          |   |       |   |        |   |       |   |
| 15.1  | 35mm² Cu                                                                                                                      | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 15.2  | 50mm² Cu                                                                                                                      | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 15.3  | 70mm² Cu                                                                                                                      | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 15.4  | 95mm² Cu                                                                                                                      | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 15.5  | 120mm² Al                                                                                                                     | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 15.6  | 240mm² Al                                                                                                                     | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 15.7  | 300mm² Al                                                                                                                     | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 16.0  | <u>Through-joint in 6,35kV / 11kV, Table 18 PILCA, 3 core underground cable:</u>                                              |      |     |          |   |       |   |        |   |       |   |
| 16.1  | 25mm² Cu                                                                                                                      | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 16.2  | 35mm² Cu                                                                                                                      | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 16.3  | 50mm² Cu                                                                                                                      | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 16.4  | 70mm² Cu                                                                                                                      | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 16.5  | 95mm² Cu                                                                                                                      | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 16.6  | 120mm² Cu                                                                                                                     | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 16.7  | 150mm² Cu                                                                                                                     | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 16.8  | 185mm² Cu                                                                                                                     | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 16.9  | 50mm² Al                                                                                                                      | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 16.10 | 70mm² Al                                                                                                                      | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 16.11 | 95mm² Al                                                                                                                      | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 16.12 | 120mm² Al                                                                                                                     | No   | 1   | R        | - | R     | - | R      | - | R     | - |

## BILL 2.0: SECTION B OF THE WORKS: MV UNDERGROUND CABLE WORK

## BILL 2.2: MV UNDERGROUND CABLE WORK

| ITEM  | DESCRIPTION                                                                                                                                      | UNIT | QTY | MATERIAL |       | LABOUR |       |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|----------|-------|--------|-------|
|       |                                                                                                                                                  |      |     | RATE     | TOTAL | RATE   | TOTAL |
| 16.13 | 185mm <sup>2</sup> Al                                                                                                                            | No   | 1   | R        | -     | R      | -     |
| 16.14 | 240mm <sup>2</sup> Al                                                                                                                            | No   | 1   | R        | -     | R      | -     |
| 16.15 | 300mm <sup>2</sup> Al                                                                                                                            | No   | 1   | R        | -     | R      | -     |
| 17.0  | <u>Indoor termination</u> of 12,7kV / 22kV, Table 20 PILCA, 3 core underground cable to miniature substation / transformer / ring main unit:     |      |     |          |       |        |       |
| 17.1  | 35mm <sup>2</sup> Cu                                                                                                                             | No   | 1   | R        | -     | R      | -     |
| 17.2  | 50mm <sup>2</sup> Cu                                                                                                                             | No   | 1   | R        | -     | R      | -     |
| 17.3  | 70mm <sup>2</sup> Cu                                                                                                                             | No   | 1   | R        | -     | R      | -     |
| 17.4  | 95mm <sup>2</sup> Cu                                                                                                                             | No   | 1   | R        | -     | R      | -     |
| 17.5  | 120mm <sup>2</sup> Al                                                                                                                            | No   | 1   | R        | -     | R      | -     |
| 17.6  | 240mm <sup>2</sup> Al                                                                                                                            | No   | 1   | R        | -     | R      | -     |
| 17.7  | 300mm <sup>2</sup> Al                                                                                                                            | No   | 1   | R        | -     | R      | -     |
| 18.0  | <u>Indoor termination</u> of 6,35kV / 11kV, Table 18 PILCA, 3 core underground cable to miniature substation / transformer / ring main unit:     |      |     |          |       |        |       |
| 18.1  | 25mm <sup>2</sup> Cu                                                                                                                             | No   | 1   | R        | -     | R      | -     |
| 18.2  | 35mm <sup>2</sup> Cu                                                                                                                             | No   | 1   | R        | -     | R      | -     |
| 18.3  | 50mm <sup>2</sup> Cu                                                                                                                             | No   | 1   | R        | -     | R      | -     |
| 18.4  | 70mm <sup>2</sup> Cu                                                                                                                             | No   | 1   | R        | -     | R      | -     |
| 18.5  | 95mm <sup>2</sup> Cu                                                                                                                             | No   | 1   | R        | -     | R      | -     |
| 18.6  | 120mm <sup>2</sup> Cu                                                                                                                            | No   | 1   | R        | -     | R      | -     |
| 18.7  | 150mm <sup>2</sup> Cu                                                                                                                            | No   | 1   | R        | -     | R      | -     |
| 18.8  | 185mm <sup>2</sup> Cu                                                                                                                            | No   | 1   | R        | -     | R      | -     |
| 18.9  | 50mm <sup>2</sup> Al                                                                                                                             | No   | 1   | R        | -     | R      | -     |
| 18.10 | 70mm <sup>2</sup> Al                                                                                                                             | No   | 1   | R        | -     | R      | -     |
| 18.11 | 95mm <sup>2</sup> Al                                                                                                                             | No   | 1   | R        | -     | R      | -     |
| 18.12 | 120mm <sup>2</sup> Al                                                                                                                            | No   | 1   | R        | -     | R      | -     |
| 18.13 | 185mm <sup>2</sup> Al                                                                                                                            | No   | 1   | R        | -     | R      | -     |
| 18.14 | 240mm <sup>2</sup> Al                                                                                                                            | No   | 1   | R        | -     | R      | -     |
| 18.15 | 300mm <sup>2</sup> Al                                                                                                                            | No   | 1   | R        | -     | R      | -     |
| 19.0  | Galvanised steel kicker pipe, 4,5m long, for cable secured to pole, measured elsewhere, including wooden cleat at termination:                   |      |     |          |       |        |       |
| 19.1  | 100mm Ø.                                                                                                                                         | No   | 1   | R        | -     | R      | -     |
| 19.2  | 80mm Ø.                                                                                                                                          | No   | 1   | R        | -     | R      | -     |
| 19.3  | 60mm Ø.                                                                                                                                          | No   | 1   | R        | -     | R      | -     |
| 19.4  | 32mm Ø.                                                                                                                                          | No   | 1   | R        | -     | R      | -     |
| 20.0  | <u>Outdoor pole mounting termination</u> and connection of 12,7kV / 22kV, Table 20 PILCA, 3 core underground cable with Raytech heat shrink kit: |      |     |          |       |        |       |
| 20.1  | 35mm <sup>2</sup> Cu                                                                                                                             | No   | 1   | R        | -     | R      | -     |
| 20.2  | 50mm <sup>2</sup> Cu                                                                                                                             | No   | 1   | R        | -     | R      | -     |
| 20.3  | 70mm <sup>2</sup> Cu                                                                                                                             | No   | 1   | R        | -     | R      | -     |
| 20.4  | 95mm <sup>2</sup> Cu                                                                                                                             | No   | 1   | R        | -     | R      | -     |
| 20.5  | 120mm <sup>2</sup> Al                                                                                                                            | No   | 1   | R        | -     | R      | -     |
| 20.6  | 240mm <sup>2</sup> Al                                                                                                                            | No   | 1   | R        | -     | R      | -     |
| 20.7  | 300mm <sup>2</sup> Al                                                                                                                            | No   | 1   | R        | -     | R      | -     |
| 21.0  | <u>Outdoor pole mounting termination</u> and connection of 6,35kV / 11kV, Table 18 PILCA, 3 core underground cable with Raytech heat shrink kit: |      |     |          |       |        |       |
| 21.1  | 25mm <sup>2</sup> Cu                                                                                                                             | No   | 1   | R        | -     | R      | -     |

**BILL 2.0: SECTION B OF THE WORKS: MV UNDERGROUND CABLE WORK****BILL 2.2: MV UNDERGROUND CABLE WORK**

| ITEM                               | DESCRIPTION                                                                                               | UNIT | QTY | MATERIAL |       | LABOUR |       |
|------------------------------------|-----------------------------------------------------------------------------------------------------------|------|-----|----------|-------|--------|-------|
|                                    |                                                                                                           |      |     | RATE     | TOTAL | RATE   | TOTAL |
| 21.2                               | 35mm <sup>2</sup> Cu                                                                                      | No   | 1   | R        | -     | R      | -     |
| 21.3                               | 50mm <sup>2</sup> Cu                                                                                      | No   | 1   | R        | -     | R      | -     |
| 21.4                               | 70mm <sup>2</sup> Cu                                                                                      | No   | 1   | R        | -     | R      | -     |
| 21.5                               | 95mm <sup>2</sup> Cu                                                                                      | No   | 1   | R        | -     | R      | -     |
| 21.6                               | 120mm <sup>2</sup> Cu                                                                                     | No   | 1   | R        | -     | R      | -     |
| 21.7                               | 150mm <sup>2</sup> Cu                                                                                     | No   | 1   | R        | -     | R      | -     |
| 21.8                               | 185mm <sup>2</sup> Cu                                                                                     | No   | 1   | R        | -     | R      | -     |
| 21.9                               | 50mm <sup>2</sup> Al                                                                                      | No   | 1   | R        | -     | R      | -     |
| 21.10                              | 70mm <sup>2</sup> Al                                                                                      | No   | 1   | R        | -     | R      | -     |
| 21.11                              | 95mm <sup>2</sup> Al                                                                                      | No   | 1   | R        | -     | R      | -     |
| 21.12                              | 120mm <sup>2</sup> Al                                                                                     | No   | 1   | R        | -     | R      | -     |
| 21.13                              | 185mm <sup>2</sup> Al                                                                                     | No   | 1   | R        | -     | R      | -     |
| 21.14                              | 240mm <sup>2</sup> Al                                                                                     | No   | 1   | R        | -     | R      | -     |
| 21.15                              | 300mm <sup>2</sup> Al                                                                                     | No   | 1   | R        | -     | R      | -     |
| 22.0                               | Pressure test MV cable and provide Kouga Municipality Electro Technical Department with test certificate. | No   | 1   | R        | -     | R      | -     |
| 23.0                               | Locate fault on MV cable and indicate position on site.                                                   | No   | 1   | R        | -     | R      | -     |
| <b>Totals to Price Summary 2.2</b> |                                                                                                           |      |     |          | R -   |        | R -   |

**BILL 2.0: SECTION B OF THE WORKS: MV UNDERGROUND CABLE WORK**

**BILL 2.0: PRICE SUMMARY**

| ITEM | DESCRIPTION                                                                                                                      | MATERIAL |   | LABOUR |   |
|------|----------------------------------------------------------------------------------------------------------------------------------|----------|---|--------|---|
| 1.0  | BILL 2.1: PRELIMINARY AND GENERAL ITEMS                                                                                          | R        | - | R      | - |
| 2.0  | BILL 2.2: MV UNDERGROUND CABLE WORK                                                                                              | R        | - | R      | - |
| 3.0  | SUB TOTALS                                                                                                                       | R        | - | R      | - |
| 4.0  | NET TENDER AMOUNT, EXCLUDING VAT                                                                                                 |          |   | R      | - |
| 5.0  | 15% VAT                                                                                                                          |          |   | R      | - |
| 6.0  | GROSS TENDER AMOUNT, TO BE CARRIED FORWARD TO FORM OF OFFER AND ACCEPTANCE IN PART C1.1 HEREOF, ITEM 2.0: SECTION B OF THE WORKS |          |   | R      | - |
|      |                                                                                                                                  |          |   |        |   |

**BILL 3.0: SECTION C OF THE WORKS: MV SUBSTATION WORK****BILL 3.1: PRELIMINARY AND GENERAL ITEMS**

| ITEM       | DESCRIPTION                                                                                                                                                                                                                                                                                         | UNIT | QTY | MATERIAL |           |       |     | LABOUR |           |       |   |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|----------|-----------|-------|-----|--------|-----------|-------|---|
|            |                                                                                                                                                                                                                                                                                                     |      |     | RATE     |           | TOTAL |     | RATE   |           | TOTAL |   |
|            | <b>Notes:</b><br>(i) All rates must be exclusive of VAT.<br>(ii) <u>All quantities provided are provisional and for tender purposes only.</u><br>(iii) The rates provided below will be used by the Contractor to provide a quotation for the works instruction as and when issued by the Employer. |      |     |          |           |       |     |        |           |       |   |
| <b>1.0</b> | <b><u>Daywork Rates</u></b>                                                                                                                                                                                                                                                                         |      |     |          |           |       |     |        |           |       |   |
| 1.1        | Labour: Normal Time:                                                                                                                                                                                                                                                                                |      |     |          |           |       |     |        |           |       |   |
| 1.1.1      | Supervisor                                                                                                                                                                                                                                                                                          | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.1.2      | Skilled worker                                                                                                                                                                                                                                                                                      | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.1.3      | Semi-skilled worker                                                                                                                                                                                                                                                                                 | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.1.4      | Labourer                                                                                                                                                                                                                                                                                            | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.2        | Labour: Normal Overtime:                                                                                                                                                                                                                                                                            |      |     |          |           |       |     |        |           |       |   |
| 1.2.1      | Supervisor                                                                                                                                                                                                                                                                                          | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.2.2      | Skilled worker                                                                                                                                                                                                                                                                                      | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.2.3      | Semi-skilled worker                                                                                                                                                                                                                                                                                 | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.2.4      | Labourer                                                                                                                                                                                                                                                                                            | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.3        | Labour: Sundays and Public Holidays:                                                                                                                                                                                                                                                                |      |     |          |           |       |     |        |           |       |   |
| 1.3.1      | Supervisor                                                                                                                                                                                                                                                                                          | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.3.2      | Skilled worker                                                                                                                                                                                                                                                                                      | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.3.3      | Semi-skilled worker                                                                                                                                                                                                                                                                                 | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.3.4      | Labourer                                                                                                                                                                                                                                                                                            | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.4        | Transport where travelling takes place outside a radius of fifty (50) km from the town of Humansdorp:                                                                                                                                                                                               |      |     |          |           |       |     |        |           |       |   |
| 1.4.1      | Bakkie or Sedan                                                                                                                                                                                                                                                                                     | km   | 100 | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.4.2      | Trailer                                                                                                                                                                                                                                                                                             | km   | 100 | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.4.3      | 3 Ton Truck                                                                                                                                                                                                                                                                                         | km   | 100 | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.4.4      | 5 Ton Crane Truck                                                                                                                                                                                                                                                                                   | km   | 100 | R        | nil       | R     | nil | R      | -         | R     | - |
| <b>2.0</b> | <b><u>Fixed Charge Items</u></b>                                                                                                                                                                                                                                                                    |      |     |          |           |       |     |        |           |       |   |
| 2.1        | Provide liability and special risks indemnification and insurances for year.                                                                                                                                                                                                                        | No   | 1   | R        | -         | R     | -   | R      | -         | R     | - |
| 2.2        | For compliance with quality control/health and safety/environmental practises and procedures for year.                                                                                                                                                                                              | No   | 1   | R        | -         | R     | -   | R      | -         | R     | - |
| 2.3        | For compliance with Compensation Commissioner for workmen's compensation purposes for year.                                                                                                                                                                                                         | No   | 1   | R        | -         | R     | -   | R      | -         | R     | - |
| 2.4        | Percentage mark-up on the provisional sum shown for the remuneration of workmen and the cost of materials, etc. as per Clause 6.5.1.2.3 of the Contract Data, Part 1.                                                                                                                               | %    | 0%  | R        | 10 000,00 | R     | -   | R      | 10 000,00 | R     | - |
| 2.5        | Monthly standby fee.                                                                                                                                                                                                                                                                                | Sum  | 1   | R        | -         | R     | -   | R      | -         | R     | - |
| 2.6        | Allowance to attend monthly maintenance meeting with the Municipality of min. 2 hours.                                                                                                                                                                                                              | Sum  | 1   | R        | -         | R     | -   | R      | -         | R     | - |
|            | <b>Totals to Price Summary Item 3.1</b>                                                                                                                                                                                                                                                             |      |     |          |           | R     | -   |        |           | R     | - |

**BILL 3.0: SECTION C OF THE WORKS: MV SUBSTATION WORK****BILL 3.2: MV SUBSTATION WORK**

| ITEM       | DESCRIPTION                                                                                                                                                    | UNIT | QTY | MATERIAL |   |       |   | LABOUR |   |       |   |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|----------|---|-------|---|--------|---|-------|---|
|            |                                                                                                                                                                |      |     | RATE     |   | TOTAL |   | RATE   |   | TOTAL |   |
| (i)        | <b>Notes:</b>                                                                                                                                                  |      |     |          |   |       |   |        |   |       |   |
| (ii)       | All rates must be exclusive of VAT.                                                                                                                            |      |     |          |   |       |   |        |   |       |   |
| (iii)      | All quantities provided are provisional and for tender purposes only.                                                                                          |      |     |          |   |       |   |        |   |       |   |
| (iv)       | The rates provided below will be used by the Contractor to provide a quotation for the works instruction as and when issued by the Employer.                   |      |     |          |   |       |   |        |   |       |   |
| (v)        | All items shall include for the supply and installation thereof, unless noted otherwise.                                                                       |      |     |          |   |       |   |        |   |       |   |
|            | All rates shall include an amount for transportation where travelling takes place within a radius of fifty (50) km from the town of Humansdorp.                |      |     |          |   |       |   |        |   |       |   |
| <b>1.0</b> | <b><u>Equipment</u></b>                                                                                                                                        |      |     |          |   |       |   |        |   |       |   |
| 1.1        | MV SF6 Ring Main Unit (RMU), excluding cable terminations, mounted on an outdoor concrete plinth measured elsewhere:                                           |      |     |          |   |       |   |        |   |       |   |
| 1.1.1      | 11kV RMU.                                                                                                                                                      | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.1.2      | 22kV RMU.                                                                                                                                                      | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.1.3      | Testing of RMU single relay.                                                                                                                                   | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.2        | Bulk MV Metering Unit on an outdoor concrete plinth measured elsewhere:                                                                                        |      |     |          |   |       |   |        |   |       |   |
| 1.2.1      | 11kV RMU.                                                                                                                                                      | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.2.2      | 22kV RMU.                                                                                                                                                      | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.2.3      | Testing of Metering Unit.                                                                                                                                      | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.3        | Concrete plinth for 11kV or 22kV RMU or Bulk Metering Unit.                                                                                                    | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.4        | Main earth for RMU or Bulk Metering Unit, including 70mm <sup>2</sup> Cu bare conductor, earth spikes and clamps, etc.                                         | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.5        | <u>11/0.4kV</u> Miniature Substation on plinth measured elsewhere. Item to include transport from municipal stores to site, loading and off-loading:           |      |     |          |   |       |   |        |   |       |   |
| 1.5.1      | 315kVA.                                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.5.2      | 400kVA.                                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.5.3      | 500kVA.                                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.5.4      | 630kVA.                                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.5.5      | 800kVA.                                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.5.6      | 1000kVA.                                                                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.5.7      | Testing of Mini Substation.                                                                                                                                    | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.6        | Concrete plinth for one (1) Miniature Substation with a rating of 200 to 1000kVA.                                                                              | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.7        | Brick-built plinth for Miniature Substation with a rating of 315 to 1000kVA.                                                                                   | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.8        | <u>22/11kV</u> Substation transformer on concrete plinth measured elsewhere. Item to include transport from municipal stores to site, loading and off-loading: |      |     |          |   |       |   |        |   |       |   |
| 1.8.1      | 3150kVA.                                                                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |

**BILL 3.0: SECTION C OF THE WORKS: MV SUBSTATION WORK****BILL 3.2: MV SUBSTATION WORK**

| ITEM   | DESCRIPTION                                                                                                                                                                      | UNIT | QTY | MATERIAL |       | LABOUR |       |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|----------|-------|--------|-------|
|        |                                                                                                                                                                                  |      |     | RATE     | TOTAL | RATE   | TOTAL |
| 1.8.2  | 5000kVA.                                                                                                                                                                         | No   | 1   | R        | -     | R      | -     |
| 1.8.3  | 7500kVA.                                                                                                                                                                         | No   | 1   | R        | -     | R      | -     |
| 1.8.4  | 10000kVA.                                                                                                                                                                        | No   | 1   | R        | -     | R      | -     |
| 1.8.5  | Testing of Transformer.                                                                                                                                                          | No   | 1   | R        | -     | R      | -     |
| 1.9    | Concrete plinth for 22/11kV Substation transformer:                                                                                                                              |      |     |          |       |        |       |
| 1.9.1  | 3150kVA.                                                                                                                                                                         | No   | 1   | R        | -     | R      | -     |
| 1.9.2  | 5000kVA.                                                                                                                                                                         | No   | 1   | R        | -     | R      | -     |
| 1.9.3  | 7500kVA.                                                                                                                                                                         | No   | 1   | R        | -     | R      | -     |
| 1.9.4  | 10000kVA.                                                                                                                                                                        | No   | 1   | R        | -     | R      | -     |
| 1.10   | <u>11/0,4kV</u> Pole mounted transformer, excl. pole mounting steel cradle measured elsewhere. Item to include transport from municipal stores to site, loading and off-loading: |      |     |          |       |        |       |
| 1.10.1 | 200kVA.                                                                                                                                                                          | No   | 1   | R        | -     | R      | -     |
| 1.10.2 | 315kVA.                                                                                                                                                                          | No   | 1   | R        | -     | R      | -     |
| 1.10.3 | 500kVA.                                                                                                                                                                          | No   | 1   | R        | -     | R      | -     |
| 1.10.4 | Testing of Transformer.                                                                                                                                                          | No   | 1   | R        | -     | R      | -     |
| 1.11   | <u>22/0,4kV</u> Pole mounted transformer, excl. steel work measured elsewhere. Item to include transport from municipal stores to site, loading and off-loading:                 |      |     |          |       |        |       |
| 1.11.1 | 200kVA.                                                                                                                                                                          | No   | 1   | R        | -     | R      | -     |
| 1.11.2 | 315kVA.                                                                                                                                                                          | No   | 1   | R        | -     | R      | -     |
| 1.11.3 | 500kVA.                                                                                                                                                                          | No   | 1   | R        | -     | R      | -     |
| 1.11.4 | Testing of Transformer.                                                                                                                                                          | No   | 1   | R        | -     | R      | -     |
| 1.12   | Hot dip galvanised steel work to support 11/0,4 or 22/0,4kV pole mounted transformer, complete with bolts, nuts, washers, etc.:                                                  |      |     |          |       |        |       |
| 1.12.1 | 200kVA.                                                                                                                                                                          | No   | 1   | R        | -     | R      | -     |
| 1.12.2 | 315kVA.                                                                                                                                                                          | No   | 1   | R        | -     | R      | -     |
| 1.12.3 | 500kVA.                                                                                                                                                                          | No   | 1   | R        | -     | R      | -     |
| 1.13   | Main earth for miniature substation or transformer including 70mm <sup>2</sup> Cu bare conductor, earth spikes and clamps.                                                       | No   | 1   | R        | -     | R      | -     |
| 1.14   | Concrete marker to mark position of earth spike.                                                                                                                                 | No   | 1   | R        | -     | R      | -     |
| 1.15   | <u>Set of three (3)</u> MV pole mounted expulsion fuses, complete with hot dip galvanised steel mounting bracket:                                                                |      |     |          |       |        |       |
| 1.15.1 | 11kV.                                                                                                                                                                            | No   | 1   | R        | -     | R      | -     |
| 1.15.2 | 22kV.                                                                                                                                                                            | No   | 1   | R        | -     | R      | -     |
| 1.16   | <u>Set of three (3)</u> MV pole mounted lightning arrestors:                                                                                                                     |      |     |          |       |        |       |
| 1.16.1 | 11kV.                                                                                                                                                                            | No   | 1   | R        | -     | R      | -     |
| 1.16.2 | 22kV.                                                                                                                                                                            | No   | 1   | R        | -     | R      | -     |
| 1.17   | Set of three (3) 25mm <sup>2</sup> Cu XLPE insulated connections between overhead line expulsion fuses, transformer and lightning arrestors:                                     |      |     |          |       |        |       |
| 1.17.1 | 11kV.                                                                                                                                                                            | No   | 1   | R        | -     | R      | -     |

**BILL 3.0: SECTION C OF THE WORKS: MV SUBSTATION WORK****BILL 3.2: MV SUBSTATION WORK**

| ITEM   | DESCRIPTION                                                                                              | UNIT | QTY | MATERIAL |       | LABOUR |       |
|--------|----------------------------------------------------------------------------------------------------------|------|-----|----------|-------|--------|-------|
|        |                                                                                                          |      |     | RATE     | TOTAL | RATE   | TOTAL |
| 1.17.2 | 22kV.                                                                                                    | No   | 1   | R        | -     | R      | -     |
| 1.18   | 70mm <sup>2</sup> Cu bare conductors, clamps, etc. to earth equipment at Pole Mounted Transformer (PMT): |      |     |          |       |        |       |
| 1.18.1 | 200kVA.                                                                                                  | No   | 1   | R        | -     | R      | -     |
| 1.18.2 | 315kVA.                                                                                                  | No   | 1   | R        | -     | R      | -     |
| 1.18.3 | 500kVA.                                                                                                  | No   | 1   | R        | -     | R      | -     |
| 1.19   | Barbed wire anti-climb device and danger notices on PMT structure:                                       |      |     |          |       |        |       |
| 1.19.1 | 200kVA.                                                                                                  | No   | 1   | R        | -     | R      | -     |
| 1.19.2 | 315kVA.                                                                                                  | No   | 1   | R        | -     | R      | -     |
| 1.19.3 | 500kVA.                                                                                                  | No   | 1   | R        | -     | R      | -     |
| 1.20   | Pole mounted Auto-Recloser, complete with hot dip galvanised mounting bracket:                           |      |     |          |       |        |       |
| 1.20.1 | 11kV.                                                                                                    | No   | 1   | R        | -     | R      | -     |
| 1.20.2 | 22kV.                                                                                                    | No   | 1   | R        | -     | R      | -     |
| 1.20.3 | Testing of Auto-Recloser.                                                                                | No   | 1   | R        | -     | R      | -     |
| 1.21   | Pole mounted Sectionalizer, complete with hot dip galvanised mounting bracket:                           |      |     |          |       |        |       |
| 1.21.1 | 11kV.                                                                                                    | No   | 1   | R        | -     | R      | -     |
| 1.21.2 | 22kV.                                                                                                    | No   | 1   | R        | -     | R      | -     |
| 1.21.3 | Testing of Sectionalizer.                                                                                | No   | 1   | R        | -     | R      | -     |
| 1.22   | Earthing of Auto-Recloser or Sectionalizer.                                                              | No   | 1   | R        | -     | R      | -     |
| 1.23   | Indoor switchgear panel, complete as specified.                                                          |      |     |          |       |        |       |
| 1.23.1 | 11kV.                                                                                                    | No   | 1   | R        | -     | R      | -     |
| 1.23.2 | 22kV.                                                                                                    | No   | 1   | R        | -     | R      | -     |
| 1.23.3 | Testing of Switchgear Primary and Secondary Equipment.                                                   | No   | 1   | R        | -     | R      | -     |
| 1.24   | Earthing of 11kV indoor switchgear panel.                                                                | No   | 1   | R        | -     | R      | -     |
| 1.25   | 110V DC Battery Tripping Unit (BTU), complete with Lead Acid batteries, 20Amp.                           |      |     |          |       |        |       |
| 1.25.1 | 80Ah.                                                                                                    | No   | 1   | R        | -     | R      | -     |
| 1.25.2 | 120Ah.                                                                                                   | No   | 1   | R        | -     | R      | -     |
| 1.25.3 | 160Ah.                                                                                                   | No   | 1   | R        | -     | R      | -     |
| 1.25.4 | 200Ah.                                                                                                   | No   | 1   | R        | -     | R      | -     |
| 1.26   | Replace <u>lead acid battery pack only</u> of existing 110V DC Battery Tripping Unit (BTU):              |      |     |          |       |        |       |
| 1.26.1 | 80Ah.                                                                                                    | No   | 1   | R        | -     | R      | -     |
| 1.26.2 | 120Ah.                                                                                                   | No   | 1   | R        | -     | R      | -     |
| 1.26.3 | 160Ah.                                                                                                   | No   | 1   | R        | -     | R      | -     |
| 1.26.4 | 200Ah.                                                                                                   | No   | 1   | R        | -     | R      | -     |
| 1.27   | Protection Relay, complete as specified.                                                                 | No   | 1   | R        | -     | R      | -     |
| 1.28   | Bulk kWh meter, complete as specified.                                                                   | No   | 1   | R        | -     | R      | -     |

## BILL 3.0: SECTION C OF THE WORKS: MV SUBSTATION WORK

## BILL 3.2: MV SUBSTATION WORK

| ITEM   | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | UNIT | QTY | MATERIAL |       | LABOUR |       |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|----------|-------|--------|-------|
|        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |     | RATE     | TOTAL | RATE   | TOTAL |
| 1.29   | Programme, test en commission Bulk kWh meter and issue Test Certificate on completion.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | No   | 1   | R        | -     | R      | -     |
| 1.30   | Set of three (3) 10 to 60VA, <u>Class 0.5</u> , current transformers (CT's):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |     |          |       |        |       |
| 1.30.1 | 100/50/25/5A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | No   | 1   | R        | -     | R      | -     |
| 1.30.2 | 200/100/50/25A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | No   | 1   | R        | -     | R      | -     |
| 1.30.3 | 600/300/1A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | No   | 1   | R        | -     | R      | -     |
| 1.30.4 | 750/400/1A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | No   | 1   | R        | -     | R      | -     |
| 1.30.5 | 900/450/1A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | No   | 1   | R        | -     | R      | -     |
| 1.30.6 | 1200/600/300/1A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | No   | 1   | R        | -     | R      | -     |
| 1.30.7 | 1500/1000/500/1A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | No   | 1   | R        | -     | R      | -     |
| 2.0    | <b><u>Servicing of Miniature Substations (MS) and Ring Main Units (RMU)</u></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |     |          |       |        |       |
| 2.1    | <u>Minor service</u> to Miniature Substation (RMU measured elsewhere):<br>Clean and vermin removal internally, sand down and repair rust spots and remove loose paint on outsides, rust treatment and respray with primer. Respray all components avacado green on outside (Plascon C12 or similar approved) with the base black (outside), thickness 125 µm. Lubricate all hinges and swivel points, replace weather strips on all doors and replace warning signs and/or designated label where shabby or missing.                                                                                                                                                                                                                                                                                                | No   | 1   | R        | -     | R      | -     |
| 2.1.1  | Testing of MS Transformer.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | No   | 1   | R        | -     | R      | -     |
| 2.2    | <u>Complete refurbishing</u> of Miniature Substation (RMU measured elsewhere):<br>Strip miniature substation down to components. Shot blast all metal components where possible except where galvanised. Replace weather strips on all doors. Replace faulty components where necessary (components supplied by Municipality). Manufacture new Low Voltage (LV) panel from 3CR12 steel. Transfer all equipment from old to new panel. De-tank the core and winding assembly. Clean and dry in oven. Re-tank the core and winding assembly, fill transformer with re-generated oil. Re-assemble miniature substation. Rust treatment and respray with primer. Respray all components avacado green on outside (Plascon C12 or similar approved) and white inside. Provide detailed test certificate for transformer. | No   | 1   | R        | -     | R      | -     |
| 2.3    | <u>Minor service</u> to Ring Main Unit:<br>Clean and respray all external metalwork as per item 1.4 below. Clean bushing and all inside components thoroughly. Cleaning of contacts, insulation test and fill with virgin oil. If SF6 RMU, check pressure and fill if required.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | No   | 1   | R        | -     | R      | -     |

**BILL 3.0: SECTION C OF THE WORKS: MV SUBSTATION WORK****BILL 3.2: MV SUBSTATION WORK**

| ITEM       | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | UNIT | QTY | MATERIAL |   |       |   | LABOUR |   |       |   |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|----------|---|-------|---|--------|---|-------|---|
|            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |     | RATE     |   | TOTAL |   | RATE   |   | TOTAL |   |
| 2.4        | <u>Complete refurbishing</u> of Ring Main Unit:<br>Strip RMU down to components, shot blast all metal components where possible except where galvanised. Replace faulty components where necessary (components supplied by Municipality). Replace weather strips on all doors, rust treatment and respray with primer. Respray all external metalwork to original colour. Thickness 125 µm. Fill RMU with new oil. If SF6 RMU, check pressure and fill if required. Provide detailed test | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| <b>3.0</b> | <b><u>Servicing of 11/22kV Transformers</u></b>                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |     |          |   |       |   |        |   |       |   |
| 3.1        | Respray only, sand down and repair rust spots and remove loose paint. Clean bushings and other components thoroughly, rust treatment and respray transformer with primer. Respray transformer Avacado Green (Plascon C12 or similar approved). Replace faulty components (components supplied by Municipality):                                                                                                                                                                           |      |     |          |   |       |   |        |   |       |   |
| 3.1.1      | 16kVA Single Phase                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.1.2      | 16kVA Three Phase                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.1.3      | 25kVA Three Phase                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.1.4      | 50kVA Three Phase                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.1.5      | 75kVA Three Phase                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.1.6      | 100kVA Three Phase                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.1.7      | 160kVA Three Phase                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.1.8      | 200kVA Three Phase                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.1.9      | 250kVA Three Phase                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.1.10     | 315kVA Three Phase                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.1.11     | 400kVA Three Phase                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.1.12     | 500kVA Three Phase                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.1.13     | 630kVA Three Phase                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.1.14     | 1000kVA Three Phase                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.2        | Testing of transformers:                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |     |          |   |       |   |        |   |       |   |
| 3.2.1      | Insulation test of medium voltage and low voltage windings. Test of Transformer Oil (include sample collection):                                                                                                                                                                                                                                                                                                                                                                          | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.2.2      | Dielectric test                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.2.3      | Moisture (ppm) test                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.2.4      | Acidity (TAN) test                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.2.5      | Gas test                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.2.6      | Polychlorinated Biphenyls (PCB) test (Labels must be provided)                                                                                                                                                                                                                                                                                                                                                                                                                            | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.2.7      | Electric test                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.2.8      | Insulation test                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.2.9      | Impedance test                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.3        | Replace transformer oil:                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |     |          |   |       |   |        |   |       |   |
| 3.3.1      | Virgin oil (20 litre drum)                                                                                                                                                                                                                                                                                                                                                                                                                                                                | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.3.2      | Regenerated oil (20 litre drum)                                                                                                                                                                                                                                                                                                                                                                                                                                                           | No   | 1   | R        | - | R     | - | R      | - | R     | - |

**BILL 3.0: SECTION C OF THE WORKS: MV SUBSTATION WORK****BILL 3.2: MV SUBSTATION WORK**

| ITEM   | DESCRIPTION                                                                                                                                                                                                                                                                                                              | UNIT | QTY | MATERIAL |   |       |   | LABOUR |   |       |   |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|----------|---|-------|---|--------|---|-------|---|
|        |                                                                                                                                                                                                                                                                                                                          |      |     | RATE     |   | TOTAL |   | RATE   |   | TOTAL |   |
| 3.4    | Maintenance and Repairs of Transformer Windings.<br>De-tank the core and winding assembly, clean and dry the core and winding assembly in oven.<br>Re-tank the core and winding assembly, fill transformer with regenerated transformer oil.<br>Replace all gaskets on transformer<br>Replace broken insulators and test |      |     |          |   |       |   |        |   |       |   |
| 3.4.1  | 16kVA Single Phase                                                                                                                                                                                                                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.4.2  | 16kVA Three Phase                                                                                                                                                                                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.4.3  | 25kVA Three Phase                                                                                                                                                                                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.4.4  | 50kVA Three Phase                                                                                                                                                                                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.4.5  | 75kVA Three Phase                                                                                                                                                                                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.4.6  | 100kVA Three Phase                                                                                                                                                                                                                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.4.7  | 160kVA Three Phase                                                                                                                                                                                                                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.4.8  | 200kVA Three Phase                                                                                                                                                                                                                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.4.9  | 250kVA Three Phase                                                                                                                                                                                                                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.4.10 | 315kVA Three Phase                                                                                                                                                                                                                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.4.11 | 400kVA Three Phase                                                                                                                                                                                                                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.4.12 | 500kVA Three Phase                                                                                                                                                                                                                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.4.13 | 630kVA Three Phase                                                                                                                                                                                                                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.4.14 | 1000kVA Three Phase                                                                                                                                                                                                                                                                                                      | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.5    | Rewinding of Medium Voltage Coil/s:                                                                                                                                                                                                                                                                                      |      |     |          |   |       |   |        |   |       |   |
| 3.5.1  | 16kVA Single Phase                                                                                                                                                                                                                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.5.2  | 16kVA Three Phase                                                                                                                                                                                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.5.3  | 25kVA Three Phase                                                                                                                                                                                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.5.4  | 50kVA Three Phase                                                                                                                                                                                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.5.5  | 75kVA Three Phase                                                                                                                                                                                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.5.6  | 100kVA Three Phase                                                                                                                                                                                                                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.5.7  | 160kVA Three Phase                                                                                                                                                                                                                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.5.8  | 200kVA Three Phase                                                                                                                                                                                                                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.5.9  | 250kVA Three Phase                                                                                                                                                                                                                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.5.10 | 315kVA Three Phase                                                                                                                                                                                                                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.5.11 | 400kVA Three Phase                                                                                                                                                                                                                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.5.12 | 500kVA Three Phase                                                                                                                                                                                                                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.5.13 | 630kVA Three Phase                                                                                                                                                                                                                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.5.14 | 1000kVA Three Phase                                                                                                                                                                                                                                                                                                      | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.6    | Replace <u>set of three (3)</u> plinth mounted transformer bushings (material to be provided under this contract):                                                                                                                                                                                                       |      |     |          |   |       |   |        |   |       |   |
| 3.6.1  | 66kV                                                                                                                                                                                                                                                                                                                     | Set  | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.6.2  | 22kV                                                                                                                                                                                                                                                                                                                     | Set  | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.6.3  | 11kV                                                                                                                                                                                                                                                                                                                     | Set  | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.6.4  | 0,4kV                                                                                                                                                                                                                                                                                                                    | Set  | 1   | R        | - | R     | - | R      | - | R     | - |

## BILL 3.0: SECTION C OF THE WORKS: MV SUBSTATION WORK

## BILL 3.2: MV SUBSTATION WORK

| ITEM | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | UNIT | QTY | MATERIAL |   |       |   | LABOUR |   |       |   |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|----------|---|-------|---|--------|---|-------|---|
|      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |     | RATE     |   | TOTAL |   | RATE   |   | TOTAL |   |
| 4.0  | <p><b><u>Refurbishment of indoor 11/22kV oil filled/vacuum SF6 switchgear</u></b> (excl. protection relay)</p> <p>Strip down to components. Repair paintwork where necessary to same specification as for Miniature Substations. Clean bushings and all inside components thoroughly, clean contacts, check condition of oil/vacuum/SF6 and replace/fill-up where necessary. Replace faulty components (components supplied by Municipality). Test operation/circuits/CT's/VT, etc. Provide detailed report and test</p>                                              | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 5.0  | <p><b><u>Refurbishment of pole mounted 11/22kV oil filled / vacuum / SF6 switchgear</u></b></p> <p>This includes for auto reclosers,on-load switches, etc.</p> <p>Strip down to components. Repair paintwork where necessary to same specification as for Miniature Substations. Clean bushings and all inside components thoroughly. Clean contacts, check condition of oil/vacuum/SF6 and replace/fill-up where necessary. Replace faulty components (components supplied by Municipality). Test operation/circuits/CT's, etc. Provide detailed report and test</p> | No   | 1   | R        | - | R     | - | R      | - | R     | - |
|      | <b>Totals to Price Summary 3.2</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |      |     |          |   | R     | - |        |   | R     | - |

**BILL 3.0: SECTION C OF THE WORKS: MV SUBSTATION WORK**

**BILL 3.0: PRICE SUMMARY**

| ITEM | DESCRIPTION                                                                                                                      | MATERIAL |   | LABOUR |   |
|------|----------------------------------------------------------------------------------------------------------------------------------|----------|---|--------|---|
| 1.0  | BILL 3.1: PRELIMINARY AND GENERAL ITEMS                                                                                          | R        | - | R      | - |
| 2.0  | BILL 3.2: MV SUBSTATION WORK                                                                                                     | R        | - | R      | - |
| 3.0  | SUB TOTALS                                                                                                                       | R        | - | R      | - |
| 4.0  | NET TENDER AMOUNT, EXCLUDING VAT                                                                                                 |          |   | R      | - |
| 5.0  | 15% VAT                                                                                                                          |          |   | R      | - |
| 6.0  | GROSS TENDER AMOUNT, TO BE CARRIED FORWARD TO FORM OF OFFER AND ACCEPTANCE IN PART C1.1 HEREOF, ITEM 3.0: SECTION C OF THE WORKS |          |   | R      | - |
|      |                                                                                                                                  |          |   |        |   |

## BILL 4.0: SECTION D OF THE WORKS: SUBSTATION PROTECTION AND TESTING

## BILL 4.1: PRELIMINARY AND GENERAL ITEMS

| ITEM       | DESCRIPTION                                                                                                                                                           | UNIT | QTY | MATERIAL |           |       |     | LABOUR |           |       |   |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|----------|-----------|-------|-----|--------|-----------|-------|---|
|            |                                                                                                                                                                       |      |     | RATE     |           | TOTAL |     | RATE   |           | TOTAL |   |
| (i)        | <b>Notes:</b>                                                                                                                                                         |      |     |          |           |       |     |        |           |       |   |
| (ii)       | All rates must be exclusive of VAT.                                                                                                                                   |      |     |          |           |       |     |        |           |       |   |
| (iii)      | <u>All quantities provided are provisional and for tender purposes only.</u>                                                                                          |      |     |          |           |       |     |        |           |       |   |
|            | The rates provided below will be used by the Contractor to provide a quotation for the works instruction as and when issued by the Employer.                          |      |     |          |           |       |     |        |           |       |   |
| <b>1.0</b> | <b><u>Daywork Rates</u></b>                                                                                                                                           |      |     |          |           |       |     |        |           |       |   |
| 1.1        | Labour: Normal Time:                                                                                                                                                  |      |     |          |           |       |     |        |           |       |   |
| 1.1.1      | Supervisor                                                                                                                                                            | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.1.2      | Skilled worker                                                                                                                                                        | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.1.3      | Semi-skilled worker                                                                                                                                                   | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.1.4      | Labourer                                                                                                                                                              | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.2        | Labour: Normal Overtime:                                                                                                                                              |      |     |          |           |       |     |        |           |       |   |
| 1.2.1      | Supervisor                                                                                                                                                            | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.2.2      | Skilled worker                                                                                                                                                        | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.2.3      | Semi-skilled worker                                                                                                                                                   | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.2.4      | Labourer                                                                                                                                                              | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.3        | Labour: Sundays and Public Holidays:                                                                                                                                  |      |     |          |           |       |     |        |           |       |   |
| 1.3.1      | Supervisor                                                                                                                                                            | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.3.2      | Skilled worker                                                                                                                                                        | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.3.3      | Semi-skilled worker                                                                                                                                                   | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.3.4      | Labourer                                                                                                                                                              | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.4        | Transport where travelling takes place outside a radius of fifty (50) km from the town of Humansdorp:                                                                 |      |     |          |           |       |     |        |           |       |   |
| 1.4.1      | Bakkie or Sedan                                                                                                                                                       | km   | 100 | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.4.2      | Trailer                                                                                                                                                               | km   | 100 | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.4.3      | 3 Ton Truck                                                                                                                                                           | km   | 100 | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.4.4      | 5 Ton Crane Truck                                                                                                                                                     | km   | 100 | R        | nil       | R     | nil | R      | -         | R     | - |
| <b>2.0</b> | <b><u>Fixed Charge Items</u></b>                                                                                                                                      |      |     |          |           |       |     |        |           |       |   |
| 2.1        | Provide liability and special risks indemnification and insurances for year.                                                                                          | No   | 1   | R        | -         | R     | -   | R      | -         | R     | - |
| 2.2        | For compliance with quality control/health and safety/environmental practises and procedures for year.                                                                | No   | 1   | R        | -         | R     | -   | R      | -         | R     | - |
| 2.3        | For compliance with Compensation Commissioner for workmen's compensation purposes for year.                                                                           | No   | 1   | R        | -         | R     | -   | R      | -         | R     | - |
| 2.4        | Percentage mark-up on the provisional sum shown for the remuneration of workmen and the cost of materials, etc. as per Clause 6.5.1.2.3 of the Contract Data, Part 1. | %    | 0%  | R        | 10 000,00 | R     | -   | R      | 10 000,00 | R     | - |
| 2.5        | Monthly standby fee.                                                                                                                                                  | Sum  | 1   | R        | -         | R     | -   | R      | -         | R     | - |
| 2.6        | Allowance to attend monthly maintenance meeting with the Municipality of min. 2 hours.                                                                                | Sum  | 1   | R        | -         | R     | -   | R      | -         | R     | - |
|            | <b>Totals to Price Summary Item 4.1</b>                                                                                                                               |      |     |          |           | R     | -   |        |           | R     | - |

**BILL 4.0: SECTION D OF THE WORKS: SUBSTATION PROTECTION AND TESTING****BILL 4.2: SUBSTATION PROTECTION AND TESTING**

| ITEM  | DESCRIPTION                                                                                                                                     | UNIT | QTY | MATERIAL |   |       |   | LABOUR |   |       |   |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|----------|---|-------|---|--------|---|-------|---|
|       |                                                                                                                                                 |      |     | RATE     |   | TOTAL |   | RATE   |   | TOTAL |   |
| (i)   | <b>Notes:</b>                                                                                                                                   |      |     |          |   |       |   |        |   |       |   |
| (ii)  | All rates must be exclusive of VAT.                                                                                                             |      |     |          |   |       |   |        |   |       |   |
| (iii) | All quantities provided are provisional and for tender purposes only.                                                                           |      |     |          |   |       |   |        |   |       |   |
| (iv)  | The rates provided below will be used by the Contractor to provide a quotation for the works instruction as and when issued by the Employer.    |      |     |          |   |       |   |        |   |       |   |
| (v)   | All items shall include for the supply and installation thereof, unless noted otherwise.                                                        |      |     |          |   |       |   |        |   |       |   |
|       | All rates shall include an amount for transportation where travelling takes place within a radius of fifty (50) km from the town of Humansdorp. |      |     |          |   |       |   |        |   |       |   |
| 1.0   | Circuit Breaker Testing:                                                                                                                        |      |     |          |   |       |   |        |   |       |   |
| 1.1   | Circuit Breaker Mechanical Test: Per Switch Panel                                                                                               | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.2   | Circuit Breaker Electrical Test: Per Switch Panel                                                                                               | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 2.0   | Current Transformer (All tests per core):                                                                                                       |      |     |          |   |       |   |        |   |       |   |
| 2.1   | Verify ratios                                                                                                                                   | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 2.2   | Record mag curve                                                                                                                                | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 2.3   | Verify polarity                                                                                                                                 | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 2.4   | Measure Insulation Resistance                                                                                                                   | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 2.5   | Measure Loop Resistance                                                                                                                         | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.0   | Voltage Transformer (All tests per core):                                                                                                       |      |     |          |   |       |   |        |   |       |   |
| 3.1   | Verify ratios                                                                                                                                   | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.2   | Verify polarity                                                                                                                                 | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.3   | Measure Insulation Resistance                                                                                                                   | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 4.0   | Routine Checks                                                                                                                                  |      |     |          |   |       |   |        |   |       |   |
| 4.1   | Substations Annual Maintenance & Checks (rate per substation).                                                                                  | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 5.0   | <b><u>Protection Relay Testing (rate per relay):</u></b>                                                                                        |      |     |          |   |       |   |        |   |       |   |
| 5.1   | Test Overcurrent and Earth Fault Relay Function:                                                                                                |      |     |          |   |       |   |        |   |       |   |
| 5.1.1 | Electro Mechanical Relay.                                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 5.1.2 | Numerical Relay.                                                                                                                                | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 5.2   | Test Directional Overcurrent and Earth Fault Relay Function:                                                                                    |      |     |          |   |       |   |        |   |       |   |
| 5.2.1 | Electro Mechanical Relay.                                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 5.2.2 | Numerical Relay.                                                                                                                                | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 5.3   | Test Sensitive Earth Fault Relay Function                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 5.4   | Test Breaker Fail Function                                                                                                                      | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 5.5   | Test Feeder Differential Protection (Pilot Wire):                                                                                               |      |     |          |   |       |   |        |   |       |   |
| 5.5.1 | Using primary injection test                                                                                                                    | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 5.5.2 | Using secondary injection test                                                                                                                  | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 5.6   | Feeder fitted with inter-tripping Relays                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |

**BILL 4.0: SECTION D OF THE WORKS: SUBSTATION PROTECTION AND TESTING****BILL 4.2: SUBSTATION PROTECTION AND TESTING**

| ITEM       | DESCRIPTION                                                                                                                                      | UNIT | QTY | MATERIAL |       | LABOUR |       |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|----------|-------|--------|-------|
|            |                                                                                                                                                  |      |     | RATE     | TOTAL | RATE   | TOTAL |
| 5.7        | Master Trip and Auxiliary Relay                                                                                                                  | No   | 1   | R        | -     | R      | -     |
| 5.8        | Per Function:                                                                                                                                    |      |     |          |       |        |       |
| 5.8.1      | Logic                                                                                                                                            | No   | 1   | R        | -     | R      | -     |
| 5.8.2      | Auxiliary                                                                                                                                        | No   | 1   | R        | -     | R      | -     |
| <b>6.0</b> | <b><u>Busbar Protection / ARC Protection</u></b>                                                                                                 |      |     |          |       |        |       |
| 6.1        | Per ARC Sensor                                                                                                                                   | No   | 1   | R        | -     | R      | -     |
| 6.2        | Per Master Relay, Light & Current                                                                                                                | No   | 1   | R        | -     | R      | -     |
| 6.3        | Per Master Relay, Light only                                                                                                                     | No   | 1   | R        | -     | R      | -     |
| 6.4        | Per Cable Chamber Relay                                                                                                                          | No   | 1   | R        | -     | R      | -     |
| <b>7.0</b> | <b><u>Timers</u></b>                                                                                                                             |      |     |          |       |        |       |
| 7.1        | Timers                                                                                                                                           | No   | 1   | R        | -     | R      | -     |
| <b>8.0</b> | <b><u>Transformer Commissioning Checks and Tests</u></b><br>(test to include any auxiliary relay elements coupled to the main relay description) |      |     |          |       |        |       |
| 8.1        | Main Bucholtz relay.                                                                                                                             | No   | 1   | R        | -     | R      | -     |
| 8.2        | Tap Change Bucholtz relay.                                                                                                                       | No   | 1   | R        | -     | R      | -     |
| 8.3        | NEC/R Bucholtz relay.                                                                                                                            | No   | 1   | R        | -     | R      | -     |
| 8.4        | Main Oil temperature sensor relay.                                                                                                               | No   | 1   | R        | -     | R      | -     |
| 8.5        | NEC/R temperature sensor relay.                                                                                                                  | No   | 1   | R        | -     | R      | -     |
| 8.6        | Winding temperature relay.                                                                                                                       | No   | 1   | R        | -     | R      | -     |
| 8.7        | Pressure Relief Valve relay.                                                                                                                     | No   | 1   | R        | -     | R      | -     |
| 8.8        | HV Restricted Earth Fault relay:                                                                                                                 |      |     |          |       |        |       |
| 8.8.1      | Primary Injection                                                                                                                                | No   | 1   | R        | -     | R      | -     |
| 8.8.2      | Secondary Injection                                                                                                                              | No   | 1   | R        | -     | R      | -     |
| 8.9        | LV Restricted Earth Fault relay:                                                                                                                 |      |     |          |       |        |       |
| 8.9.1      | Primary Injection                                                                                                                                | No   | 1   | R        | -     | R      | -     |
| 8.9.2      | Secondary Injection                                                                                                                              | No   | 1   | R        | -     | R      | -     |
| 8.10       | Differential Protection Scheme:                                                                                                                  |      |     |          |       |        |       |
| 8.10.1     | Electro Mechanical Relay                                                                                                                         | No   | 1   | R        | -     | R      | -     |
| 8.10.2     | Numerical Relay                                                                                                                                  | No   | 1   | R        | -     | R      | -     |
| 8.10.3     | Primary Injection                                                                                                                                | No   | 1   | R        | -     | R      | -     |
| 8.11       | Neutral Earthing Resistor<br>Computer Aided Test Set used                                                                                        | No   | 1   | R        | -     | R      | -     |
| 8.12       | Transformer Tap Changer scheme:                                                                                                                  |      |     |          |       |        |       |
| 8.12.1     | Mechanism                                                                                                                                        | No   | 1   | R        | -     | R      | -     |
| 8.12.2     | Tap change unit                                                                                                                                  | No   | 1   | R        | -     | R      | -     |
| 8.12.3     | Master Follower scheme                                                                                                                           | No   | 1   | R        | -     | R      | -     |
| 8.13       | Transformer Test<br>(Taps, Min-Nominal-Max)<br>Computer Aided Test Set used:                                                                     |      |     |          |       |        |       |
| 8.13.1     | Short Circuit Test.                                                                                                                              | No   | 1   | R        | -     | R      | -     |
| 8.13.2     | Ratio Test.                                                                                                                                      | No   | 1   | R        | -     | R      | -     |
| 8.13.3     | Open Circuit Test.                                                                                                                               | No   | 1   | R        | -     | R      | -     |
| 8.13.4     | Zero Sequence Test.                                                                                                                              | No   | 1   | R        | -     | R      | -     |
| 8.13.5     | Vector Group Test.                                                                                                                               | No   | 1   | R        | -     | R      | -     |
| 8.13.6     | Sweep Frequency Test.                                                                                                                            | No   | 1   | R        | -     | R      | -     |
| 8.13.7     | Resistance and Continuity of OLTC.                                                                                                               | No   | 1   | R        | -     | R      | -     |

## BILL 4.0: SECTION D OF THE WORKS: SUBSTATION PROTECTION AND TESTING

## BILL 4.2: SUBSTATION PROTECTION AND TESTING

| ITEM        | DESCRIPTION                                                                                                                                                                   | UNIT | QTY | MATERIAL |   |       |   | LABOUR |   |       |   |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|----------|---|-------|---|--------|---|-------|---|
|             |                                                                                                                                                                               |      |     | RATE     |   | TOTAL |   | RATE   |   | TOTAL |   |
| <b>9.0</b>  | <b><u>Requirements for On-Site Testing</u></b>                                                                                                                                |      |     |          |   |       |   |        |   |       |   |
| 9.1         | New panel, verify wiring according to drawings, Continuity and Insulation testing (per panel).                                                                                | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 9.2         | Loop Resistance of pilot wire cables (per scheme).                                                                                                                            | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 9.3         | Pilot cable cores insulation testing.                                                                                                                                         | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 9.4         | Function Testing of Panel.                                                                                                                                                    | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 9.5         | Secondary Injection of Ammeter / Volt Meter.                                                                                                                                  | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 9.6         | On-Load Checks (per panel).                                                                                                                                                   | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 9.7         | On-Load Checks (per reading taken)                                                                                                                                            | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 9.8         | Correction of Drawings.                                                                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| <b>10.0</b> | <b><u>Protection Settings</u></b><br>(rate per relay)                                                                                                                         |      |     |          |   |       |   |        |   |       |   |
| 10.1        | Electro Mechanical                                                                                                                                                            | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 10.2        | Solid State - Apply settings                                                                                                                                                  | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 10.3        | Numerical - Apply settings and Logics                                                                                                                                         | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| <b>11.0</b> | <b><u>Battery Charger</u></b><br>(rate per charger for Visual Inspection, Float & Boost Voltage, Equalize Voltage, clean unit, check and confirm current limits, alarm card): |      |     |          |   |       |   |        |   |       |   |
| 11.1        | 110 Volt                                                                                                                                                                      | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 11.2        | 32 Volt                                                                                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 11.3        | 24 Volt                                                                                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| <b>12.0</b> | <b><u>Batteries per bank</u></b><br>(rate per bank)                                                                                                                           |      |     |          |   |       |   |        |   |       |   |
| 12.1        | Nickel-Cadmium (NiCad)<br>(5 Yearly test - load test, discharge test, retorquing terminals - 3 cycles of charging and discharging required).                                  | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 12.2        | Lead Acid<br>(5 Yearly test - load test, discharge test, retorquing terminals).                                                                                               | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| <b>13.0</b> | <b><u>Pressure Testing</u></b>                                                                                                                                                |      |     |          |   |       |   |        |   |       |   |
| 13.1        | Pressure Testing VLF, switchgear:                                                                                                                                             |      |     |          |   |       |   |        |   |       |   |
| 13.1.1      | 11kV (1 minute).                                                                                                                                                              | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 13.1.2      | 22kV (1 minute).                                                                                                                                                              | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 13.2        | Pressure Testing VLF, Tan Delta Test:                                                                                                                                         |      |     |          |   |       |   |        |   |       |   |
| 13.2.1      | 66kV Bushings (per unit).                                                                                                                                                     | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 13.2.2      | Transformer (per unit).                                                                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| <b>14.0</b> | <b><u>Infrared Scanning</u></b>                                                                                                                                               |      |     |          |   |       |   |        |   |       |   |
| 14.1        | Per hour scanning.                                                                                                                                                            | Hr   | 1   | R        | - | R     | - | R      | - | R     | - |
| 14.2        | Per hour reporting.                                                                                                                                                           | Hr   | 1   | R        | - | R     | - | R      | - | R     | - |
| <b>15.0</b> | <b><u>11kV Panel Installation</u></b>                                                                                                                                         |      |     |          |   |       |   |        |   |       |   |
| 15.1        | Ductor testing of Busbar connections (per connection).                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |

## BILL 4.2: SUBSTATION PROTECTION AND TESTING

[illegible]

**BILL 4.0: SECTION D OF THE WORKS: SUBSTATION PROTECTION AND TESTING**

**BILL 4.0: PRICE SUMMARY**

| ITEM | DESCRIPTION                                                                                                                      | MATERIAL |   | LABOUR |   |
|------|----------------------------------------------------------------------------------------------------------------------------------|----------|---|--------|---|
| 1.0  | BILL 4.1: PRELIMINARY AND GENERAL ITEMS                                                                                          | R        | - | R      | - |
| 2.0  | BILL 4.2: SUBSTATION PROTECTION AND TESTING                                                                                      | R        | - | R      | - |
| 3.0  | SUB TOTALS                                                                                                                       | R        | - | R      | - |
| 4.0  | NET TENDER AMOUNT, EXCLUDING VAT                                                                                                 |          |   | R      | - |
| 5.0  | 15% VAT                                                                                                                          |          |   | R      | - |
| 6.0  | GROSS TENDER AMOUNT, TO BE CARRIED FORWARD TO FORM OF OFFER AND ACCEPTANCE IN PART C1.1 HEREOF, ITEM 4.0: SECTION D OF THE WORKS |          |   | R      | - |
|      |                                                                                                                                  |          |   |        |   |

## BILL 5.0: SECTION E OF THE WORKS: LIMITED LV WORK, STREET LIGHTS AND HIGH MAST MAINTENANCE WORK

## BILL 5.1: PRELIMINARY AND GENERAL ITEMS

| ITEM       | DESCRIPTION                                                                                                                                                           | UNIT | QTY | MATERIAL |           |       |     | LABOUR |           |       |   |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|----------|-----------|-------|-----|--------|-----------|-------|---|
|            |                                                                                                                                                                       |      |     | RATE     |           | TOTAL |     | RATE   |           | TOTAL |   |
| (i)        | <b>Notes:</b>                                                                                                                                                         |      |     |          |           |       |     |        |           |       |   |
| (ii)       | All rates must be exclusive of VAT.                                                                                                                                   |      |     |          |           |       |     |        |           |       |   |
| (iii)      | <u>All quantities provided are provisional and for tender purposes only.</u>                                                                                          |      |     |          |           |       |     |        |           |       |   |
|            | The rates provided below will be used by the Contractor to provide a quotation for the works instruction as and when issued by the Employer.                          |      |     |          |           |       |     |        |           |       |   |
| <b>1.0</b> | <b><u>Daywork Rates</u></b>                                                                                                                                           |      |     |          |           |       |     |        |           |       |   |
| 1.1        | Labour: Normal Time:                                                                                                                                                  |      |     |          |           |       |     |        |           |       |   |
| 1.1.1      | Supervisor                                                                                                                                                            | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.1.2      | Skilled worker                                                                                                                                                        | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.1.3      | Semi-skilled worker                                                                                                                                                   | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.1.4      | Labourer                                                                                                                                                              | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.2        | Labour: Normal Overtime:                                                                                                                                              |      |     |          |           |       |     |        |           |       |   |
| 1.2.1      | Supervisor                                                                                                                                                            | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.2.2      | Skilled worker                                                                                                                                                        | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.2.3      | Semi-skilled worker                                                                                                                                                   | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.2.4      | Labourer                                                                                                                                                              | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.3        | Labour: Sundays and Public Holidays:                                                                                                                                  |      |     |          |           |       |     |        |           |       |   |
| 1.3.1      | Supervisor                                                                                                                                                            | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.3.2      | Skilled worker                                                                                                                                                        | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.3.3      | Semi-skilled worker                                                                                                                                                   | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.3.4      | Labourer                                                                                                                                                              | Hour | 10  | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.4        | Transport where travelling takes place outside a radius of fifty (50) km from the town of Humansdorp:                                                                 |      |     |          |           |       |     |        |           |       |   |
| 1.4.1      | Bakkie or Sedan                                                                                                                                                       | km   | 100 | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.4.2      | Trailer                                                                                                                                                               | km   | 100 | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.4.3      | 3 Ton Truck                                                                                                                                                           | km   | 100 | R        | nil       | R     | nil | R      | -         | R     | - |
| 1.4.4      | 5 Ton Crane Truck                                                                                                                                                     | km   | 100 | R        | nil       | R     | nil | R      | -         | R     | - |
| <b>2.0</b> | <b><u>Fixed Charge Items</u></b>                                                                                                                                      |      |     |          |           |       |     |        |           |       |   |
| 2.1        | Provide liability and special risks indemnification and insurances for year.                                                                                          | No   | 1   | R        | -         | R     | -   | R      | -         | R     | - |
| 2.2        | For compliance with quality control/health and safety/environmental practises and procedures for year.                                                                | No   | 1   | R        | -         | R     | -   | R      | -         | R     | - |
| 2.3        | For compliance with Compensation Commissioner for workmen's compensation purposes for year.                                                                           | No   | 1   | R        | -         | R     | -   | R      | -         | R     | - |
| 2.4        | Percentage mark-up on the provisional sum shown for the remuneration of workmen and the cost of materials, etc. as per Clause 6.5.1.2.3 of the Contract Data, Part 1. | %    | 0%  | R        | 10 000,00 | R     | -   | R      | 10 000,00 | R     | - |
| 2.5        | Monthly standby fee.                                                                                                                                                  | Sum  | 1   | R        | -         | R     | -   | R      | -         | R     | - |
| 2.6        | Allowance to attend monthly maintenance meeting with the Municipality of min. 2 hours.                                                                                | Sum  | 1   | R        | -         | R     | -   | R      | -         | R     | - |
|            | <b>Totals to Price Summary Item 5.1</b>                                                                                                                               |      |     |          |           | R     | -   |        |           | R     | - |

**BILL 5.0: SECTION E OF THE WORKS: LIMITED LV WORK, STREET LIGHTS AND HIGH MAST MAINTENANCE WORK****BILL 5.2: LIMITED LV WORK, STREET LIGHTS AND HIGH MAST MAINTENANCE WORK**

| ITEM       | DESCRIPTION                                                                                                                                     | UNIT           | QTY | MATERIAL |   |       |   | LABOUR |   |       |   |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----|----------|---|-------|---|--------|---|-------|---|
|            |                                                                                                                                                 |                |     | RATE     |   | TOTAL |   | RATE   |   | TOTAL |   |
| (i)        | <b>Notes:</b>                                                                                                                                   |                |     |          |   |       |   |        |   |       |   |
| (ii)       | All rates must be exclusive of VAT.                                                                                                             |                |     |          |   |       |   |        |   |       |   |
| (iii)      | All quantities provided are provisional and for tender purposes only.                                                                           |                |     |          |   |       |   |        |   |       |   |
| (iv)       | The rates provided below will be used by the Contractor to provide a quotation for the works instruction as and when issued by the Employer.    |                |     |          |   |       |   |        |   |       |   |
| (v)        | All items shall include for the supply and installation thereof, unless noted otherwise.                                                        |                |     |          |   |       |   |        |   |       |   |
|            | All rates shall include an amount for transportation where travelling takes place within a radius of fifty (50) km from the town of Humansdorp. |                |     |          |   |       |   |        |   |       |   |
| <b>1.0</b> | <b><u>LV Underground Cable Work</u></b>                                                                                                         |                |     |          |   |       |   |        |   |       |   |
| 1.1        | Trenching by <u>hand</u> for cable, 400mm wide x 800mm deep, including backfilling and compaction, removal of rubble and re-instatement:        |                |     |          |   |       |   |        |   |       |   |
| 1.1.1      | Earth.                                                                                                                                          | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.1.2      | Soft Rock.                                                                                                                                      | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.1.3      | Hard Rock.                                                                                                                                      | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.2        | Trenching by <u>machine</u> for cable, 400mm wide x 800mm deep, including backfilling and compaction and re-instatement:                        |                |     |          |   |       |   |        |   |       |   |
| 1.2.1      | Earth.                                                                                                                                          | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.2.2      | Soft Rock.                                                                                                                                      | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.2.3      | Hard Rock.                                                                                                                                      | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.3        | Breaking up of surface by hand, 400mm wide, for trenching including backfilling, compaction and re-instatement of the same surface:             |                |     |          |   |       |   |        |   |       |   |
| 1.3.1      | Tar                                                                                                                                             | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.3.2      | Concrete                                                                                                                                        | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.3.3      | Paving                                                                                                                                          | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.3.4      | Grass                                                                                                                                           | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.4        | 1m High orange and yellow barricade safety netting on trench route.                                                                             | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.5        | Locate existing sleeve ends.                                                                                                                    | No             | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.6        | PVC sleeves laid in trench measured elsewhere:                                                                                                  |                |     |          |   |       |   |        |   |       |   |
| 1.6.1      | 110mm Ø.                                                                                                                                        | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.7        | Seal PVC sleeve end after installation of cable:                                                                                                |                |     |          |   |       |   |        |   |       |   |
| 1.7.1      | 110mm Ø.                                                                                                                                        | No             | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.8        | Disposal of surplus or insuitable material from trenches including haulage up to 30km from site.                                                | m <sup>2</sup> | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.9        | Selected soft sand bedding in trench (sand to be recovered from trenches).                                                                      | m <sup>3</sup> | 1   |          |   | R     | - | R      | - | R     | - |

## BILL 5.0: SECTION E OF THE WORKS: LIMITED LV WORK, STREET LIGHTS AND HIGH MAST MAINTENANCE WORK

## BILL 5.2: LIMITED LV WORK, STREET LIGHTS AND HIGH MAST MAINTENANCE WORK

| ITEM    | DESCRIPTION                                                                                                                                      | UNIT           | QTY | MATERIAL |   |       |   | LABOUR |   |       |   |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----|----------|---|-------|---|--------|---|-------|---|
|         |                                                                                                                                                  |                |     | RATE     |   | TOTAL |   | RATE   |   | TOTAL |   |
| 1.10    | Imported sand bedding in trench. Price to include collection from municipal stores delivery to site, loading and off loading.                    | m <sup>3</sup> | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.11    | 600/1000V, <u>4 core</u> , LV PVCAS cable in trenches or sleeves measured elsewhere:                                                             |                |     |          |   |       |   |        |   |       |   |
| 1.11.1  | 150mm <sup>2</sup> Cu                                                                                                                            | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.11.2  | 120mm <sup>2</sup> Cu                                                                                                                            | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.11.3  | 95mm <sup>2</sup> Cu                                                                                                                             | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.11.4  | 70mm <sup>2</sup> Cu                                                                                                                             | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.11.5  | 50mm <sup>2</sup> Cu                                                                                                                             | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.11.6  | 35mm <sup>2</sup> Cu                                                                                                                             | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.11.7  | 25mm <sup>2</sup> Cu                                                                                                                             | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.11.8  | 16mm <sup>2</sup> Cu                                                                                                                             | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.11.9  | 10mm <sup>2</sup> Cu                                                                                                                             | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.11.10 | 185mm <sup>2</sup> Al                                                                                                                            | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.11.11 | 150mm <sup>2</sup> Al                                                                                                                            | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.11.12 | 120mm <sup>2</sup> Al                                                                                                                            | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.11.13 | 95mm <sup>2</sup> Al                                                                                                                             | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.11.14 | 70mm <sup>2</sup> Al                                                                                                                             | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.11.15 | 50mm <sup>2</sup> Al                                                                                                                             | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.12    | 600/1000V, <u>2 core</u> , LV PVCAS cable in trenches or sleeves measured elsewhere:                                                             |                |     |          |   |       |   |        |   |       |   |
| 1.12.1  | 25mm <sup>2</sup> Cu                                                                                                                             | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.12.2  | 16mm <sup>2</sup> Cu                                                                                                                             | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.12.3  | 10mm <sup>2</sup> Cu                                                                                                                             | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.12.4  | 6mm <sup>2</sup> Cu                                                                                                                              | m              | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.13    | <u>Terminate</u> 600/1000V, <u>4 core</u> , LV PVCAS LV PVCAS cable and connect at transformer, substation or kiosk using glands and crimp lugs: |                |     |          |   |       |   |        |   |       |   |
| 1.13.1  | 150mm <sup>2</sup> Cu                                                                                                                            | No             | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.13.2  | 120mm <sup>2</sup> Cu                                                                                                                            | No             | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.13.3  | 95mm <sup>2</sup> Cu                                                                                                                             | No             | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.13.4  | 70mm <sup>2</sup> Cu                                                                                                                             | No             | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.13.5  | 50mm <sup>2</sup> Cu                                                                                                                             | No             | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.13.6  | 35mm <sup>2</sup> Cu                                                                                                                             | No             | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.13.7  | 25mm <sup>2</sup> Cu                                                                                                                             | No             | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.13.8  | 16mm <sup>2</sup> Cu                                                                                                                             | No             | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.13.9  | 10mm <sup>2</sup> Cu                                                                                                                             | No             | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.13.10 | 185mm <sup>2</sup> Al                                                                                                                            | No             | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.13.11 | 150mm <sup>2</sup> Al                                                                                                                            | No             | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.13.12 | 120mm <sup>2</sup> Al                                                                                                                            | No             | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.13.13 | 95mm <sup>2</sup> Al                                                                                                                             | No             | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.13.14 | 70mm <sup>2</sup> Al                                                                                                                             | No             | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.13.15 | 50mm <sup>2</sup> Al                                                                                                                             | No             | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.14    | <u>Terminate</u> 600/1000V, <u>2 core</u> , LV PVCAS LV PVCAS cable and connect at transformer, substation or kiosk using glands and crimp lugs: |                |     |          |   |       |   |        |   |       |   |
| 1.14.1  | 25mm <sup>2</sup> Cu                                                                                                                             | No             | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.14.2  | 16mm <sup>2</sup> Cu                                                                                                                             | No             | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.14.3  | 10mm <sup>2</sup> Cu                                                                                                                             | No             | 1   | R        | - | R     | - | R      | - | R     | - |
| 1.14.4  | 6mm <sup>2</sup> Cu                                                                                                                              | No             | 1   | R        | - | R     | - | R      | - | R     | - |



**BILL 5.0: SECTION E OF THE WORKS: LIMITED LV WORK, STREET LIGHTS AND HIGH MAST MAINTENANCE WORK****BILL 5.2: LIMITED LV WORK, STREET LIGHTS AND HIGH MAST MAINTENANCE WORK**

| ITEM       | DESCRIPTION                                                                                                                                                                                     | UNIT | QTY | MATERIAL |   |       |   | LABOUR |   |       |   |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|----------|---|-------|---|--------|---|-------|---|
|            |                                                                                                                                                                                                 |      |     | RATE     |   | TOTAL |   | RATE   |   | TOTAL |   |
| 2.2.1      | 10m pole                                                                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 2.2.2      | 9m pole                                                                                                                                                                                         | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 2.2.3      | 7m pole                                                                                                                                                                                         | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 2.3        | Single LV stay complete with insulator, but excluding stay hole and guard measured elsewhere.                                                                                                   | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 2.4        | LV flying stay complete with insulators, but excluding pole and pole and stay holes measured elsewhere.                                                                                         | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 2.5        | Prop structure complete excluding hole measured elsewhere.                                                                                                                                      | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 2.6        | Stay guard fixed to stay wire.                                                                                                                                                                  | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 2.7        | LV Aerial Bundled Conductor (ABC) strung and suspended between poles. Poles and clamps measured elsewhere:                                                                                      |      |     |          |   |       |   |        |   |       |   |
| 2.7.1      | 95mm <sup>2</sup> x 4c + 25mm <sup>2</sup> + streetlight                                                                                                                                        | m    | 1   | R        | - | R     | - | R      | - | R     | - |
| 2.7.2      | 70mm <sup>2</sup> x 4c + 25mm <sup>2</sup> + streetlight                                                                                                                                        | m    | 1   | R        | - | R     | - | R      | - | R     | - |
| 2.7.3      | 50mm <sup>2</sup> x 4c + 25mm <sup>2</sup> + streetlight                                                                                                                                        | m    | 1   | R        | - | R     | - | R      | - | R     | - |
| 2.7.4      | 35mm <sup>2</sup> x 4c + 25mm <sup>2</sup> + streetlight                                                                                                                                        | m    | 1   | R        | - | R     | - | R      | - | R     | - |
| 2.8        | Strain clamp for LV ABC including eyebolt, pigtail bolt, nuts, washers, etc.                                                                                                                    | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 2.9        | Suspension clamp for LV ABC including eyebolt, pigtail bolt, nuts, washers etc.                                                                                                                 | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 2.10       | Strap and seal end of LV ABC at terminal pole.                                                                                                                                                  | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 2.11       | Earth at remote pole of LV ABC line. This item shall include the 50mm <sup>2</sup> Cu black PVC insulated down conductor, a 4,5m long kicker pipe, a 4,5m long earth spike and all connections. | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 2.12       | Connect one ABC to another using insulation piercing connectors:                                                                                                                                |      |     |          |   |       |   |        |   |       |   |
| 2.12.1     | 95mm <sup>2</sup> x 4c + 25mm <sup>2</sup> + streetlight                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 2.12.2     | 70mm <sup>2</sup> x 4c + 25mm <sup>2</sup> + streetlight                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 2.12.3     | 50mm <sup>2</sup> x 4c + 25mm <sup>2</sup> + streetlight                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 2.12.4     | 35mm <sup>2</sup> x 4c + 25mm <sup>2</sup> + streetlight                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| <b>3.0</b> | <b><u>Street Lights</u></b>                                                                                                                                                                     |      |     |          |   |       |   |        |   |       |   |
| 3.1        | Retrofit existing Mercury Vapur street light luminaire with the following type, including circuit breaker and mounting bracket, but excluding cable termination measured elsewhere:             |      |     |          |   |       |   |        |   |       |   |
| 3.1.1      | 54W LED.                                                                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.1.2      | 115W LED.                                                                                                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.1.3      | 135W LED.                                                                                                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.1.4      | 300W LED.                                                                                                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.1.5      | 54W LED, with solar panel.                                                                                                                                                                      | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.1.6      | 115W LED, with solar panel.                                                                                                                                                                     | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.1.7      | 135W LED, with solar panel.                                                                                                                                                                     | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.1.8      | 300W LED, with solar panel.                                                                                                                                                                     | No   | 1   | R        | - | R     | - | R      | - | R     | - |

**BILL 5.0: SECTION E OF THE WORKS: LIMITED LV WORK, STREET LIGHTS AND HIGH MAST MAINTENANCE WORK****BILL 5.2: LIMITED LV WORK, STREET LIGHTS AND HIGH MAST MAINTENANCE WORK**

| ITEM                               | DESCRIPTION                                                                                                                                                                                              | UNIT | QTY | MATERIAL |   |       |   | LABOUR |   |       |   |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|----------|---|-------|---|--------|---|-------|---|
|                                    |                                                                                                                                                                                                          |      |     | RATE     |   | TOTAL |   | RATE   |   | TOTAL |   |
| 3.2                                | <u>Concrete</u> street light pole, excluding excavation of pole hole measured elsewhere:                                                                                                                 |      |     |          |   |       |   |        |   |       |   |
| 3.2.1                              | 5,7m                                                                                                                                                                                                     | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.2.2                              | 9,2m                                                                                                                                                                                                     | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.2.3                              | 12,8m                                                                                                                                                                                                    | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.3                                | <u>Hot dip galvanised steel</u> street light pole, excluding excavation of pole hole measured elsewhere:                                                                                                 |      |     |          |   |       |   |        |   |       |   |
| 3.3.1                              | 5,7m                                                                                                                                                                                                     | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.3.2                              | 9,2m                                                                                                                                                                                                     | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.3.3                              | 12,8m                                                                                                                                                                                                    | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.4                                | <u>Fibre Glass Reinforced Polyester (GRP)</u> street light pole, excluding excavation of pole hole measured elsewhere:                                                                                   |      |     |          |   |       |   |        |   |       |   |
| 3.4.1                              | 5,7m                                                                                                                                                                                                     | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.4.2                              | 9,2m                                                                                                                                                                                                     | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 3.4.3                              | 12,8m                                                                                                                                                                                                    | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| <b>4.0</b>                         | <b><u>Servicing of High Mast Light</u></b>                                                                                                                                                               |      |     |          |   |       |   |        |   |       |   |
| 4.1                                | General repairs and maintenance to 30m high, high mast lights, fitted with nine (9) of 115W LED or 250W HPS lamps at the top and mounted on a concrete plinth (components supplied by the Municipality): |      |     |          |   |       |   |        |   |       |   |
| 4.1.1                              | Dropping of mast.                                                                                                                                                                                        | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 4.1.2                              | Replacement of lamp.                                                                                                                                                                                     | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 4.1.3                              | Replacement of lamp holder.                                                                                                                                                                              | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 4.1.4                              | Replacement of ballast, choke, starter.                                                                                                                                                                  | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 4.1.5                              | Replacement of luminaire.                                                                                                                                                                                | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 4.1.6                              | Replacement of contactor or relay.                                                                                                                                                                       | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 4.1.7                              | Replacement of trailing cable plug.                                                                                                                                                                      | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 4.1.8                              | Replacement of plinth nut.                                                                                                                                                                               | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 4.1.9                              | Rewiring of DB.                                                                                                                                                                                          | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 4.1.10                             | Call out fee.                                                                                                                                                                                            | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| 4.2                                | Non-destructive test (NDT) and analysis on material and structure characteristics of complete 30m galvanised steel high mast, including test report.                                                     | No   | 1   | R        | - | R     | - | R      | - | R     | - |
| <b>Totals to Price Summary 5.2</b> |                                                                                                                                                                                                          |      |     |          |   | R     | - |        |   | R     | - |

**BILL 5.0: SECTION E OF THE WORKS: LIMITED LV WORK, STREET LIGHTS AND HIGH MAST MAINTENANCE WORK**

**BILL 5.0: PRICE SUMMARY**

| ITEM | DESCRIPTION                                                                                                                      | MATERIAL |   | LABOUR |   |
|------|----------------------------------------------------------------------------------------------------------------------------------|----------|---|--------|---|
| 1.0  | BILL 5.1: PRELIMINARY AND GENERAL ITEMS                                                                                          | R        | - | R      | - |
| 2.0  | BILL 5.2: LIMITED LV WORK, STREET LIGHTS AND HIGH MAST MAINTENANCE WORK                                                          | R        | - | R      | - |
| 3.0  | SUB TOTALS                                                                                                                       | R        | - | R      | - |
| 4.0  | NET TENDER AMOUNT, EXCLUDING VAT                                                                                                 |          |   | R      | - |
| 5.0  | 15% VAT                                                                                                                          |          |   | R      | - |
| 6.0  | GROSS TENDER AMOUNT, TO BE CARRIED FORWARD TO FORM OF OFFER AND ACCEPTANCE IN PART C1.1 HEREOF, ITEM 5.0: SECTION E OF THE WORKS |          |   | R      | - |
|      |                                                                                                                                  |          |   |        |   |

## **PART C3: SCOPE OF WORK**

### **C3.1: GENERAL SPECIFICATION**

#### **1.0 LOCATION AND DESCRIPTION**

The work included under this contract will be undertaken in several areas within the boundaries of the Kouga Municipality, which includes Humansdorp, Jeffreys Bay, St. Francis Bay, Cape St. Francis, Oyster Bay, Hankey and Patensie.

#### **2.0 EXTENT OF CONTRACT**

This contract includes four two (4) separate Sections of Works, i.e:

Section A of the Works: MV/HV 66/22/11kV Overhead Line Work

Section B of the Works: MV Underground Cable Work

Section C of the Works: MV Substation Work

Section D of the Works: Substation Protection and Testing

Section E of the Works: Limited LV Work, Street Lights and High Mast Maintenance Work

#### **3.0 ADJUDICATION AND AWARD OF TENDERS**

Tenders will be adjudicated and awarded per Section of Works, but more than one Section can be awarded to the same Tenderer. Each Section of Works can also be awarded to more than one (1) Tenderer due to the wide range of speciality and the magnitude of the work that can be required and will be subject to the Municipality's Rotation Policy.

Tenders will only be considered if the requirements as stipulated under clause F.3.13.1 of Part T1.2 are met, and all the items required under the List of Returnable Documents under Part 2.1 have been satisfactorily provided.

#### **4.0 LETTING OF CONTRACT**

The contract will be let as a Direct Contract with Kouga Municipality for a period of three (3) years from the date of appointment.

#### **5.0 EQUIPMENT AND MATERIALS SUPPLIED BY MUNICIPALITY**

The appointed Electrical Contractor will generally be required to supply and install the equipment and materials as stipulated in the Bills of Quantities, Part C2.1, hereof.

The Municipality, however, reserves the right to supply certain material that is available at the stage of the project, as a free issue item to the Contractor for installation only. The labour rate of that specific item/s shall in such instance still govern. It is therefore important to note that all labour rates provided must include handling charges for the respective material.

## 6.0 **SUPPLY VOLTAGES**

The supply voltage can be either 66000, 22000, 11000 or 400/230 volt, 50 Hz, with a deviation up to  $\pm 8\%$ , and all equipment and material shall be suitable for these conditions. The phase rotation is to be checked and maintained through-out the network.

## 7.0 **SWITCHING OF SUPPLIES**

All switching of MV and LV supplies shall be arranged in advance with the Municipality's electro-technical department. The Contractor shall establish the department's requirements regarding advance notice, permits to work, etc at the start of any work requiring the supply to be switched-off.

## 8.0 **PROGRAMME**

The programme for major tasks during the contract period will be agreed between the Employer and the Contractor before work commences.

The maximum response time required to any normal work instruction will be two (2) working days.

The maximum response time required to any emergency work instruction will be two (2) hours.

The Municipality will in any event clearly communicate the nature of the instruction provided.

It must be noted that should the Contractor fail to respond within the time frames required above, then all associated costs with regards to any sub-sequential damages occurred beyond these time frames will be for the Contractor's account.

## 9.0 **REGISTRATION OF CONTRACTOR**

The Tenderer must be registered with the Electrical Contracting Board (ECA).

For any Section of the Works, the Tenderer must be registered with the Construction Industry Development Board (CIDB) with a minimum grading of 4EP as specified in the Tender Data, Part 1.2 hereof.

Should the total value of any work instruction exceeds the maximum amount covered under the specified CIDB grading, then the Municipality reserves the right to request the Contractor to apply for a higher, and suitable, CIDB grading before the work commences.

## 10.0 **SITE STAFF**

The Contractor shall have a competent person / supervisor on site at all times to oversee the execution of the work required under this contract. This person shall be familiar and have undergone the necessary training to meet all the health and safety requirements stipulated in the Occupational Health and Safety Act (OHS Act) and where relevant to meet environmental procedures and the requirements of the Municipality.

The person in charge will also ensure that the necessary quality control is applied.

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The Contractor shall also have an Installation Electrician in his employ to for example issue a Certificate of Compliance (COC).

#### 11.0 **SITE FACILITIES**

The Contractor shall be responsible for negotiating with the Employer to obtain a location for erection of his site office and storage yard if required. The Contractor shall also arrange for the supply of water, electricity and telephone services to this site at his own cost.

#### 12.0 **RE-MEASUREMENT**

All quantities in the Bills of Quantities are provisional and are subject to the actual quantities required per Works instruction.

#### 13.0 **COST PRICE ADJUSTMENT**

All rates provided in this tender shall be fixed and firm for a duration of six (6) months from the date of award of tender.

On expiry of the six (6) months, the Contractor shall be requested a quotation for any works instruction. Any such quotation shall be based on the tender rates, together with a percentage mark-up on material and labour to allow for an increase in costs. This percentage mark-up would need to be substantiated with actual proven costs at that time. The Employer reserves the right to negotiate this percentage mark-up with the Contractor.

Tenderers are reminded to fill-in any specific requirements for Special Items under clause 6.8.3 of the Data Provided by the Contractor in Part C.1.2.

#### 14.0 **CLEARANCE WITH OTHER SERVICES**

When relevant, it shall be the responsibility of the Contractor to obtain all necessary drawings and information of the existing and planned future underground services from the Municipality and Telkom to ensure that there are no damage to those services during the installation of electrical services and that all necessary clearances with their existing and future plant are allowed. Where necessary, the Contractor shall first locate existing underground services before commencing with the trenching for cables or the excavation of holes for poles.

Where and whenever tar, paving, concrete, grass and/or other existing road and pavement surfaces needs to be lifted and removed for the installation of electrical services, then the Municipality should be consulted in advance to inspect same before any work commences. On completion of the work, the existing road and pavement surfaces shall be re-instated to its original state and also to the satisfaction of the Municipality.

#### 15.0 **MONITORING WORKS**

Monitoring of the works undertaken by the Contractor against the municipal requirements will be undertaken by staff from the Municipality's Electro-technical Department.

16.0 **WORK BY OTHERS**

Erf and road boundary pegs where required will be placed by a Land Surveyor to be appointed by the Employer.

17.0 **WEEKENDS AND PUBLIC HOLIDAYS**

No work shall be carried out on weekends or public holidays or outside of normal working hours during weekdays, unless specifically required by the Municipality's Electro-technical Department.

18.0 **HEALTH AND SAFETY**

The Contractor and all sub-contractors used by the Contractor are required to adhere to the provisions of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), as amended, and including the Construction Regulations (2014), as amended.

Where relevant, allowance has been made in the Bills of Quantities for the Tenderer to allow for the costs involved to compile a Health and Safety Plan as per the Construction Regulations and to implement it for the duration of a specific task. This Plan must be submitted to the Engineer for approval before such a task commences.

The Contractor is required to provide a Certificate of Health and Fitness from an Occupational H&S doctor for all OH employees.

19.0 **LOCAL LABOUR**

Optimum use shall be made of labour from area of proposed work and the Contractor shall as far as practically possible and economically viable make use of labour-intensive methods to do the work.

The extent of local labour to be employed on a work instruction will be determined and agreed with the Municipality before any work commences.

20.0 **SMALL, MEDIUM & MICRO ENTERPRISE BUSINESSES (SMME's)**

Tenderers shall allow for a minimum of 10% of the total tender sum for work instructions exceeding R 0,5mil to be outsourced to SMME's.

21.0 **DAMAGE TO STRUCTURES**

The Electrical Contractor shall be responsible for the making good of damage caused by his / her staff to any part of the structures / equipment. In the event of the occurrence of damage he/she shall arrange the repair of such damage to be carried out at his / her own expense to the satisfaction of the Municipality's Electro-technical Department.

## 22.0 **SAFETY PROCEDURES**

The Contractor shall not perform work on any portion of a network until such portion of a network has been isolated and earthed and the work shall be carried out under the full-time supervision of a competent person as required by the OHS Act.

The Contractor shall request a written OHS Work Permit from the Engineer or his Representative, which shall be completed in duplicate. The original permit shall be retained by the Contractor until completion of his work. Upon completion of the work, the Contractor shall sign a statement to this effect. He shall hand this statement as well as the used permit to the Engineer or his Representative, to enable the latter to re-energise the relevant portion of the network.

The Contractor shall have and use where required the necessary safety equipment on the work assigned to him. No work shall be undertaken unless this requirement can be met.

## 23.0 **PROVISIONAL SUM**

Payments from any the Provisional Sums, if so required, will be made under the direction of the Engineer based on claims submitted by the Contractor.

## 24.0 **STANDARDS AND CODES OF PRACTICE**

The installations shall comply with the following and all amendments thereto, as appropriate: -

SANS 10142 Code of Practice for the Wiring of Premises, as appropriate (referred to herein as the Wiring Regulations).

The Occupational Health and Safety Act (Act 85, 1993) and Regulations.

The Post Office Act.

The SAIEE Code of Practice for Overhead Power Lines.

The Local Authorities: Standard Electricity Supply By-Law and appropriate Additional By-Law or Regulations.

Any further Specification, Regulation or Code of Practice stated elsewhere in this Specification.

All items of plant supplied and/or installed, whether expressly specified herein or not, shall conform in respect of quality, manufacture, tests and performance with the requirements of the appropriate South African Bureau of Standards Specifications and addenda thereto, or, if no such Specification exists covering any one or more of these requirements, with the relevant requirements of the appropriate British Standard Specifications and addenda thereto, except where elsewhere required by this Specification or approved by the Engineer. Where the South African Bureau of Standards has issued a license for the use of its Mark on products complying with any of its Specifications, only such products which carry the Mark shall be supplied.

Preference will be given to plant manufactured in South Africa.

**25.0 APPROVAL OF DRAWINGS**

All Drawings, circuit or schematic diagrams prepared by or on behalf of the Contractor for submission to the Engineer in terms of the requirements of this Specification shall have been thoroughly checked, corrected where necessary and signed as approved by the Contractor, prior to such submission.

**26.0 CONTRACTOR'S REPRESENTATIVE**

Immediately after the successful Tenderer has been advised that his tender is to be accepted and before a formal contract entered into, he shall designate a senior member of his staff to be his Contractor's representative. Such representative shall be competent and duly entitled to co-ordinate the work in the Contractor's office, and between his office and the Site, and between the Contractor and his Suppliers as well as to maintain liaison with the Engineer and generally to represent the Contractor on all aspects of his Contract.

In particular, the Representative shall attend at the office of the Engineer as and when required, and shall collaborate with him in certifying the drawings of the Works as a whole, so far as the installation which forms the subject of this Contract, is concerned.

**27.0 ATTENDING FOR MEASUREMENT**

The Contractor, or his Representative shall, from time to time, when required on reasonable notice by the Engineer, attend at the Works to take jointly with the Engineer or his Representative any measurements of the work executed that may be necessary for the purpose of preparing the Contractor's claim. Any such measurements when ascertained and any differences arising thereon, shall be duly recorded in the manner required by the Engineer.

The Contractor shall, without extra charge, provide assistance with every appliance and other thing necessary for measuring the work. If the Contractor's Representative fails to attend when so required, the Engineer or his Representative shall have power to proceed by himself to take such measurements and to prepare the final quantities, and in that case any decision of the Engineer shall be final and conclusive.

**28.0 OPERATING, MAINTENANCE AND SERVICING PROCEDURES**

The Contractor shall instruct the Engineer or his Representative in routine operating, maintenance and servicing procedures of all items of plant supplied under this Contract, and shall ensure that he fully understands the documents provided.

**29.0 VALUE ADDED TAX**

The attention of Tenderers is drawn to the Value Added Tax Act (Act 89 of 1991) and any amendments thereto. All tenders submitted shall indicate the net tender price, the amount of VAT and the gross tender price carried to the Form of Tender as provided for in the Price Summaries. The amount stated in the Form of Offer and Acceptance will be taken as being inclusive of any tax due in terms of the said Act and no claims whatsoever in this respect will be considered.

**30.0 GUARANTEE**

The Contractor shall guarantee to the Employer the material, equipment and workmanship delivered by him, for a period of 12 months. The guarantee must be valid for a period starting on the date when the Works or portion thereof are accepted by the Engineer as complete and in working condition. The complete installation must be guaranteed against defects as a result of patent and latent defects of the design and equipment, save design defects made or specified by the Engineer, as well as against faulty materials and workmanship. Fair wear and tear is excluded from the guarantee. The guarantee must provide that all material, equipment, parts, spares and appurtenances that become defective during the guarantee period be replaced free of charge of any nature to the Employer or Engineer. The costs of labour and transportation required to replace such part of a defective installation shall be borne by the Contractor and shall be included in his guarantee. The Contractor shall cede to the Employer the remainder of any guarantee which he has received from his Suppliers and which extends beyond the period mentioned herein.

If it becomes necessary for the Contractor to replace or remove any defective portions of the Works under this condition, the provisions thereof shall apply to the portions so renewed or replaced until the expiry of the guarantee from the date of such replacement or renewal, and in the event of any defects occurring or being discovered in or to the Works within the guarantee period as aforesaid, the guarantee shall continue until the defects have been made good to the satisfaction of the Engineer.

If any defects are not remedied within a reasonable time, the Employer shall proceed to have the work done at the risk and expense of the Contractor, but without prejudice to any other rights which the Employer may have against the Contractor in respect of such defects.

**C3.2: STANDARD TECHNICAL SPECIFICATION****1.0 STANDARDS**

The following SANS, NRS, BS, etc. Standards shall apply:

**1.1 ELECTRICAL SUPPLY AND PHASE ROTATION**

|           |                                                                          |
|-----------|--------------------------------------------------------------------------|
| SANS 1019 | Standard voltages, currents and insulation levels for electricity supply |
| SANS 1816 | Electricity supply - Quality of supply: Power quality instruments        |
| NRS 048   | Quality of supply                                                        |

**1.2 EARTHING AND BONDING**

|            |                                                                                        |
|------------|----------------------------------------------------------------------------------------|
| SANS 10142 | The wiring of premises (Part 1) Low voltage installations                              |
| SANS 10200 | Neutral earthing in medium voltage industrial power systems                            |
| SANS 10292 | Earthing of low-voltage (LV) distribution systems                                      |
| NRS 076    | Earthing of distribution substations with nominal voltages up to and including 132 kV. |

**1.3 FENCING**

|                                 |                                                                                                                                  |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| NRS 060:2001                    | Code of practice for clearances for electrical systems with rated voltages up to and including 145kV, for the safety of persons. |
| D-DT-5237 (Eskom Specification) | Security Fences as per Eskom Specification and Drawings                                                                          |

**1.4 MV SWITCHGEAR AND SUBSTATIONS**

|                                      |                                                                            |
|--------------------------------------|----------------------------------------------------------------------------|
| SANS 1652                            | Battery Chargers – Industrial Type                                         |
| DSP 34-1157<br>(Eskom Specification) | 11kV and 22kV Withdrawable Pattern Air-Insulated Indoor Primary Switchgear |

**1.5 INSTRUMENTS, METERS AND PROTECTION RELAYS**

|                            |                                                                                         |
|----------------------------|-----------------------------------------------------------------------------------------|
| SANS 473 / NRS 071         | Automated meter reading for large power users                                           |
| SANS 474 / NRS 057:2005    | Code of practice for electricity metering                                               |
| SANS 1524                  | Electricity payment systems                                                             |
| SANS 1799                  | Watt-hour meters - AC electronic meters for active energy                               |
| SANS 1966 / IEC 60211      | Maximum demand indicators, Class I.0                                                    |
| SANS 60044 / IEC 60044     | Instrument transformers                                                                 |
| SANS 62052 / IEC 62052     | Electricity metering equipment (A.C.) - General requirements, tests and test conditions |
| SANS 620532003 / IEC 62053 | Electricity metering equipment (A.C.) - Particular requirements                         |
| NRS 057 / SANS 474         | Code of practice for electricity metering                                               |
| NRS 068                    | Electricity distribution - cable earth fault indicator                                  |
| NRS 071 / SANS 473         | Automated meter reading for large power users                                           |

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NRS 072  
BS EN 60044, BS EN  
60044

Overhead line fault path indicators  
Specification for voltage transformers

#### 1.6 **SLEEVES**

SANS 791

Unplasticized poly(vinyl chloride) (PVC-U) sewer and drain pipes and pipe fittings

#### 1.7 **MV AND LV CABLES**

SANS 97

Electric cables - Impregnated paper-insulated metal-sheathed cables for rated voltages 3,3/3,3 kV to 19/33 kV (excluding pressure assisted cables)

SANS 1339

Electric cables - Cross-linked polyethylene (XLPE) insulated cables for rated voltages 3,8/6,6 kV to 19/33 kV

SANS 1507

Electric cables with extruded solid dielectric insulation for fixed installations (300/500 V to 1 900/3 300 V)

SANS 10198

The selection, handling and installation of electric power cables of rating not exceeding 33kV, Part 1

SANS 60227

Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V

SANS 60502

Power cables with extruded insulation and their accessories for rated voltages from 1 kV (Um = 1,2 kV) up to 30 kV (Um = 36 kV)

NRS 011

Pilot Cables

NRS 013

Medium -Voltage Cables

NRS 074

Low-voltage (600/1000 V) cable systems for underground electrical distribution

NRS 077

XPPE -insulated cables and accessories for system with nominal voltages of 44 kV, 66 kV, 88 kV and 132 kV

NRS 078

Long-span all-dielectric self-supporting fibre optic cable

#### 1.8 **MV AND LV CABLE JOINTS AND TERMINATIONS**

SANS 808

Cable glands for use on flameproof enclosures (Ex d)

SANS 10198-9

The selection, handling and installation of electric power cables of rating not exceeding 33 kV.

SANS 1213

Mechanical cable glands

SANS 1803

Lugs and ferrules for insulated electric cables

NRS 053

Accessories for medium-voltage power cables (3,8/6,6 kV to 19/33 kV)

#### 1.9 **MV AND LV CABLE TESTING**

SANS 97

Electric cables - Impregnated paper-insulated metal-sheathed cables for rated voltages 3,3/3,3 kV to 19/33 kV (excluding pressure assisted cables)

SANS 10198-13

The selection, handling and installation of electric power cables of rating not exceeding 33 kV Part 13: Testing, commissioning and fault location.

### 1.10 **MV AND LV OVERHEAD POWER LINES**

|                           |                                                                                                                                                                                                  |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SANS 182                  | Conductors for overhead electrical transmission lines                                                                                                                                            |
| SANS 470                  | Concrete poles for telephone, power and lighting purposes                                                                                                                                        |
| SANS 616                  | High-temperature wood-preserving creosote                                                                                                                                                        |
| SANS 673                  | Mixtures of copper-chromium-arsenic compounds for timber preservation                                                                                                                            |
| SANS 753                  | Pine poles, cross-arms and spacers for power distribution, telephone systems and street lighting                                                                                                 |
| SANS 935                  | Hot-dip (galvanized) zinc coatings on steel wire                                                                                                                                                 |
| SANS 10280                | Overhead power lines for conditions prevailing in South Africa                                                                                                                                   |
| SANS 60282-1/IEC 60282-1  | High-voltage fuses, Part 1: Current-limiting fuses                                                                                                                                               |
| SANS 60305/IEC 60305      | Insulators for overhead lines with a nominal voltage above 1 000 V - Ceramic or glass insulator units for A.C. systems - Characteristics of insulator units of the cap and pin type              |
| SANS 60372/IEC 60372      | Locking devices for ball and socket couplings of string insulator units - Dimensions and tests                                                                                                   |
| SANS 60383-1/IEC 60383-1  | Insulators for overhead lines with a nominal voltage above 1 000 V, Part 1: Ceramic or glass insulator units for A.C. systems - Definitions, test methods and acceptance criteria                |
| SANS 61089/IEC 61089      | Round wire concentric lay overhead electrical stranded conductors                                                                                                                                |
| SANS 61109/IEC 61109      | Composite insulators for A.C. overhead lines with a nominal voltage greater than 1 000 V - Definitions, test methods and acceptance criteria                                                     |
| SANS 61211/IEC 61211      | Insulators of ceramic material or glass for overhead lines with a nominal voltage greater than 1 000 V - Impulse puncture testing in air                                                         |
| SANS 61284/IEC 61284      | Overhead lines - Requirements and tests for fittings                                                                                                                                             |
| SANS 61467/IEC 61467:1997 | Insulators for overhead lines with a nominal voltage above 1 000 V - AC power arc tests on insulator sets                                                                                        |
| SANS 61643-1/IEC 61643-1  | Low-voltage surge protective devices Part 1: Surge protective devices connected to low-voltage power distribution systems - Requirements and tests                                               |
| SANS 61952/IEC 61952      | Insulators for overhead lines - Composite line post insulators for alternative current with a nominal voltage > 1 000 V                                                                          |
| NRS 022                   | Electricity distribution - stays and associated components                                                                                                                                       |
| NRS 028                   | Cable lugs and ferrules - for copper and aluminium conductors                                                                                                                                    |
| NRS 031                   | Alternating current disconnectors and earthing switches (up to 145 kV)                                                                                                                           |
| NRS 035                   | Outdoor distribution cut-outs                                                                                                                                                                    |
| NRS 038                   | Concrete poles                                                                                                                                                                                   |
| NRS 039                   | Surge arresters for use in distribution systems                                                                                                                                                  |
| NRS 043                   | Code of practice for the joint use of structures for power and telecommunication lines                                                                                                           |
| NRS 044                   | 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 |
| NRS 060                   | Code of practice for clearances for electrical systems with rated voltages up to and including 145 kV, for the safety of persons                                                                 |
| NRS 066                   | Medium voltage insulators                                                                                                                                                                        |
| NRS 073                   | Wood poles, cross-arms and spacer blocks                                                                                                                                                         |
| NRS 075                   | Mechanical torque shear connectors                                                                                                                                                               |

### 1.11 **MV AND LV AERIAL BUNDLED CONDUCTOR**

|           |                                                                                                     |
|-----------|-----------------------------------------------------------------------------------------------------|
| SANS 1418 | Aerial bundled conductor systems                                                                    |
| SANS 1713 | Electric cables - Medium-voltage aerial bundled conductors for voltages from 3,8/6,6 kV to 19/33 kV |

### 1.12 **LIGHTNING PROTECTION**

|                      |                                                |
|----------------------|------------------------------------------------|
| SANS 10313           | The protection of structures against lightning |
| SANS 62305/IEC 62305 | Protection against lightning                   |

### 1.13 **HOT DIP GALVANISING**

#### General Hot Dip Galvanizing Standards:

|            |                                                                                            |
|------------|--------------------------------------------------------------------------------------------|
| SANS 32    | Hot-dip (galvanized) zinc coatings (other than on continuously zinc-coated and sheet wire) |
| SANS 121   | Hot-dip (galvanized) coatings on fabricated iron and steel articles                        |
| SANS 10094 | The use of high strength friction grip bolts                                               |
| SANS 14713 | General principles of design and corrosion resistance                                      |

#### Mechanical Cleaning and Zinc Thermal Spraying Standards:

|           |                                       |
|-----------|---------------------------------------|
| SANS 2063 | Metallic and other inorganic coatings |
|-----------|---------------------------------------|

#### Continuously Hot Dip Galvanized Sheeting Standards:

|            |                                                                                                       |
|------------|-------------------------------------------------------------------------------------------------------|
| SANS 4998  | Continues hot dip zinc coated carbon steel sheet of structural quality                                |
| SANS 3575  | Continues hot dip zinc coated carbon steel sheet of commercial, lock forming and drawing qualities    |
| SANS 9364  | Continues hot dip aluminium / zinc coated steel sheet of commercial, drawing and structural qualities |
| SANS 14788 | Continues hot dip zinc / 5% aluminium alloy coated sheets                                             |

#### Continuously Hot Dip Galvanized Wire Standards:

|            |                                                |
|------------|------------------------------------------------|
| SANS 675   | Zinc coated fencing wire                       |
| SANS 935   | Hot dip galvanized zinc coatings on steel wire |
| SANS 10244 | Steel wire and wire products                   |

### 1.14 **PAINTING**

|           |                                                |
|-----------|------------------------------------------------|
| SANS 1274 | Coatings applied by the powder-coating process |
|-----------|------------------------------------------------|

### 1.15 **LABELS AND NOTICES**

|           |                       |
|-----------|-----------------------|
| SANS 1186 | Symbolic safety signs |
|-----------|-----------------------|

## 2.0 **PARTICULAR TECHNICAL SPECIFICATION**

Supplementary to- and in conjunction with the statutory specifications provided above.

### 2.1 **MV AND LV CABLES**

#### 2.1.1 **GENERAL**

- (i) MV Cables shall be 3 core, PILCA, solid aluminium or stranded copper cored as specified in Table 18 for 11 kV cables and Table 20 for 22 kV cables.

All MV terminations shall be of the Heat Shrink termination type with ISO – Tech type Interface C Elbow Screened Connector or similar equally approved.

All MV through-joints shall be of the Powertech or Iso-tech type or similar equally approved.

- (ii) LV Cables shall be 2, 3 or 4 cored as specified for each task, PVCAS, copper cored.
- (iii) Concrete slabs and PVC marker tape shall be placed over MV cables in trenches and only PVC marker tape over LV cables.
- (iv) Locknuts on LV cable glands shall be brass.

#### 2.1.2 **CABLES LAID IN TRENCHES**

- (i) Unless specified otherwise for a specific task, LV cables shall be laid with a cover of 650 mm and MV cables with a cover of 850 mm.
- (ii) Where two MV cables are run in same trench, they shall be laid a minimum of 300 mm apart with separate cable slabs over each cable.
- (iii) Where MV and LV cables are laid in same trench, MV cables shall be located on road side and LV cables on the plot side of trench.
- (iv) A horizontal distance of not less than 400 mm shall be maintained between cables of different voltage groups.
- (v) Where a number of LV cables are run in same trench, they shall be laid with a minimum separation of 100 mm. This applies to feeder cables only and not streetlighting and service cables which shall be only 25 mm apart. Cables shall not cross each other unless approved by the Engineer.
- (vi) Where cables run across erven parallel to lateral boundaries, they shall be located 1,0 m from the boundary at a depth of 1,0 m. If so specified they shall be run in sleeves, otherwise both MV and LV cables shall be protected by cable slabs and a PVC marker tape laid 300 mm above them.
- (vii) Trench bottom shall be cleared of all sharp or protruding stones. Trench is then to be refilled with 150 mm of soft material and compacted. A further layer of soft material shall be installed after cables are laid to provide 200 mm cover for cable when compacted. Protective cable slabs, a minimum of 50 mm thick x 230 mm wide, shall then be laid in case of MV cables, and PVC marker tape 300 mm wide with indelibly

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printed warnings every 150 mm along its length, in case of LV cables. In cases where MV and LV cables run in same trench, 100 mm of soft bedding for LV cables shall be situated above protective cable slabs. Where only LV service cables or streetlighting cables are installed, a clean trench bottom and soft material back-fill only is required.

- (viii) Soft material described above may be either sand or backfill material sifted through a 3,0 mm mesh grid.
- (ix) Balance of trench is to be back-filled with excavated material from which all stones, etc. greater than 100 mm in size have been extracted. All such material is to be removed from site.
- (x) Cable route markers shall be provide for all MV and man LV feeder cables at road, culvert and Telkom cable crossings, at all changes of direction, at joints and at intervals not exceeding 60 metres along the straight.
- (xi) Cable route markers shall comprise concrete blocks in shape of truncated pyramids 300 mm high, 150 mm x 150 mm at top and 225 mm x 225 mm at base. An aluminium plate 3,0 mm thick minimum, with four rods 75 mm minimum, welded to it on underside, shall be cast into top of concrete block, and plate shall have been stamped on its cable data and direction arrows, and at a crossing, crossing shall be indicated.
- (xii) Cable route markers shall be placed over cable, in trench way, and shall protrude 25 mm above finished ground level but not where they are likely to cause an obstruction or be in way of moving traffic. Joint markers shall indicate as such. Contractor shall ensure that ground under and around cable marker is properly compacted.

#### 2.1.3 **LAYING OF CABLES WITH OTHER SERVICES**

- (i) Where cables are laid in trenches containing water and other pipes, etc, electrical cables shall be laid along one edge of trench with other services occupying the other edge.
- (ii) Cables shall be laid not less than 600 mm from such service unless otherwise approved by the Engineer.
- (iii) At road and services crossings, sleeves shall be provided for each MV cable and a separate sleeve for other cables, unless required otherwise by the Engineer.
- (iv) At Telkom cable crossings, power cables shall cross 300 mm below and at right angles to all such cables or sleeves for future cables. Power cables shall be enclosed in uPVC sleeves with cable slabs over, both of which shall extend 1,0 m either side of the crossing. No power cables running parallel with a Telkom cable shall be laid within a distance of 1,0 m measured horizontally from the Telkom cable. Wherever existing buried Telkom cables are encountered, strict precautions and care shall be taken and close supervision given. Any damage to or disturbance of Telkom cables whatsoever shall be immediately reported and confirmed in writing to the Engineer.

#### 2.1.4 **LABELLING OF CABLES**

- (i) All cables shall be clearly labelled with an everlasting type of label.
- (ii) Label shall state cable size and number of cores.

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- (iii) All main feeder cables shall be labelled to state from whence they are supplied.
- (iv) Labels shall be so installed that they are easily readable.

## 2.2 **CONCRETE PLINTHS AND ENCLOSURES**

- (i) Concrete plinths for Miniature Substations and Switchgear etc. shall be 300 mm above the natural ground level and 150 mm below ground level.
- (ii) Miniature Substations, Switchgear and Metering Units shall have Hot Dipped Galvanised steel or 3CR12 steel enclosures painted Avocado Green C12 / SABS 1091 paint equalling 125µm, and for Salt / Coastal Conditions.
- (iii) Pole Mounted Transformers shall be Zinc Sprayed and painted Avocado Green C12 / SABS 1091 paint equalling 125µm, and for Salt / Coastal Conditions.

## 2.3 **MV AND LV OVERHEAD LINES**

- (i) All steelwork on Overhead Line structures shall be Hot Dipped Galvanised.
- (ii) Overhead Line conductors shall be of the following types and of the sizes specified for each task:
  - (a) MV Overhead Lines shall be either bare copper conductors, All Aluminium Alloy (AAAC) (Greased), Aluminium Conductor Steel Reinforced (ACSR) or Aerial Bundled Conductor (ABC) with supporting core system (French system).
  - (b) LV Overhead Lines shall be Aerial Bundled Conductors (ABC) for main lines and Airdac for service connection cables.
- (iii) Insulators for MV bare conductor Overhead Lines shall be as follows and suitable for coastal conditions:
  - (a) 66 kV:  
Strain – Composite silicon rubber Long Rod 66kV, 120kN, 2248mm creepage.  
Suspension – Composite silicon rubber Long Rod 66kV, 133kN, 2131mm creepage.
  - (b) 22 kV:  
Strain – Pure silicon rubber Long Rod 22kV, 70kN, 850mm creepage.  
Line Post – Capless brown glazed porcelain 22kV, 10kN, 750mm creepage.
  - (c) 11 kV:  
Strain – Pure silicon rubber Long Rod 11kV, 70kN, 590mm creepage.  
Line Post – Capless brown glazed porcelain 15kV, 10kN, 325mm creepage.
- (iv) Wooden poles for Overhead Lines:
  - (a) Poles shall be Pinus Radiata, machine peeled and inspected by the Engineer at the Suppliers premises before delivery to site and no excessively bent or ragged looking poles will be accepted. Poles must bear the SABS mark.

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- (b) Unless specified otherwise for a specific task, the minimum top diameter and diameter at theoretical ground level and depth pole to be planted shall be as follows for the following tarred wooden pole lengths:

| Pole Length | Top diameter | Ground diameter | Plant depth |
|-------------|--------------|-----------------|-------------|
| 8 metres    | 140 mm       | 175 mm          | 1500 mm     |
| 9 metres    | 140 mm       | 180 mm          | 1500 mm     |
| 10 metres   | 160 mm       | 205 mm          | 1800 mm     |
| 11 metres   | 160 mm       | 215 mm          | 1800 mm     |
| 12 metres   | 160 mm       | 215 mm          | 1800 mm     |
| 13 metres   | 180 mm       | 245 mm          | 2000 mm     |
| 14 metres   | 200 mm       | 265 mm          | 2200 mm     |

- (c) Unless specified otherwise for a specific task, the minimum diameter shall be as follows for the following wooden cross-arms:

| Cross-Arm Length | Diameter |
|------------------|----------|
| 3,5 metres       | 140 mm   |
| 4,5 metres       | 140 mm   |
| 5,5 metres       | 160 mm   |
| 7 metres         | 160 mm   |

- (d) Stays for Overhead Lines (unless specified otherwise for specific task) shall be galvanised, 7 strands of 4,0 mm, and adjustable.

The base plates for all stays shall be galvanised steel plate of 600 x 600 x 600 mm square.

- (v) The Electrical Contractor shall be required to replace 66kV insulators on either 12m long (mounting height) tarred wooden pole structures or 16,5m long (mounting height) hot dip galvanised steel pole structures. Adequate allowance must be made for labour and equipment hiring to allow for operations on the latter structures.

## 2.4 **TRENCHING, EXCAVATION AND COMPACTION**

### 2.4.1 **GENERAL**

- (i) Contractor to allow for all excavation and backfilling of cable trenches and holes for planting of poles, unless required otherwise by the Engineer.
- (ii) Contractor shall be responsible for ensuring that any trenches opened by him, or for him, do not constitute a hazard to the public.
- (iii) Barriers and warning lights at night, or any other protection of trenches or excavations, to be provided as required by the Engineer or to meet statutory requirements.
- (iv) Contractor shall be responsible for leaving all areas affected by cable trenches, holes in ground, and any other work done by him or on his behalf, in a clean and tidy state, and for making good all tarmacadam, concrete, paved or grassed surfaces.

- (v) Contractor's responsibility to make good any subsidence that may occur within six months of back-filling trenches, and, in case of tarried surfaces, to remove and re-tar with new material.

#### 2.4.2 **ROUTING**

- (i) Routes for underground cables shall be as indicated by the Engineer.
- (ii) Variation of these routes shall be approved by Engineer before trenching is done.
- (iii) Contractor's responsibility to ensure that the routes of the cables are correct.

#### 2.4.3 **PEGS**

- (i) The Contractor shall be responsible for the replacement of any pegs disturbed or removed by him.

#### 2.4.4 **TRENCHING AND EXCAVATION BY OTHERS**

The Contractor is to always co-operate closely with the Trenching Contractor and is required to be in attendance during backfilling of all trenches, etc., to ensure that cables are not damaged in any way and that poles are correctly aligned.

#### 2.4.5 **TYPE OF MATERIAL**

The following definitions shall apply to the three categories. Where the conditions experienced are a combination of two or more of the conditions listed below, the Contractor shall be paid on rates in proportion to the contents of earth, soft rock or hard rock experienced in the excavations.

"Earth" shall mean ground that can be removed by hand using pickaxe and spade, and includes loose gravel, clay, made-up ground, loose or soft shale, loose oukclip, and boulders less than 75mm in diameter.

"Soft rock" shall mean all hard ground such as oukclip, hard shale, decomposed rock, loose boulders and large stones, etc., which require the use of pneumatic tools, mechanical rippers and/or excessive hard labour to excavate and remove economically.

"Hard rock" shall mean granite, quartzite, dolomite, or other rock of similar hardness, which can only be excavated and removed economically by blasting, wedging or breaking.

#### 2.4.6 **VERIFICATION OF EXCAVATION CLAIMS**

- (i) Payment will only be authorised for excavation in ground other than earth upon submission of documentary proof of such excavation made and signed as correct at the time trenches or holes were excavated.
- (ii) In all cases where rock has to be excavated, or where poles, etc. have to be stabilised with concrete or by other means, in loose sand or in soft or waterlogged ground or where substitution of excavated material is necessary for backfilling, that the Engineer be notified before such excavation work is backfilled.
- (iii) Amounts and type of rock encountered shall be measured by the Contractor in the presence of the Engineer.

#### 2.4.7 **PRECAUTION WITH REGARD TO OTHER SERVICES**

- (i) The Contractor shall exercise extreme caution in his work to avoid damage to existing underground services.
- (ii) All excavation in the vicinity of other services must be undertaken by hand.

#### 2.4.8 **COMPACTION**

- (i) Care shall be taken in compacting pole holes, trenches crossing roads and those crossing or running under or within 1,0m of paved or tarred sidewalks.
- (ii) In trenches, the backfill shall be replaced in 150mm layers and four to six passes with a vibrating pan compactor shall be made per layer. Around poles, a jumping jack shall be used on each 150mm layer.
- (iii) When clay is encountered, the Engineer should be advised and may instruct the Contractor to remove all such excavated material and replace it with more suitable material, which shall then be compacted as above.
- (iv) Where material is too wet for proper compaction, it should be dried out and if too dry, shall be dampened.
- (v) In the case of road crossings, the excavated base and sub-base material shall be mixed and replaced up to the top level of the original sub-base.

New material equal in composition to the original base course shall be supplied, this material being used for the full depth of the base course layer.

- (vi) Degree of compaction required shall be field densities of 95% in respect of poles and road crossings and 90% in respect of sidewalks.
- (vii) All trenches crossing roads and side walks shall be approved by the Municipality's Roads Department and also meet their specific requirements. The Engineer will, if the compaction is in doubt, arrange to have it independently tested and should the compaction prove to be below standard, the cost of the test will be debited to the Contractor, who will be required, at his own expense, to open and re-fill trench or pole hole to obtain the specified compaction value.

#### 2.5 **PREPAID LV kWh METERS**

LV kWh meters shall be of the smart prepaid electricity meter type with a User Interface Unit (UIU) installed inside the house and shall comply with the following requirements:

- It shall have a smart configuration, which supports remote disconnect and reconnect of the supply control switch. The meter shall be able to form part of an end-to-end Advanced Metering Infrastructure (AMI) system when Data Concentrators (DC) are installed. The meter shall communicate to the DC by means of open standard G3-PLC communications.
- It must support account configuration of Standard Transfer Specification (STS) prepayment and post-payment (credit metering).
- It shall be industry and Eskom's standard STS compliant – Certificate of Compliance (COC) to be provided.
- It shall be industry standard Device Language Message Specification (DLMS) compliant – COC to be provided.

- For operating and maintenance purposes, the meter shall support visual indications of load switch status and G3-PLC communications status.
- It shall support an IEC optical interface for field and service read-out and parameterization.
- Ancillary meter support tools, licenses and training for key municipality personnel.
- Full compliance with SABS 1524-1: 1994 and NRS 009.
- Current limiting from 1A to 80A adjustable in 1A steps.
- Maximum initial current limit manufacturer pre-set at 20A.
- Voltage surge protection to comply with SABS 171.
- Fitted with tamperproof protection.

## 2.6 **POLE MOUNTED CONSUMER SERVICES CONNECTION BOXES**

The CSCB's shall be similar or equal approved to the Polybox Polyethylene, GreenBro IP54 pole mounted box fitted with neutral and earth bars, and interconnecting conductors.

The box shall be complete with 4 (four) min. 2,5m long min. 16mm<sup>2</sup> copper UV stable, black insulated, conductor tails for connection to the bundled conductor overhead line, and stainless steel brackets for strapping the box to the wooden pole. The interconnecting conductors shall be colour coded (Red, White and Blue stripe and Black for neutral).

The CSCB's shall each be fitted with the following minimum equipment:

- Set of four (4) individual Surge Arrestors, similar or equal approved to the CBI type QFLN-4(13).
- Four (4) 63A single phase circuit breakers, similar or equal approved to CBI type QF-1(26), orange handle (Curve 1).
- Four (4) split pre-payment kWh meter Measurement and Control Units (MCU's).

## 2.7 **READY BOARDS**

Ready boards shall be similar or equal approved to the CBI type NRBCON003 with a bulkhead light fitting and contain the following:

- 1 x Switched Bulkhead light fitting, fitted with 1 x 18W CFL lamp
- 3 x 16A Switched Sockets
- 1 x 6A Euro Socket
- Compatible with all the prepayment meters
- Warning labels
- Earth Leakage protection

The boards shall be suitable for a 230 volt single phase supply and comply with SABS 1619: 1995.

## 2.8 **TRANSFORMERS**

Where called for a 22/11kV outdoor substation transformer, it shall comply with the requirements in the table hereafter:

## C3.2.12

| ITEM | DESCRIPTION                   | REQUIREMENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Windings                      | Double wound                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 2.   | Rating                        | As specified in the Bills of Quantities, Part C2.2 hereof                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 3.   | No. of Phases                 | Three (3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 4.   | Service voltage primary       | 22000 volt                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 5.   | Service voltage secondary     | 11000 volt                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 6.   | Vector group                  | Dyn 11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 7.   | Cooling                       | ONAN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 8.   | Winding material              | Copper both primary and secondary windings.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 9.   | Cable termination arrangement | Outdoor porcelain bushings on both primary and secondary.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 10.  | Impedance                     | Low loss to not exceed 6% with allowance for 10% tolerance.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 11.  | Mounting                      | Suitable for outdoor mounting on a concrete plinth.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 12.  | Fittings                      | <p>Dial type thermometer with two pairs of adjustable contacts for trip and alarm signals. Pressure relief valve fitted onto tank with a pair of normally open contacts that close when the valve opens.</p> <p>Gas and oil actuated Bucholtz relay to be installed in the oil filler pipe from the conservator to the transformer tank, with two pairs of contacts for trip and alarm signals. Weatherproof and lockable connection marshalling box to be provided and mounted on the side of the transformer.</p> <p>All wiring for control signals shall be brought to numbered terminals from the thermometer, Bucholtz relay and pressure relief valve.</p> <p>The box shall be provided with connection blocks with minimum six (6) spare terminals and is to be completely weatherproof and not subject to condensation forming.</p> <p>A conservator, with bolted cover, and silica gel breather shall be provided.</p> |

## C3.2.13

| ITEM | DESCRIPTION     | REQUIREMENT                                                                                                                                                                                                         |
|------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 13.  | External finish | Zinc metal sprayed and painted in accordance with the requirements for Coastal conditions as laid down in SABS 780. The finishing paint colour shall be avocado green, except the conservator which shall be white. |
| 14.  | Taps            | 4 Equal steps of 2,5%<br>(5 positions) from -5% to +5% of nominal voltage.                                                                                                                                          |
| 15.  | Losses          | Iron loss on principal tapping.                                                                                                                                                                                     |

Where called for a 22/0,4kV or 11/0,4kV pole mounted transformer, it shall comply with the requirements in the table hereafter:

| ITEM | DESCRIPTION                   | REQUIREMENT                                                                                                                                                            |
|------|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Windings                      | Double wound                                                                                                                                                           |
| 2.   | Rating                        | As specified in the Bills of Quantities, Part C2.2 hereof                                                                                                              |
| 3.   | No. of phases                 | Three (3)                                                                                                                                                              |
| 4.   | Service voltage primary       | 11000 or 20000 Volt as specified                                                                                                                                       |
| 5.   | Service voltage secondary     | 420/240 Volt                                                                                                                                                           |
| 6.   | Vector group                  | Dyn11                                                                                                                                                                  |
| 7.   | Transformer winding material  | Copper both primary and secondary windings                                                                                                                             |
| 8.   | Type                          | Pole mounted transformer substation, hermetically sealed (welded cover) for outdoor use.                                                                               |
| 9.   | Cable termination arrangement | Outdoor porcelain bushings on both primary and secondary.                                                                                                              |
| 10.  | External Finish               | Zinc metal sprayed and painted in accordance with the requirements for Coastal conditions as laid down in SABS 780. The finishing paint colour shall be avocado green. |

## 2.9 **MINIATURE SUBSTATIONS**

Where called for a miniature substation it shall comply with the requirements in the table hereafter:

## C3.2.14

| ITEM | DESCRIPTION                        | REQUIREMENT                                                                                                                                                                                                                                                                                                                                                                                 |
|------|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.0  | Class                              | SABS type B                                                                                                                                                                                                                                                                                                                                                                                 |
| 2.0  | Finish                             | Coastal finish with 3CR12 steel material.<br>Colour of paint for finishing coats shall be Avocado Green.                                                                                                                                                                                                                                                                                    |
| 3.0  | Bolts, nuts, washers, hinges, etc. | Brass, stainless steel or galvanised steel.                                                                                                                                                                                                                                                                                                                                                 |
| 4.0  | <u>H.V. Compartment</u>            |                                                                                                                                                                                                                                                                                                                                                                                             |
| 4.1  | Ring main unit                     | Similar or equal approved to the Merlin Gerin RMU Type NE-IDI non extensible unit with circuit breaker T-Off, SF6-filled and insulated.                                                                                                                                                                                                                                                     |
| 4.2  | Cable termination                  | Cable box suitable for the termination of 3 core belted PILCA (Table 18) cable using a heat shrink kit, similar or equal to the Raychem type. A wooden cleat shall be provided in the box to support the cable ends. The circuit breaker shall be connected to the transformer bushings with 25mm <sup>2</sup> Cu XLPE insulated tails or an alternative cable of adequate rating and type. |
| 4.3  | Finish                             | All metalworks shall be painted grey to coastal finish.                                                                                                                                                                                                                                                                                                                                     |
| 5.0  | <u>Transformer</u>                 |                                                                                                                                                                                                                                                                                                                                                                                             |
| 5.1  | Rated power in kVA:                | As specified in the Bills of Quantities, Part C2.2 hereof                                                                                                                                                                                                                                                                                                                                   |
| 5.2  | No. of phases                      | 3                                                                                                                                                                                                                                                                                                                                                                                           |
| 5.3  | Windings                           | Double wound, <u>copper</u> both primary and secondary                                                                                                                                                                                                                                                                                                                                      |
| 5.4  | Primary service voltage            | As specified in the Bills of Quantities, Part C2.2 hereof                                                                                                                                                                                                                                                                                                                                   |
| 5.5  | Secondary service voltage          | As specified in the Bills of Quantities, Part C2.2 hereof                                                                                                                                                                                                                                                                                                                                   |
| 5.6  | Vector Group                       | Dyn11                                                                                                                                                                                                                                                                                                                                                                                       |
| 5.7  | Fittings                           | Standard and also <u>dial type thermometer with shunt trip switches</u> .                                                                                                                                                                                                                                                                                                                   |
| 6.0  | <u>LV Compartment</u>              |                                                                                                                                                                                                                                                                                                                                                                                             |
| 6.1  | Fittings                           | Standard as per Manufacturer.                                                                                                                                                                                                                                                                                                                                                               |

## 2.10 **LV DISTRIBUTION KIOSKS**

Where called for LV distribution kiosks it shall be of polyethylene construction type with a standard root.

It shall have two (2) lockable doors, i.e. a front and rear compartment, and each compartment shall be provided with a restraining device of non-ferrous components to prevent whipping when opened. The compartments shall be completely shrouded from each other.

The busbars shall be of 316 Stainless Steel and min. 2mm thick. The front and rear gland plates shall be separate. The colour of the kiosk shall be Light Grey.

## 2.11 **RING MAIN UNITS**

Where called for a Ring Main Unit (RMU) it shall comply with the requirements in the table hereafter.

| ITEM | DESCRIPTION                                 | REQUIREMENT                                                                                                                       |
|------|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| 1.0  | Switchgear Type                             | Similar or equal approved to Schneider Electric Type RM6 or ABB type SafeRing, SF6 insulated non-extensible Ring Main Unit (RMU). |
| 2.0  | Power supply                                | Self-contained, no external power supply.                                                                                         |
| 3.0  | 11kV 3-phase ring isolating switches        | 2 off required. Ganged, manually operated, quick acting, spring loaded for making and breaking.                                   |
| 3.1  | Operating mechanism                         | Free handle type                                                                                                                  |
| 3.2  | Fault making current                        | 20kA                                                                                                                              |
| 3.3  | Continuous and load breaking current        | 400A                                                                                                                              |
| 3.4  | Integral earthing switch                    | Required, with safety interlock.                                                                                                  |
| 4.0  | 11kV 3-phase tee-off circuit breaker        | 1 off required. Quick acting, spring loaded for making and breaking.                                                              |
| 4.1  | Operating mechanism                         | Free handle type                                                                                                                  |
| 4.2  | Nominal short-time withstand current        | 20kA                                                                                                                              |
| 4.3  | Continuous current                          | 400A                                                                                                                              |
| 4.4  | Electrical Protection                       | Automatic tripping of the circuit breaker via current transformers, time delay fuses and a protective relay built into the RMU.   |
| 4.5  | Integral earthing switch                    | Required, with safety interlock.                                                                                                  |
| 5.0  | Indicators:                                 |                                                                                                                                   |
| 5.1  | Switch / circuit breaker position indicator | Mechanical indicator to show whether the particular circuit is in the "On", "Off" or "Earth" position.                            |
| 5.2  | SF6 pressure indicator                      | A SF6 pressure indicator shall be provided.                                                                                       |
| 6.0  | Exterior Finish                             | 3CR12 Weatherproof outdoor enclosure with a minimum thickness of 2,5mm.<br>Colour of paint for finishing coats shall be grey.     |

## 2.12 **BULK MV METERING UNIT**

Where called for a Bulk MV Metering Unit it shall be similar or equal approved to the Schneider Electric manufacture, RM6, free standing type. Cable boxes suitable for the termination of 3 core belted PILCA (Table 18) cables using a heat shrink kit shall be provided. A wooden cleat shall be provided in the box to support the cable ends.

The metering unit shall be supplied and installed inside a coastal finish enclosure with 3CR12 steel material. Colour of paint for finishing coats shall be Avocado Green. All internal metal work shall be painted grey to coastal finish. Safety notices shall be provided.

## 2.13 **AUTO-RECLOSERS**

Where called for an auto-recloser, it shall comply with the requirements in the table hereafter.

| ITEM | DESCRIPTION                                                                                        | REQUIREMENT |              |
|------|----------------------------------------------------------------------------------------------------|-------------|--------------|
|      |                                                                                                    | 11kV        | 22kV         |
| 1.0  | <u>Voltage Rating</u>                                                                              |             |              |
| 1.1  | Maximum Voltage                                                                                    | 15,5 kV     | 27,0 kV      |
| 1.2  | Rated Basic Impulse Level                                                                          | 125.0 kV    | 150.0 kV     |
| 1.3  | Radio Noise Limit ( $\mu$ v)                                                                       | 100 @ 9.4kV | 100 @ 16.4kV |
| 1.4  | Power Frequency Withstand, Dry                                                                     | 50 kV       | 60 kV        |
| 1.5  | Power Frequency Withstand, Wet                                                                     | 45 kV       | 50 kV        |
| 2.0  | <u>Current Rating (Amperes)</u>                                                                    |             |              |
| 2.1  | Rated Continuous Current                                                                           | 630 A       | 630 A        |
| 2.2  | Short Circuit Current, Symmetrical                                                                 | 12.5 kA     | 12.5 kA      |
| 2.3  | Making Current, Asymmetrical Peak                                                                  | 32.0 kA     | 32.0 kA      |
| 2.4  | Cable Charging Current                                                                             | 10 A        | 25 A         |
| 3.0  | <u>Interrupting Medium</u>                                                                         |             |              |
| 3.1  | Vacuum or SF6 gas, or a combination of both                                                        | Yes         | Yes          |
| 4.0  | <u>Mechanical Ratings</u>                                                                          |             |              |
| 4.1  | Min. Mechanical / Electrical Operations without maintenance                                        | 10 000      | 10 000       |
| 5.0  | <u>Auxiliary-Powered Interface</u>                                                                 |             |              |
| 5.1  | Control-powered interface required                                                                 | Yes         | Yes          |
| 5.2  | Voltage Input                                                                                      | 240 VAC     | 240 VAC      |
| 5.3  | Normal Current                                                                                     | 0.1 A       | 0.1 A        |
| 5.4  | Operating Current                                                                                  | 0.5 A       | 0.5 A        |
| 5.5  | Duration                                                                                           | 3 sec       | 3 sec        |
| 6.0  | <u>Mounting Arrangement</u>                                                                        |             |              |
| 6.1  | Hot dip galvanised steel bracket for mounting on a single pole, as per Manufacturer specifications | Yes         | Yes          |

## 2.14 **SECTIONALIZERS**

Where called for a sectionalizer, it shall comply with the requirements in the table hereafter.

| ITEM | DESCRIPTION                                                                                         | REQUIREMENT |              |
|------|-----------------------------------------------------------------------------------------------------|-------------|--------------|
|      |                                                                                                     | 11kV        | 22kV         |
| 1.0  | <u>Voltage Rating</u>                                                                               |             |              |
| 1.1  | Nominal Voltage                                                                                     | 15.5 kV     | 27.0 kV      |
| 1.2  | Rated Maximum Voltage                                                                               | 15.5 kV     | 38.0 kV      |
| 1.3  | Impulse Withstand                                                                                   | 100 @ 9.4kV | 100 @ 16.4kV |
| 1.4  | Power Frequency Withstand, Dry                                                                      | 50 kV       | 60 kV        |
| 1.5  | Power Frequency Withstand, Wet                                                                      | 45 kV       | 50 kV        |
| 2.0  | <u>Current Rating (Amperes)</u>                                                                     |             |              |
| 2.1  | Rated Continuous Current                                                                            | 400 A       | 400 A        |
| 2.2  | Rated Symmetrical Interrupting Current (A rms)                                                      | 880 A       | 880 A        |
| 2.3  | Rated Making Current, Asymmetrical (A rms)                                                          | 20 000      | 10 000       |
| 3.0  | <u>Interrupting Medium</u>                                                                          |             |              |
| 3.1  | Vacuum or SF6 gas, or a combination of both interrupting mediums                                    | Yes         | Yes          |
| 4.0  | <u>Mechanical Ratings</u>                                                                           |             |              |
| 4.1  | Minimum Mechanical / Electrical Operations without maintenance                                      | 10 000      | 10 000       |
| 5.0  | <u>Mounting Arrangement</u>                                                                         |             |              |
| 5.1  | Hot dip galvanised steel bracket for mounting on a single pole, as per Manufacturer specifications. | Yes         | Yes          |

## 2.15 **MV EXPULSION FUSES**

MV expulsion fuses shall be silicone cut-out suitable for the voltage operation as required and manufactured for severe corrosive coastal conditions, complete with hot dip galvanised steel mounted bracket.

## 2.16 **LIGHTNING ARRESTORS**

MV lightning arrestors shall be silicone cut-out suitable for the voltage operation as required and manufactured for severe corrosive coastal conditions, complete with hot dip galvanised steel mounted bracket.

## 2.17 **LOAD BREAK SWITCH DISCONNECTOR**

Where called for a load break switch, it shall be of the pole mounted type, pull-to-open and pull-to-close, complete with a hot dip galvanised steel bracket for mounting on a single pole, and shall comply with the requirements in the table hereafter.

| ITEM  | DESCRIPTION                                                                                         | REQUIREMENT      |
|-------|-----------------------------------------------------------------------------------------------------|------------------|
| 1.0   | <u>Voltage Rating</u>                                                                               |                  |
| 1.1   | Nominal Voltage                                                                                     | 25 kV            |
| 1.2   | Withstand Voltage:                                                                                  | 50 kV            |
| 1.2.1 | - between phases and against earth                                                                  | 60 kV            |
| 1.2.2 | - across the isolating distance                                                                     | 125 kV           |
| 1.3   | Lightning impulse withstand voltage:                                                                | 145 kV           |
| 1.3.1 | - between phases and against earth                                                                  |                  |
| 1.3.2 | - across the isolating distance                                                                     |                  |
| 2.0   | <u>Current Ratings</u>                                                                              |                  |
| 2.1   | Rated normal current                                                                                | 630 A            |
| 2.2   | Earth Fault breaking current                                                                        | 200A             |
| 3.0   | <u>Short Circuit Ratings</u>                                                                        |                  |
| 3.1   | Short-time withstand current                                                                        | 16 kA, 3 seconds |
| 3.2   | Peak withstand current                                                                              | 40 kA            |
| 3.3   | Short-circuit making current, peak value                                                            | 40 kA            |
| 4.0   | <u>Insulation Level</u>                                                                             |                  |
| 4.1   | Rated maximum voltage                                                                               | 27 kV            |
| 4.2   | Rated continuous current                                                                            | 600A             |
| 4.3   | Rated withstand impulse voltage                                                                     | 150 kV           |
| 5.0   | <u>Mounting Arrangement</u>                                                                         |                  |
| 5.1   | Hot dip galvanised steel bracket for mounting on a single pole, as per Manufacturer specifications. | Yes              |

### 2.18 **INDOOR 11kV SWITCHGEAR PANEL**

Where called for an 11kV switchgear panel it shall comply with the requirements in the table hereafter.

| ITEM | DESCRIPTION                                     | REQUIREMENT                                                                                            |
|------|-------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| 1.0  | General                                         | Metal-enclosed with internal arc exhausting. SF6 Gas or vacuum insulated, or a combination of the two. |
| 2.0  | Voltage rating                                  | 12kV rms                                                                                               |
| 3.0  | Current rating                                  | 630A rms                                                                                               |
| 4.0  | Rated short-time withstand current and duration | 21kA for 3 seconds                                                                                     |
| 5.0  | Rated impulse withstand voltage                 | 125kVip                                                                                                |
| 6.0  | Finish                                          | All metalwork shall be painted grey, to coastal finish.                                                |

### 2.19 **BATTERY TRIPPING UNIT (BTU)**

Where called for a BTU it shall comply with the requirements in the table hereafter.

| ITEM | DESCRIPTION       | REQUIREMENT                                                                                                         |
|------|-------------------|---------------------------------------------------------------------------------------------------------------------|
| 1.0  | AC Supply voltage | 230V AC                                                                                                             |
| 2.0  | DC Output voltage | 30V or 110V DC, as specified in the Bills of Quantities.                                                            |
| 3.0  | Capacity          | Ah (Amp hour), as specified in the Bills of Quantities.<br>Number of batteries to suit total AH required.           |
| 4.0  | Indication        | Indication for "Battery Charger Low" and "Battery Charger Fail" conditions with dry contacts for remote monitoring. |
| 5.0  | Finish            | All metalwork shall be painted grey, to coastal finish.                                                             |

## 2.20 **PROTECTION RELAYS**

Where called for a protection relay, it shall comply with the requirements in the table hereafter.

| ITEM | DESCRIPTION                              | REQUIREMENT                                                                                                                  |
|------|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| 1.0  | Mount method                             | Panel mount                                                                                                                  |
| 2.0  | AC Voltage Input                         | 300V max.                                                                                                                    |
| 3.0  | AC Current Inputs                        | 5A Nominal, 1A Nominal and Sensitive Earth Fault.                                                                            |
| 4.0  | Power Supply rating                      | Option of either 24/48V, 48/125V or 125/250V Supply.                                                                         |
| 5.0  | Standard Control Input and Output Ranges | Option of either 24, 48, 110, 125, 220 or 250Vdc, level sensitive.<br>Min. 6 inputs and 8 outputs.                           |
| 6.0  | Min. Protection Functions                | Undervoltage, overvoltage, overcurrent, directional overcurrent, neutral overcurrent, earth fault and sensitive earth fault. |
| 7.0  | Operating Temperature                    | -40°C to +85°C                                                                                                               |

## 2.21 **BULK LV kWh METERS**

Where called for a Bulk kWh Meter, it shall be similar or equal approved to the Itron SL7000, complete with cell phone modem and test block.

## 2.22 **STREET LIGHTS**

Where called for street lights, it shall be of the urban type, suitable for road and area lighting. The streetlight luminaire fittings offered shall be suitable for coastal conditions and suitably fit to accept the following lamp sizes, incl. its relevant control gear:

- 54W LED lamp replacement for 125W MV (Mercury Vapour)
- 115W LED lamp replacement for 250W HPS (High Pressure Sodium)
- 135W LED lamp replacement for 400W HPS
- 300W LED lamp replacement for 1000W MH (Metal Halide)

Where called for street light poles, it shall be to the following standard lengths and types:

Standard pole lengths:

- 5,7m (5m mounting height), diameter at ground level  $\pm 164\text{mm}$
- 9,2m (8m mounting height), diameter at ground level  $\pm 202\text{mm}$
- 12,8m (11m mounting height), diameter at ground level  $\pm 280\text{mm}$

Standard pole types include concrete, hot dip galvanised steel and fibre glass reinforced Polyester (GRP).

## 2.23 **ELECTRICAL PROTECTION AND TESTING**

### (i) Circuit Breaker Mechanical Test: Per Switch Panel

The Contractor shall carry out the following checks:

- Torque-testing all primary conductor bolts and nuts and recording results;
- Ascertaining that all bolts and nuts used were new and comply with the manufacturer's specification;
- Checking the circuit breaker for any defects or damage due to manhandling;
- Checking circuit breaker alignment and ease of racking in and out;
- Checking bus bar shutter operations for smooth operation and adjustment thereof, if necessary;
- Checking operation of circuit breaker manually;
- Testing earth continuity of earthing bus bars and connection to station earth mat;
- Ensuring that all covers are fitted and explosion vents functional;
- Checking that the panel complies with IP ratings;
- Measuring and recording of the circuit breaker no load tripping time and the no load closing time for each phase;
- Production of test certificates for all tests carried out.

### (ii) Circuit Breaker Electrical Test: Per Switch Panel

The Contractor shall carry out the following tests:

- Measurement and recording of the contact resistance of the closed circuit breaker using min 100 A D.C. Wheatstone Bridge method; (Ductor tester)
- Testing of HV insulation resistance of panel and circuit breaker to manufacturer's specifications for new or used equipment, whichever is applicable. Test to be carried out with circuit breaker closed between phases and across the open contact of each phase;
- Testing of trip and close coil minimum operation voltage levels;
- Testing of the trip and close coil resistance and recording thereof;
- Checking that spring charge motor rating corresponds with D.C. available;
- Production of test certificates for all tests carried out.

### (iii) Current Transformer Test

The Contractor shall carry out the following tests per secondary connection:

- Ratio test: Ratio shall be tested at rated current;
- Magnetisation curve test: Magnetisation curve shall be tested and comparison curves plotted for all sets of current transformers including metering;
- Polarity shall be tested by means of D.C. flick test
- The insulation resistance of the current transformers shall be measured and the CT earth tested on the secondary wiring;
- The loop resistance shall be measured for CT, wiring and relays, and be recorded;
- Test certificates for all tests carried out shall be produced.

### (iv) Voltage Transformer Test

The Contractor shall carry out the following tests per secondary connection:

- Ratio test;

- Polarity shall be tested by means of D.C. flick test;
- The insulation resistance of the voltage transformers shall be measured and the neutral earth tested on the secondary wiring;
- Test certificates for all tests carried out shall be produced.

(v) Routine Checks

The Contractor shall carry out the following tests & annual checks as and when required:

- Primary and Secondary substations:
- Battery maintenance, ammeter readings on all panels,
- D.C. checks in panels,
- Trip counter readings on all breakers,
- Substation checks on buildings, doors, ceilings, signs etc. Cleaning out of protection panels & switch house.
- Logging of any protection flags.
- Distribution board checks including earth leakage checks.
- Testing of operation of building alarm and signal to the Control centre.
- Transformer – Checking of oil leaks, insulators, silica gel. Logging of oil temperature, winding temperature, tap change counter, tap change bandwidth (Minimum & maximum), circuit breaker trip counter.

(vi) Protection Relays

The Contractor shall carry out tests per relay using primary and secondary current injection on electro-mechanical, solid-state and multifunctional microprocessor type relays, where relevant. The contractor shall ensure that the functional operation of the relays are in order. The following relays and functions shall be covered.

1. Over-Current and Earth Fault Protection Relays

- Over-current and earth fault relay
- Directional over-current and earth fault relay
- Sensitive earth fault relay
- Solkor relays
- Breaker Fail Logic

The Contractor shall prove the operation of the relay within the scheme, i.e. secondary wiring between the CT's and the relay element and between the relay contacts and the trip circuit.

2. Standby Earth Fault Relay

The Contractor shall prove the operation of the relay within the scheme, i.e. secondary wiring between the CTs and the relay element and between the relay contacts and the trip circuit.

3. Feeder Differential Protection Relays

The Contractor shall test the feeder differential relay per relay by injecting current through the primary circuit between substations. Separate rates are allowed for secondary

injection tests where the primary impedances are too great or induction causes dangerous conditions for the application of primary tests to be conducted.

The Contractor shall allow for comprehensive pilot tests to be carried out and recorded. This shall cover loop impedance and insulation resistance measurements.

4. Feeders Fitted with their Inter-tripping Relays

The Contractor shall allow for comprehensive pilot tests to be carried out and recorded per relay. This shall cover loop impedance and insulation resistance measurements. Comprehensive pilot tests are to be carried out and recorded.

The Contractor shall allow for the cost of relay operation values and minimum operation voltage value to be recorded.

5. Master Trip and Auxiliary Relays – Per Element OR Trip Function

The Contractor shall include the cost of proving the operation of the relay within the scheme, i.e. Secondary wiring between the primary relay element and between the relay contacts and the trip circuit.

With the introduction of numerical relays additional aux functions are programmed into a standard relay. These output functions are used to drive the protection scheme's and need to be proven.

6. Busbar Protection

Bus Zone Protection: per zone of a complete board per substation.

The Contractor shall prove the operation of the relay within the scheme, i.e. secondary wiring between CT's and the relay element and between the relay contacts and the trip circuit. Current transformer tests are covered under a separate item in the schedule.

(vii) Timers: Per Unit

The Contractor shall prove the operations of the timer within the scheme, i.e. secondary wiring between timer and relay element.

(viii) Transformer Commissioning Tests and Checks

The following tests and checks assume that the transformer has either been factory tested and commissioned or has been previously in use and that oil quality tests have been carried out by the installation contractor.

Over-current and earth fault relay testing rates are not repeated here as a separate item covers these. The rates shall be based on the tests being carried out on a free-standing panel.

1. Buchholz Relay and Auxiliary Relay Element

The Contractor shall check the surge and gas operation of each Buchholz relay and proving the trip and alarm circuit between each Buchholz relay and auxiliary relay element and the functioning of each relay. The auxiliary relay contacts in the trip and alarm circuits shall be proved.

2. Oil Temperature Sensor Relay and Auxiliary Relay Element

The Contractor shall check the calibration and set point operation of the thermometer and proving the trip and alarm circuit between each oil temperature sensor and auxiliary relay element and the functioning of each relay. The auxiliary relay contacts in the trip and alarm circuits shall be proved.

3. Winding Temp Relay and Auxiliary Relay Element

The Contractor shall prove the trip and alarm circuit between each winding temperature sensor and auxiliary relay element and the functioning of each relay. The auxiliary relay contacts in the trip and alarm circuit shall also be proved.

4. Pressure Relief

The Contractor shall price the trip and auxiliary relay element and the functional of basic relay.

5. Restricted Earth Fault Relay

The Contractor shall prove the operation of the relay within the scheme, i.e. secondary wiring between the phase and neutral CTs and the relay element and between the relay contacts and the trip circuit. Current transformer tests are covered under a separate item in the schedule.

6. Differential Protection Scheme

The Contractor shall prove the operation of the relay within the scheme, i.e. secondary wiring between the primary and secondary phase CTs and the relay element and between the relay contacts and the trip circuit. Current transformer tests are covered under a separate item in the schedule. A separate rate is included in the schedule to allow for a transformer with a tertiary winding.

7. Neutral Earthing Resistor

The Contractor shall include the measurement and recording of the resistance of the neutral earthing resistor for comparison with the specified value. These tests are to be carried out with the use of computer aided test set.

8. Transformer Tap-Changer Mechanism

The Contractor shall check the operation of the tap-change mechanism and recording any malfunction observed. The rate shall not include rectifying defects or carrying out repairs on the mechanism.

9. Transformer Tap-Change Panel

The Contractor shall check the operation of the tap-changer and recording any malfunction observed.

10. Transformer Short Circuit Tests

The Contractor shall carry out short circuit tests on Minimum, Nominal & Maximum Tap Positions. These tests are to be carried out with the use of computer aided test set.

11. Transformer Ratio Tests

The Contractor shall carry out Ratio tests on all Tap Positions. These tests are to be carried out with the use of computer aided test set.

12. Transformer Zero Sequence Tests

The Contractor shall carry out zero sequence tests on Minimum, Nominal & Maximum Tap Positions. These tests are to be carried out with the use of computer aided test set.

13. Transformer Vector Group Tests

The Contractor shall carry out vector group tests on Nominal Tap Position. This test is to be carried out with the use of a computer aided test set.

14. Transformer Sweep Frequency Tests

The Contractor shall carry out sweep frequency tests on Nominal Tap Position. This test is to be carried out with the use of a computer aided test set.

15. Transformer OLTC Contact Resistance Tests

The Contractor shall carry out Resistance & continuity of OLTC tests on All Tap Positions. This test is to be carried out with the use of a computer aided test set.

(ix) Requirements for the on-site testing of protective equipment

1. Site Testing and Commissioning of Protection and Related Equipment

- Site testing and commissioning may only commence after the following work has been completed:
- All equipment has been erected and the relevant bus bar connected to and between the switchboards / relay control panels;
- All high voltage and low voltage cables have been connected to the switchgear and related equipment;
- All the bus-wiring between switchboards / relay control panels have been connected;
- All the relevant equipment has been labelled correctly;
- The D.C. auxiliary supply has been connected to the equipment;
- All the necessary safety equipment (i.e. danger notices, fire-fighting equipment and first aid equipment) has been fitted to the substation;
- The relevant high voltage pressure tests have been performed.

2. Preliminary Site Checks

- Prior to commencing any functional testing, the following preliminary checks shall be carried out.

- All new wiring done on site (i.e. Bus-wiring, D.C. auxiliary supply wiring, connection to CT's on VT's and outdoor switchgear, marshalling kiosks, etc.) shall be checked against the drawing using a continuity tester;
- All new lead numbers and all new lugs shall be checked for secure crimping and proper electrical contact;
- All terminal strips shall be checked for tightness and proper electrical contact;
- The D.C. auxiliary supply voltage shall be checked to ensure that the voltage is within the range of the protection relays and related equipment
- All new wiring, as well as CT and VT circuits, shall be tested at 500V D.C. with respect to earth, and the correct earthing of CT and VT circuits shall also be checked;
- The loop resistance of pilot wire cables (where applicable) shall be measured and noted in the site commissioning report;
- All pilot cable cores shall be tested at 500V D.C. with respect to earth and tests shall be done to ensure correct polarity of all pilot cores;
- All indication instruments shall be checked for damage and their pointers adjusted to zero.

(x) Functional Tests

Functional tests shall be carried out to ensure that all combinations of operation of the protection and control switching / selection result in the correct operation of circuit breakers, either by tripping or closing.

The following checks shall be carried out:

- All relays shall be operated in turn to trip or initiate auto-reclose of the breaker;
- All types of indication and alarms shall be checked for correct operation;
- The correct latching and resetting of master trip relays and other seal-in circuits shall be checked;
- Panel switches shall be checked for correct function and selection in all positions;
- Motor and transformer thermometers shall be checked for calibration and set point operation and the results noted in the site commissioning report;
- Buchholz relays on transformers shall be checked for surge and gas operation and the results noted in the site commissioning report.

1. Secondary Current / Voltage Injection Tests

- All measuring type protection relays, particularly those using multiple inputs, shall be tested for operation at various points (not less than 5) on their operating characteristics by means of secondary injection tests.
- The total circuit from the tests block, up to and including the relay, shall be tested by means of secondary injection and the results shall be noted in the site commissioning report.
- Only the characteristics of the required final relay settings should be checked and noted during commissioning tests.
- Secondary injection of Ammeter and Volt Meters to prove Operation & Calibration. Thermal function of ammeters to be proved. If selector switches are being used then wiring prior to selector switch to be used to prove functionality of selector switch.

## 2. Primary Current Injection Tests

Primary current injection tests shall be done to prove the following:

- That CT secondary currents reach the protection relays correctly;
- That metering CTs saturate at the correct current levels;
- That CT ratios and polarity are correct and that CTs were not damaged during transit and installation;
- Stability of differential protection for through-faults and correct operation for internal faults.
- The results of the above tests shall be noted in the site commissioning test report.

## 3. Circuit Breaker Trip Test

- All new circuit breakers shall be tested for correct mechanical and electrical operation;
- Comprehensive tests shall be done to prove all interlocking mechanisms, safety locks, auxiliary contacts, switcher and latching devices, the anti-pump timer circuits, trip circuit supervision, racking devices, SF6 gas alarm circuits, trip-testing circuits, etc.
- The resistance of the trip coils (main and back-up) shall be measured and noted in the site commissioning report.
- The circuit breaker no load tripping time for each phase shall be measured at least three times and the results noted in the site commissioning report.
- The circuit breaker no load closing time for each phase shall also be measured at least three times and the results noted in the site commissioning report.

## 4. Phasing of Primary Supplies

Only when the protection and control equipment has been tested as above can the equipment be energised at high voltage. However, to cover the possibility of incorrect primary connections, especially in relation to the existing HV network, phasing tests shall be carried out on all new equipment with respect to the existing system to which it is being connected as and when required.

## 5. On-Load Checks

Only after phasing tests have been completed can loads be supplied via the newly installed equipment. Load currents shall be used to carry out final checks on the polarity of voltage and current compared to power flow for multiple input relays.

The following tests (where applicable) shall be conducted, and the results noted in the site commissioning test report:

- Pilot wire differential protection stability tests;
- Phase angle tests of current and voltage to prove correct relay operation;
- Comparison of current magnitudes as a further check on CT ratios;
- VT ratio checks when the system voltage is close to 100%.
- Only when all load tests have been completed may the new equipment be placed in full-time operation.

## 6. Correction of Drawings

All alterations made on site to the equipment shall be marked up on the drawings. The marked-up drawings shall be returned to the original drawing office for correction of their master copies and thereafter be re-issued as "as commissioned drawings".

## 7. Witnessing of Commissioning Tests

The contractor shall inform the Manager, Electrical Services 14 days in advance of these tests so that a representative may be present to witness the site commissioning tests.

It should be noted that inspections and witnessing of the above tests will not relieve the contractor of his responsibility for meeting all the requirements of the specification.

### (xi) Protection Settings

Only settings approved by the Manager, Electrical Services are to be applied to the protection relays. Stickers indicating the date that the settings were changed are to be attached to the protection relay; these stickers are to reflect a signature as well as a date.

- Electromechanical Relays – Change Plug setting and time multiplier.
- Solid State – Relay with Dip Switches, Plug Setting, Time Multiplier as well as curves.
- Numerical – Application of settings for primary function of relay.
- Logics – Numerical relays have additional function over and above the primary function of the relay.
- Settings – Numerical relays have additional settings over and above the primary function of the relay.

### (xii) Site Commissioning Test Report

- A comprehensive site commissioning test report containing all the relevant test results shall be submitted to the Manager, Electrical Services after final commissioning has taken place.
- The above site commissioning test report shall be submitted irrespective of whether a representative of the Manager, Electrical Services was present during the tests or not.

### (xiii) Calibration of Test Equipment

- All testing equipment instruments, and injection test sets used during site commissioning tests shall carry a calibration stamp or sticker issued by a recognised calibration centre (i.e. Eskom, CSIR, Bureau of Standards, etc.)
- The date on the calibration stamp or sticker shall not be older than one year. The Manager, Electrical Services shall not accept equipment tested with this testing equipment.

### (xiv) Battery Charger

1. The Contractor shall test nominal supply voltage and current test operation of indication lamps, switches, relays and miniature circuit breakers.
  - Test Float voltage and current
  - Test boost voltage and current
  - Test equalizer voltage and current
  - Test ripple voltage

- Check alarm settings
  - Carry out visual inspection
2. Should the Contractor be required to carry out the installation of Battery Charger and Battery Cabinet, The A.C. supply to the charger is to be connected to a dedicated supply that is not on Earth Leakage. The Battery Charger is to be connected to an isolator and not a wall plug/socket. The cabling is to be secured to the wall by means of steel conduiting. The DC Supply is to be on its own circuit and is to be installed in steel conduit.

(xv) Batteries

The Contractor shall:

- Carry out visual inspection on cells
- Test and check electrolyte levels
- Check and clean corrosion on post and links
- Check torque bolts and nuts
- Carry out cell readings, voltage and SG (Lead Acid), voltage (NiCad)
- Clean cells
- Check battery environment

(xvi) Pressure Testing

The Contractor shall carry out Tan Delta Measurements for evaluating the dielectric condition of cables and transformers. When carried out at fixed intervals Tan Delta Testing (TD) will be the basis of predictive maintenance program. The contractor is to carry out approved TD Testing of Cables and Transformers as per the instruction of the client.

(xvii) Infra-Red (IR) Scanning

- The Contractor to carry out IR scanning on Municipal equipment. The Contractors operator must be trained to a level 1 thermograph.
- Contractor must have camera that operate at 50 hertz (real time).
- Have telescopic lens to work in HV yards have an anemometer required for wind speed and humidity. An infrared thermography shall be used to detect abnormal heating connections on the control panels and distribution boards and other related equipment.
- Complete detailed reports shall be submitted for each substation indicating each point scanned as well as the seriousness thereof. When the fault has been located, it shall be reported urgently to the responsible representative of the Electrical Department.

(xviii) Testing / Commissioning 11kV Panels / RMU's

- Ductor testing of bus bar connection shall be carried out with Micro OHM meter that is able to induce a minimum of 600 amps. Independent tests are to be carried out on the Red, White and Blue phase (panel to panel and not the whole board on one test).
- Connection of bus wiring between panels:
  - ensure correct side or wire is being used
  - all grommets are fitter per panel
  - all connection are tight and secure
  - continuity to be tested

(xix) Earth Mat Test

- The instrument used must determine the earth resistance measurement using the “fall of potential method”;
- For any Substation or Miniature Substation, the Earth Reading is to be below 1 Ohm;
- If structures in a Substation are to be tested, then a common point is to be chosen and all the other points are to be tested to that point by means of Ductor testing.

(xx) Data Sheet

Contractor to create a data sheet with the minimum following information but not limited to:

| Protection Testing   |                          |
|----------------------|--------------------------|
| Item                 | Checks to be Carried Out |
|                      |                          |
| Panel Data           | Substation Name          |
|                      | Panel Designation        |
|                      | Panel Number             |
|                      | Date Tested              |
|                      |                          |
| Circuit Breaker Data | Make                     |
|                      | Type                     |
|                      | Serial Number            |
|                      | Current Rating           |
|                      | Short Circuit Rating     |
|                      | Trip counter             |
|                      | Spring charge            |
|                      | Close function           |
|                      | Earth facilities         |
|                      | Date of last maintenance |
|                      |                          |
| Protection Relays    | Function                 |
|                      | Make                     |
|                      | Serial Number            |
|                      | Current / Voltage Rating |
|                      | Pick-ups                 |
|                      | Time Multiplier          |
|                      | High Set                 |
|                      | CT Ratio selected        |
|                      |                          |
| Current Transformer  | Make                     |
|                      | Serial Number            |
|                      | Function                 |
|                      | Type                     |
|                      | Class                    |
|                      | VA                       |
|                      | Ratio                    |
|                      | Knee Point               |
|                      | Earthing                 |
|                      |                          |
| Voltage Transformer  | Make                     |
|                      | Serial Number            |
|                      | Type                     |
|                      | Voltage                  |
|                      | Rating                   |

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|                 |                     |
|-----------------|---------------------|
|                 | Voltage factor      |
|                 | Class               |
|                 |                     |
| Battery Charger | Make                |
|                 | Serial Number       |
|                 | Type                |
|                 |                     |
| Batteries       | Make                |
|                 | Type                |
|                 | Cell Voltage Rating |
|                 | Cell Ah Rating      |

(xxi) Protection Grading

Currently the Municipality does not have a Dig Silent module available. It shall be required to carry out a network analysis and collect relevant data as and when required.

It shall further be required to carry out a protection grading and coordination study for the MV network where required. Compiling of a report and implement settings of the relays as per coordination calculation. The contractor is to maintain a model of the municipal medium voltage network to upgrade protection setting for changes in the network for the duration of this contract.

(xxii) Replacement of Protection Equipment

- The cost of major materials is to be excluded from the costing of the work. Minor material includes wire, lugs, identification numbers/tags, bolts, jigsaw blades, spray paint & masking tape. Allowance must be made for an approved blanking plate to be supplied where required.
- When protection relays are to be installed an allowance must be made for additional wiring due to the upgrade from Electromechanical to Numerical Relays.
- For umbilical cord installations, modifications need to be made on most panels for the inclusion of remote closing on the panels. This may include the Auxiliary wiring of the breakers.
- Panel labels are to be of an engraved type (black on a white background).

(xxiii) Close-Out Report

After each section of the works completed the contractor will supply an overall report which shall include but in not limited to the following:

- Data Sheet
- Drawing
- Cost
- Condition Report
- Asset Register Report

**C4: SITE INFORMATION**

The work included under this contract will be undertaken in several areas within the boundaries of the Kouga Municipality, which includes Humansdorp, Jeffreys Bay, St. Francis Bay, Cape St. Francis, Oyster Bay, Hankey and Patensie.

The site conditions are as follows:

|                          |                                                    |
|--------------------------|----------------------------------------------------|
| Altitude above sea level | Varies between $\pm$ 20m to 300m                   |
| Max temperature          | 40°C                                               |
| Min temperature          | 0°C                                                |
| Max relative humidity    | 90%                                                |
| Ambient atmosphere       | Coastal climate with severely corrosive conditions |